



COMPENDIUM OF ELECTRICITY REGULATIONS OF SOUTH ASIAN COUNTRIES

Volume 1 (Afghanistan, Bangladesh & Bhutan)

Compendium of Electricity Regulations of South Asian Countries

Volume-1

(Afghanistan, Bangladesh & Bhutan)

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FOREWORD

The U.S. Agency for International Development (USAID) has been working since 2000 to enhance regional energy cooperation in South Asia through its South Asia Regional Initiative for Energy (SARI/E) program. The program covers eight countries: Afghanistan, Bangladesh, Bhutan, India, Nepal, Pakistan, Sri Lanka and the Maldives. The first three phases of the program focused on building trust, raising awareness and assessing potential transmission interconnections. The fourth phase of the program, called South Asia Regional Initiative for Energy Integration (SARI/EI), launched in 2012, focuses on promoting regional energy integration by promoting cross-border power trade.

South Asia has witnessed a per capita GDP growth rate of more than six percent in the recent past. In order to sustain this growth, provide opportunities for entrepreneurs, and continue to develop new job opportunities, it is imperative that the countries in the region have access to clean energy. Cross-border power trade presents a viable and long-term solution to meet this increasing demand. Countries in the Bhutan-Bangladesh-India-Nepal (BBIN) region are already trading power, which is expected to increase significantly in the coming years.

One of the critical issues that needs to be addressed for enabling increased power trade is harmonization of electricity regulations among South Asian Countries. Without consistent and coherent regional regulatory framework in place, investment opportunities and consequently large-scale power trade that could benefit both importing and exporting nations may not happen. Risks associated with forging an intra-regional, cross-border power project would be greatly minimized if the participating countries adopt a complementary regulatory framework to facilitate cross border interconnection and electricity trade.

With a view to enhance electricity regulatory knowledge among the South Asian Countries, this report “The compendium of South Asia Electricity Regulations” has been developed under USAID’s SARI/EI program. It includes a compilation of all the energy regulations and legislations in the SAARC countries and will be a useful tool for anybody seeking information on regulations from any country.

I would like to take this opportunity to acknowledge the excellent work done by the SARI/EI team at IRADe in making the compendium. I hope this compendium of South Asia Electricity Regulations will be a useful resource document for regulators of South Asian Countries.

Thank you

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Foreword



Integrated Research and Action for Development (IRADe) is happy to present “The Compendium of Electricity Regulations of South Asia Countries”, developed under the South Asia Regional Initiative for Energy Integration (SARI/EI) program supported by the U.S. Agency for International Development (USAID).

In its current phase (2012-2022), SARI/EI program is working with all regional stakeholders to advance regional energy integration in South Asia, and move this vibrant region towards increased regional energy security through advancing Cross-Border Electricity Trade (CBET), eventually leading to regional energy market development.

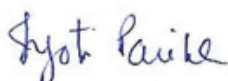
One of the fastest growing regions in the world, South Asia possesses rich and diverse energy resources; in particular, hydropower potential, that can be harnessed for closer energy integration, and progress in the journey towards achieving clean energy development and energy security in the region.

The South Asian region has boundless possibilities of spearheading development by synergizing its energy reserves, as well as the daily and seasonal diversities, that can be translated into inclusive development for all the countries involved. This would lead to reducing electricity shortages in the most optimal way, furthering the quest for 24x7 electricity supply to all consumers in South Asia.

“Developing the Compendium of Electricity Regulations of South Asia Countries” is another step in our endeavour towards better energy integration and cooperation within South Asian countries. Since the regulatory frameworks of power sector are at various stages of evolution in some South Asian countries, the Compendium is intended to act as a ready reference for all the member states to study and comprehend the regulatory frameworks in the region.

A harmonized and enabling regulatory framework will go a long way in fostering regional energy cooperation and increased Cross Border Energy Trade, leading the region towards inclusive and sustained socio-economic development.

I appreciate the efforts of IRADe’s technical team for painstakingly compiling the Compendium of South Asia Electricity Regulations, in the close cooperation with USAID. I sincerely hope that this set of volumes will be beneficial for all the power sector stakeholders in the region. The readers are welcome to give their feedback and suggestions.



Dr. Jyoti Parikh

Executive Director

Integrated Research and Action for Development (IRADe)

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1. Abbreviations

ANDS	Afghanistan National Development Strategy
AREP	Afghanistan Renewable Energy Policy
BERC	Bangladesh Energy Regulatory Commission
BD	Bangladeshi
BEA	Bhutan Electricity Authority
CEA	Central Electricity Authority
CERC	Central Electricity Regulatory Commission
CEERE	Council of Experts of Energy Regulators – Electricity
CBET	Cross border electricity trade
DV	Divehi
ERC	Electricity Regulatory Commission
IEGC	Indian Electricity Grid Code
ISTS	Inter State Transmission System
MEA	Maldives Energy Authority
MW	Mega Watt
MEW	Ministry of Energy and Water
NEPRA	National Electric Power Regulatory Authority
NEA	Nepal Electricity Authority
NP	Nepali
PV	Photovoltaic
PPA	Power Purchase Agreement
PSRA	Power Services Regulation Act
PSMP	Power System Master Plan
PUCSL	Public Utilities Commission of Sri Lanka
RAPSS	Remote Area Power Supply System
RE	Renewable Energy
RFP	Request for Proposal
SAFIR	South Asia Forum for Infrastructure Regulation
SAARC	South Asian Association for Regional Cooperation
TSO	Transmission and System Operator

2. Introduction

2.1 Context

The regulatory bodies for electricity industry in South Asia coordinate / co-operate with each other through multiple forms such as SAARC Council of Experts of Energy Regulators –Electricity (CEERE) and South Asia Forum for Infrastructure Regulation (SAFIR). The cooperation assumes more importance in the backdrop of signing of the SAARC Framework Agreement for Energy Cooperation (Electricity) by SAARC member states on November 2014. The framework agreement emphasized the need to promote regional power trade, for which some level of regulatory harmonization among the countries will be ideal. For a meaningful discussion on sharing of best practices, regulatory harmonization, and design of mutually compatible frameworks for cross border electricity trade (CBET), the stakeholders should have knowledge of the regulatory regime for electricity of other countries in the SAARC region also. However, the relevant regulations are spread across multiple websites, and evening multiple languages. It is in such a context that the 'SAARC compendium of electricity regulations' is compiled.

The compendium is expected to serve as:

1. A single reference document on electricity regulations in SAARC;
2. A source document for study of best practices on electricity regulations in SAARC; and
3. An enabling tool for discussions on regulatory harmonization and CBET.

However, the compendium needs to be viewed together with the original sources, as regulations are bound to get amended, revoked or revised regularly.

2.2 Methodology adopted for the compilation

Even though the compendium focuses on regulations that enable, or have the potential tenable CBET, it also tries to include relevant primary legislations, relevant policies and regulations that are not necessarily linked to CBET. For ease of reference, the regulations are classified under the following categories for each of the countries:

1. Primary legislation, key policies, rules and guidelines
2. Cross Border Electricity Trade
3. Technical Standards
4. Grid Code and System Operation
5. Transmission Investments and Pricing
6. Open Access
7. Power Trade, Exchanges and Markets
8. Licensing
9. Generation and Transmission Tariffs
10. Procedural matters
11. Miscellaneous regulations

The primary legislation and key policies have been included, as most of the regulations refer to the corresponding legislation / policy, and therefore their presence is crucial to obtain holistic understanding of the framework.

3. Summary of regulations in Afghanistan

3.1 Primary legislation, key policies, rules and guidelines

3.1.1 Power Services Regulation Act, 2016

The Power Services Regulation Act was approved by the Cabinet of Government of Afghanistan on 26 August 2015 and endorsed by its President on 26 July 2015. The law was enacted for regulation of electricity related affairs throughout the country. The Act envisages issue of licenses for production, import, export, transmission and distribution of electricity. The Ministry of Energy and Water is identified as the agency responsible for implementing the provisions of the Act at the state level. The Ministry is also empowered to provide electric energy services by itself or through other government institutions, foreign and domestic private sector or joint ventures.

i Original notification

(<http://policy.asiapacificenergy.org/sites/default/files/Power%20Services%20Regulation%20Act%202016.pdf>)

3.1.2 Renewable Energy Policy, 2015

The Ministry of Energy and Water (MEW) prepared the Afghanistan Renewable Energy Policy (AREP) which aims to provide a thrust and direction to the RE sector. The Policy is aligned to the Power Sector Master Plan (PSMP) and the Afghanistan National Development Strategy (ANDS) to set The Policy is aligned to the Power Sector Master Plan (PSMP) and the Afghanistan National Development Strategy (ANDS) to set a framework for deployment and growth of RE. The Policy sets a target for deploying 4500 – 5000 MW of RE capacity by 2032, which is equivalent of 95% of the total energy mix of 5000 – 6000 MW as per the targets of PSMP.

i Original notification

(<https://policy.asiapacificenergy.org/sites/default/files/Afghanistan-Renewable-Energy-Policy-English-and-Dari.pdf>)

3.2 Miscellaneous regulations

3.2.1 Afghanistan Energy Efficiency Policy. 2016

i Original notification

(<http://policy.thinkbluedata.com/sites/default/files/Afghanistan%20Energy%20Efficiency%20Policy%20%28Draft%202016%29.pdf>)

4. Summary of regulations in Bangladesh

4.1 Primary legislation, key policies, rules and guidelines

4.1.1 The Electricity Act, 2018

The Government of Bangladesh enacted the new Electricity Act in 2018. The new Act aims at ensuring power generation and quality service, developing the power transmission and distribution system, bringing reform and preventing power pilferage at residential, industrial or commercial areas.

i ***Original notification (Bangla)***

http://www.parliament.gov.bd/images/pdf/acts_of_10th_parliament/acts_of_19th_session/7.pdf

ii ***1910 Act with Amendments***

http://bdlaws.minlaw.gov.bd/print_sections_all.php?id=93

4.1.2 The Bangladesh Energy Regulatory Commission Act, 2003

The Bangladesh Energy Regulatory Commission (BERC) was established in 2004, with the enactment of the Bangladesh Energy Regulatory Commission (BERC) Act 2003. The objective of the BERC Act 2003 was to make provisions for the establishment of an independent regulatory commission for the energy sector to promote competition and transparency in the management and operation of the energy sector, protect consumer's interest and to create an environment for conducive development of the sector.

i ***Original notification, amended up to 2005***

<http://extwprlegs1.fao.org/docs/pdf/bgd65122.pdf>

4.1.3 Quick enhancement of electricity supply (Special provisions) Act, 2010

This Act made special provisions for facilitating urgent measures to enhance generation, transmission, transportation and marketing of electricity and energy to ensure uninterrupted supply of electricity and energy to meet demand. The Act also incorporated provisions to import electricity or energy from neighbouring countries/abroad and implementation of any transmission or distribution infrastructure required to support such imports.

i ***Original notification, amended up to 2015***

http://www.dpp.gov.bd/upload_file/gazettes/18893_67482.pdf

Policy Guidelines for enhancement of Private Sector Participation, 2008

([https://berc.portal.gov.bd/sites/default/files/files/berc.portal.gov.bd/policies/d52d7b21_ceaf_4769_8396_da4c7b94c3ac/Policy%20Guidelines%20for%20Commercial%20IPP,%202008%20\(English\).pdf](https://berc.portal.gov.bd/sites/default/files/files/berc.portal.gov.bd/policies/d52d7b21_ceaf_4769_8396_da4c7b94c3ac/Policy%20Guidelines%20for%20Commercial%20IPP,%202008%20(English).pdf))

Regulation on policy framework

([https://berc.portal.gov.bd/sites/default/files/files/berc.portal.gov.bd/legislative_information/7f3f70b4_ad25_400e_bee7_e1c201a722ca/\(%E0%A6%AC%E0%A6%BF%E0%A7%81%E0%A6%A6%E0%A7%8D%E0%A6%AF%E0%A7%8E%20%E0%A6%B8%E0%A6%9E%E0%A7%8D%E0%A6%9A%E0%A6%BE%E0%A6%B2%E0%A6%A8%20%E0%A6%9F%E0%A7%8D%E0%A6%AF%E0%A6%BE%E0%A6%B0%E0%A6%BF%E0%A6%AB\)%20%E0%A6%AA%E0%A7%8D%E0%A6](https://berc.portal.gov.bd/sites/default/files/files/berc.portal.gov.bd/legislative_information/7f3f70b4_ad25_400e_bee7_e1c201a722ca/(%E0%A6%AC%E0%A6%BF%E0%A7%81%E0%A6%A6%E0%A7%8D%E0%A6%AF%E0%A7%8E%20%E0%A6%B8%E0%A6%9E%E0%A7%8D%E0%A6%9A%E0%A6%BE%E0%A6%B2%E0%A6%A8%20%E0%A6%9F%E0%A7%8D%E0%A6%AF%E0%A6%BE%E0%A6%B0%E0%A6%BF%E0%A6%AB)%20%E0%A6%AA%E0%A7%8D%E0%A6))

%B0%E0%A6%AC%E0%A6%BF%E0%A6%A7%E0%A6%BE%E0%A6%A8%E0%A6%AE%E0%A6%B
 E%E0%A6%B2%E0%A6%BE,%20%E0%A7%A8%E0%A7%A6%E0%A7%A7%E0%A7%AC.pdf)

4.1.4 Private Sector Power Generation Policy of Bangladesh

The Government of Bangladesh established a Power Cell under the Ministry of Energy and Mineral Resources under this policy to promote development of the power sector, mobilize private sector investments, recommend power sector reforms and restructuring process etc. This policy was first notified in 1996 and was further revised in 2004.

i Original notification, with revisions up to 2004

Internet:http://powerdivision.portal.gov.bd/sites/default/files/files/powerdivision.portal.gov.bd/page/f6d0e100_e2d8_47e7_b7cd_e292ea6395d3/1.%20PSEGPB.pdf

4.1.5 Policy Guidelines for enhancement of Private Sector Participation, 2008

In order to further promote private sector participation in the power sector, harness competition, ensure optimal use and conservation of country's limited natural gas resources the Govt. of Bangladesh issued policy guidelines for enhancement of private sector participation in power sector in 2008. Under this policy, provisions were made to encourage private sector to set-up commercial power plants, to allow these power plants to supply electricity to large consumers and to distribution licensee based on tariff determined by BERC.

i Original notification

http://powerdivision.portal.gov.bd/sites/default/files/files/powerdivision.portal.gov.bd/page/f6d0e100_e2d8_47e7_b7cd_e292ea6395d3/10.%20PPP_English.pdf

4.1.5. Quick Enhancement of Power supply and Energy

An Act to make special provisions for facilitating effective and urgent measures to enhance the generation, transmission, transportation and marketing of electricity and energy with a view to ensuring uninterrupted supply of electricity and energy keeping pace with the demands of agricultural, industrial, commercial and domestic activities, and for quick implementation of the plan to import electricity and energy from abroad, if necessary, and for implementation of the decisions on urgent extraction and utilization of minerals related to energy.

Quick Enhancement of Electricity and Energy Supply (Special Provisions) Act, 2010

http://www.dpp.gov.bd/upload_file/gazettes/18893_67482.pdf

4.1.6 Power Pricing Framework

The Government of Bangladesh approved the Power Pricing Framework in 2004. This framework lays down the principles of tariff determination and to phase out prevailing distortions in the tariff structure.

Power Pricing framework

(https://powerdivision.portal.gov.bd/sites/default/files/files/powerdivision.portal.gov.bd/page/f6d0e100_e2d8_47e7_b7cd_e292ea6395d3/8.%20Power%20Pricing%20Framework.pdf)

4.2 Grid Code and System Operation

4.2.1 BERC Grid Code, 2012

The Grid Code of 2012 establishes procedures for operation of facilities that will use the transmission system. The code lays down information requirements and the procedures governing the relationship between the licensee and users. In addition, the code is designed to promote planning, development, maintenance and operation of an efficient and economical transmission system to facilitate competition in the generation and supply of electricity.

i *Original notification*

Local Version: Bangladesh\Grid code\Grid code\gridcode2012.pdf

BERC Grid Code, 2018

(https://berc.portal.gov.bd/sites/default/files/files/berc.portal.gov.bd/notices/82138506_08a5_4f09_a28a_b0c57ca9b367/Grid%20Code%202018%20-%2011.11.2018%20-%20Corrected%20Version.pdf)

4.3 Licensing

4.3.1 BERC License Regulations, 2016

The license regulations specify the application process, licensee fees and associated terms for grant of license related to energy sector in India. In case of electricity, this includes license for generation, transmission and distribution.

ii *2016 Amendment (Bangla)*

([https://berc.portal.gov.bd/sites/default/files/files/berc.portal.gov.bd/legislative_information/beb408af_62c9_4a26_9590_b91bc62d88dc/BERC%20License%20\(Amendment\)%20Regulations,%202016.pdf](https://berc.portal.gov.bd/sites/default/files/files/berc.portal.gov.bd/legislative_information/beb408af_62c9_4a26_9590_b91bc62d88dc/BERC%20License%20(Amendment)%20Regulations,%202016.pdf))

4.4 Generation and Transmission Tariffs

4.4.1 BERC Power Transmission Tariff Regulations, 2016

These regulations specify the terms and conditions for determination of revenue requirement and tariff for electricity transmission.

i *Original Notification*

[https://berc.portal.gov.bd/sites/default/files/files/berc.portal.gov.bd/legislative_information/7f3f70b4_ad25_400e_bee7_e1c201a722ca/\(%E0%A6%AC%E0%A6%BF%E0%A7%81%E0%A6%A6%E0%A7%8D%E0%A6%AF%E0%A7%8E%20%E0%A6%B8%E0%A6%9E%E0%A7%8D%E0%A6%9A%E0%A6%BE%E0%A6%B2%E0%A6%A8%20%E0%A6%9F%E0%A7%8D%E0%A6%AF%E0%A6%BE%E0%A6%B0%E0%A6%BF%E0%A6%AB\)%20%E0%A6%AA%E0%A7%8D%E0%A6%B0%E0%A6%AC%E0%A6%BF%E0%A6%A7%E0%A6%BE%E0%A6%A8%E0%A6%AE%E0%A6%BE%E0%A6%B2%E0%A6%BE,%20%E0%A7%A8%E0%A7%A6%E0%A7%A7%E0%A7%AC.pdf](https://berc.portal.gov.bd/sites/default/files/files/berc.portal.gov.bd/legislative_information/7f3f70b4_ad25_400e_bee7_e1c201a722ca/(%E0%A6%AC%E0%A6%BF%E0%A7%81%E0%A6%A6%E0%A7%8D%E0%A6%AF%E0%A7%8E%20%E0%A6%B8%E0%A6%9E%E0%A7%8D%E0%A6%9A%E0%A6%BE%E0%A6%B2%E0%A6%A8%20%E0%A6%9F%E0%A7%8D%E0%A6%AF%E0%A6%BE%E0%A6%B0%E0%A6%BF%E0%A6%AB)%20%E0%A6%AA%E0%A7%8D%E0%A6%B0%E0%A6%AC%E0%A6%BF%E0%A6%A7%E0%A6%BE%E0%A6%A8%E0%A6%AE%E0%A6%BE%E0%A6%B2%E0%A6%BE,%20%E0%A7%A8%E0%A7%A6%E0%A7%A7%E0%A7%AC.pdf)

4.5 Miscellaneous regulations

4.5.1 BERC Dispute Settlement Regulations, 2014

The dispute settlement regulations were first notified in 2014 and were then subsequently amended in 2016. The dispute settlement regulations specify procedures that will be followed in case of dispute arising between licensees or between licensees and consumers. These regulations also paved the way for the establishment of BERC Tribunal, A judicial wing of the commission responsible for adjudicating disputes between parties, conduct hearing, provide legal opinion to the commission upon re etc.

i *Original notification with 2016 amendment*

https://berc.portal.gov.bd/sites/default/files/files/berc.portal.gov.bd/legislative_information/0980d0e3_2717_45a2_b75e_099dbd7b0905/BERC%20Dispute%20Settlement%20Regulations,%202014.pdf

4.6.9 BERC Dispute settlement with amendment

([https://berc.portal.gov.bd/sites/default/files/files/berc.portal.gov.bd/legislative_information/9ea81f2d_8e1f_4f3b_80e9_1a3eeeadbbc1/BERC%20Dispute%20Settlement%20\(Amendment\)%20Regulations,%202016.pdf](https://berc.portal.gov.bd/sites/default/files/files/berc.portal.gov.bd/legislative_information/9ea81f2d_8e1f_4f3b_80e9_1a3eeeadbbc1/BERC%20Dispute%20Settlement%20(Amendment)%20Regulations,%202016.pdf))

4.5.2 Renewable Energy Policy of Bangladesh, 2008

i *Original notification*

http://www.sreda.gov.bd/d3pbs_uploads/files/policy_1_rep_english.pdf)

4.5.3 Policy Guidelines for Power Purchase from Captive Power Plant, 2007, revised up to 2019

(https://powerdivision.portal.gov.bd/sites/default/files/files/powerdivision.portal.gov.bd/page/f6d0e100_e2d8_47e7_b7cd_e292ea6395d3/Policy%20Guidelines.pdf)

5. Summary of Regulations in Bhutan

5.1 Primary legislation, key policies, rules and guidelines

5.1.1 Electricity Act 2001

Electricity Act is the primary legislation governing the electricity industry in Bhutan. The Act has enabling provisions for the restructuring of the power supply industry and for private sector participation. The Act provides mechanisms for licensing and regulating the operations of power companies by establishing Bhutan Electricity Authority as an autonomous body. The Act also defines the roles and responsibilities of suppliers and protect the interests of the general public.

i *Original notification*

<http://www.bea.gov.bt/wp-content/uploads/2013/12/eact01.pdf>

5.1.2 Sustainable hydro development policy, 2008

The policy is aimed to support the Royal Govt. of Bhutan's intention to develop hydropower projects in an accelerated manner in order to have an installed power generation capacity of at least 10,000 MW by 2020. The policy covers aspects such as project solicitation process, investment models, ownership models, project allotment process, treatment of royalty power, foreign direct investment, fiscal incentives, environmental requirements, social considerations and dispute resolution.

i *Original notification*

<http://www.moea.gov.bt/wp-content/uploads/2017/07/dhps1.pdf>

5.1.3 Domestic electricity tariff policy, 2016

This policy provides guidelines for domestic tariff determination, which will be applicable for all the customers, except in case of industrial customers who may opt to have separate PPA with the service provider, or in case of electricity from renewable energy projects. The policy tries to balance the twin objectives of ensuring availability of reliable, efficient, and affordable electricity for economic development and the need for attracting investments in the sector. The policy provides a collection of guiding principles for tariff determination.

i *Original notification*

<http://www.moea.gov.bt/wp-content/uploads/2017/07/dhps2-1.pdf>

5.2 Grid Code and System Operation

5.2.1 BEA Grid Code Regulation, 2008

The purpose of this regulation is to establish the basic rules, procedures, guidelines and standards to be followed by the various Licensees and all power utilities connected to the transmission system to plan, develop, maintain and ensure secure, reliable and efficient operation of the transmission system in economic manner. It aims to create a level playing field for all users, without any discrimination. The code covers roles and responsibilities of different entities, system planning, connection conditions, operations, and scheduling & dispatch.

i *Original notification*

<http://www.bea.gov.bt/wp-content/uploads/2013/12/Grid-Code-Regulation.pdf>

5.3 Generation and Transmission Tariffs

5.3.1 BEA Tariff Determination Regulation, 2016

This regulation specifies the terms and conditions for determination of electricity prices in accordance with the Electricity Act of Bhutan, 2001 and the Domestic Electricity Tariff Policy 2016, for electricity generation, transmission, system operation, distribution and supply. The regulation specifies the tariff approval process, form of economic regulation, methodology for determination of cost of supply, treatment of subsidies, and manner of determination of tariffs.

i ***Original notification, with amendments up to July 2016***

http://www.bea.gov.bt/wp-content/uploads/2016/12/Tariff%20Determination%20Regulation%202016%20_July.pdf)

5.3.2 BEA Guidelines for filing tariff applications, 2012

These guidelines outline the procedure and format for the tariff applications to be used by the Licensees for filing tariff applications to the Bhutan Electricity Authority for the determination of electricity prices in accordance with the Tariff Determination Regulation.

i ***Original notification***

<http://www.bea.gov.bt/wp-content/uploads/2013/12/Final-Draft-Guideline-for-Filing-Tariff-Applications-2012.pdf>

5.3.3 BEA Public hearing procedure, 2016 for electricity tariff determination

This document outlines the procedures for conducting the public hearing for electricity tariff determination in line with Bhutan Electricity Authority – Tariff Determination Regulation 2016, whenever the Bhutan Electricity Authority decides to conduct a public hearing for tariff determination. The procedure provides an opportunity for licensees to present their electricity tariff application and to allow consumers to raise their views and comments over the licensees' electricity tariff applications.

i ***Original notification***

http://www.bea.gov.bt/wp-content/uploads/2016/03/Public_Hearing_Procedure%20FINAL%201%20March%202016.pdf)

5.4 Procedural matters

5.4.1 BEA Regulatory Fees Regulation 2006

This regulation specifies the fee and charges that are payable in accordance with the Electricity Act, including fees for submission of application / petitions, and annual license fees.

i ***Original notification***

<http://www.bea.gov.bt/wp-content/uploads/2013/12/New-Regulatory-Fees-Regulation.pdf>

5.4.2 BEA Dispute Regulation Procedure, 2009

This procedure is applicable for settlement of disputes between Licensees and between Licensees and Customers relating to the enforcement of the Electricity Act of Bhutan, 2001 and Regulations, Codes, Standards and Licences thereof.

i ***Original notification***

<http://www.bea.gov.bt/wp-content/uploads/2013/12/dispute-regulation-procedure.pdf>

5.4.3 BEA Accounting and Reporting Regulations, 2006

These regulations provide for an efficient supervision of Licensees by the Authority, including reporting of financial and technical data related to electricity generation, transmission, distribution and supply and system operation.

i *Original notification*

<http://www.bea.gov.bt/wp-content/uploads/2013/12/Accounting-Reporting-Regulation.pdf>

5.4.4 BEA Guideline for processing Licences, 2011

These guidelines establish the procedures and routines to be applied by the BEA in processing applications and granting licences to any person or entity intending to carry out activities related to construction, generation, transmission, system operation, distribution, sale, supply and export or import of electricity in Bhutan in accordance to the Electricity Act, 2001.

i *Original notification*

<https://policy.asiapacificenergy.org/sites/default/files/Bhutan%20Electricity%20Authority%20-%20Guidelines%20for%20Processing%20of%20Licences%20%28EN%29.pdf>

5.4.5 BEA Guidelines for Fines, 2011

These guidelines assist the BEA in handling cases related to imposition of sanctions - both punitive as well as correctional - for any non-compliance by the Licensees with the provisions of the Act, regulations, standards, codes, licences, licence condition, contracts approved or directives issued by the Bhutan Electricity Authority, and concession agreements entered into between Licensees and the Government. The guidelines are also expected to assist in assessing the extent and degree of seriousness of the violation at hand.

i *Original notification*

http://www.bea.gov.bt/wp-content/uploads/2013/12/Guidelines_for_Fines.pdf

5.5 Miscellaneous regulations

5.5.1 BEA (Distribution Code) Regulations, 2006

i *Original notification*

<http://www.bea.gov.bt/wp-content/uploads/2013/12/DISTRIBUTION-CODE.pdf>

5.5.2 BEA Safety Code, 2008

i *Original notification*

<http://www.bea.gov.bt/wp-content/uploads/2013/12/Safety-Code-2008.pdf>

5.5.3 BEA Safety Regulations, 2008

i *Original notification*

<http://www.bea.gov.bt/wp-content/uploads/2013/12/Safety-Regulation-2008.pdf>

5.5.4 BEA Internal House Wiring Regulations, 2016

i *Original notification*

<http://www.bea.gov.bt/wp-content/uploads/2015/12/Internal-House-Wiring.pdf>

6. Summary of regulations in India

6.1 Primary legislation, key policies, rules and guidelines

6.1.1 The Electricity Act, 2003

The Electricity Act, 2003 received the assent of the President of India on 26 May 2003. The Act aimed to consolidate the laws relating to generation, transmission, distribution, trading and use of electricity and to take measures conducive to development of electricity industry. This included promotion of competition, protection of interests of consumers, supply of electricity to all areas, rationalization of electricity tariff, ensuring transparent policies regarding subsidies, promotion of efficient and environmentally benign policies, and establishment of Appellate Tribunal for Electricity. Some of the key aspects of the Act were the strengthening of the powers of regulatory commissions, and the introduction of open access that enables procurement of power from sources other than the distribution utilities, while continuing to use their physical network.

- i ***Original notification, with all amendments 2003, 2007 & 2018***
<http://www.cercind.gov.in/Act-with-amendment.pdf>

6.1.3 Tariff Policy, 2016

Ministry of Power, Govt. of India issued a revised Tariff Policy on 28 January 2016, in compliance with Section 3 of Electricity Act, 2003. The Tariff Policy is aimed at balancing the requirement of attracting adequate investments to power sector and ensuring reasonability of user charges for the consumers. The Policy also focuses on providing a consistent regulatory approach across the country. The Policy discusses the general approach to tariff, and functions specific aspects for generation, transmission and distribution functions. The policy recognises that promoting competition in different segments in the electricity industry will bring significant benefits by increasing operational efficiency and reducing capital costs and hence promotes procurement of future requirement of power by competitive bidding. The policy provides guidelines regarding return on investment, equity norms, depreciation, cost of debt, cost of management of foreign exchange risk, operating norms, multi-year tariff, and composite scheme, since these are key criteria for computing tariff. There are sections that comprehensively focus on generation of power (including renewable energy), transmission pricing, and distribution (including multi-year tariff framework, framework for revenue requirements and costs, tariff design, definition of tariff components and their applicability, and trading margins).

- i ***Original notification***
https://powermin.nic.in/sites/default/files/webform/notices/Tariff_Policy-Resolution_Dated_28012016.pdf

6.1.4 The Electricity Policy, 2005

The Electricity Policy, 2005 aims to provide an enabling framework for accelerated and more efficient development of the power sector. In addition to framing of National Electricity Plan, the policy also addresses issues such as rural electrification, generation, Transmission, distribution, recovery of cost of services and targeted subsidies, technology development, competition, financing, private sector participation, energy conservation and environmental issues.

Original notification

Internet:<http://www.derc.gov.in/ActsPolicies/ActsPolicesfiles/National%20Electricity%20Policy.pdf>

6.2 Cross Border Electricity Trade

6.1.2 Ministry of Power - Guidelines on cross border electricity trade

Ministry of Power, Govt. of India issued policy guidelines for CBET on 05 December 2016. An inter-ministerial working group prepared the guidelines in order to facilitate and promote CBET with greater transparency, consistency and predictability in regulatory approaches across jurisdictions and minimise perceptions of regulatory risks. The guidelines prescribed the institutional framework for matters relating to CBET, and qualifying criteria for entities participating in CBET. The guidelines also discuss cooperation with neighbouring countries, tariff, transmission systems, scheduling and accounting, grid operation, safety, and dispute resolution. In line with the requirements of the guidelines, on 14 December 2016, the Ministry of Power notified Member (Power System) of Central Electricity Authority as the 'Designated Authority' under the guidelines on CBET. The 'Designated Authority' will facilitate the process of approval and to lay down the procedure for cross border transaction and trade in electricity. On 25 April 2015, the Ministry of Power notified Member (Power System) of Central Electricity Authority as the 'Competent Authority' under the guidelines on CBET. The 'Competent Authority' will provide approvals for building independent transmission system for Indian generating stations supplying electricity exclusively to neighbouring countries.

i Original notification

<https://powermin.nic.in/sites/default/files/webform/notices/Guidelines%20for%20Cross%20Border%20Trade.pdf>

ii Notification on 'Designated Authority'

https://powermin.nic.in/sites/default/files/webform/notices/Guidelines_on_Cross_Border_Trade_of_electricity_letter_14_dec_2016.pdf

6.2.1 Designated Authority (Conduct of business) Rules, 2018

Ministry of Power, Govt. of India vide office Memorandum No.14/1/2016-Trans dated 14th December, 2016, had notified Member (Power System), CEA as the Designated Authority for carrying out various functions prescribed under the CBET Guidelines. The Designated Authority was to frame its own rules for Conduct of Business (CBR) for facilitating the process of approval and laying down the procedure for Cross Border Trade of Electricity between India and neighbouring countries and other related matters. Accordingly, the 'Designated Authority' has formulated the Designated Authority (Conduct of Business) Rules 2018 for facilitating cross border transaction and trade in electricity.

i Original notification

<http://www.cea.nic.in/reports/authorities/pspa2/cbte/designated/cbrnew.pdf>

6.2.2 Competent Authority (Conduct of business) Rules, 2017

In order to facilitate and promote cross border trade of electricity, Ministry of Power, Govt. of India had issued the guidelines on Cross Border Trade of Electricity (the Guidelines), vide office Memorandum No. 14/1/2016-Trans dated 05 December, 2016. Further, Ministry of Power, Govt. of India, vide office Memorandum No. 14/1/2017-Trans, dated 25 April 2017, had notified Member (Power System), CEA as the Competent Authority for discharging functions as specified under clause 8.2 of the Guidelines.

The 'Conduct of Business' Rules of the Competent Authority, issued on 03 October 2017 describes the procedure for undertaking tasks of the Competent Authority, such as issuing approval for building

independent transmission system by Indian generating stations supplying electricity exclusively to neighbouring countries.

i ***Original notification***

<http://www.cea.nic.in/reports/authorities/pspa2/cbte/competent/cbr.pdf>

Draft Conduct of Business Rules (CBR) of the Designated Authority (DA) for facilitating the Cross Border Trade of Electricity (CBTE),

<http://www.cea.nic.in/reports/authorities/pspa2/cbte/designated/cbr.pdf>

CERC CBTE Guidelines 2019

<http://www.cercind.gov.in/2019/regulation/CBTE-Regulations2019.pdf>

In the matter of Central Electricity Regulatory Commission (Cross Border Trade of Electricity) Regulations, 2019 Statement of Reasons

http://www.cercind.gov.in/2019/regulation/SOR_CBTE_Regulations_2019.pdf

Draft Conduct of Business Rules (CBR) of the Designated Authority (DA) for facilitating the Cross Border Trade of Electricity (CBTE).

http://cea.nic.in/reports/others/ps/pspa2/draft_da_cbte.pdf

6.3 Technical Standards

6.3.1 CEA (Technical standards for construction of electrical plants & lines) Regulations, 2010

The Central Electricity Authority (CEA) issued these regulations on 20 August 2010, in exercise of the powers conferred upon it under section 177(2) of the Electricity Act, 2003. The regulations provide the technical standards for construction of thermal generating stations, hydroelectric generating stations, sub-stations, switchyards, and electricity transmission & distribution lines.

i ***Original notification, 2010***

http://www.cea.nic.in/reports/regulation/tech_std_reg.pdf

ii ***2015 Amendment***

http://www.cea.nic.in/reports/regulation/tech_std_reg_062015.pdf

6.3.2 CEA (Installation and operation of meters) Regulations, 2006

These regulations, issued on 17 March 2006 are commonly referred to as CEA Metering Regulations. The regulations are applicable to meters installed and to be installed by all the generating companies and licensees who are engaged in the business of generation, transmission, trading, distribution, supply of electricity and to all categories of consumers. The regulations provide directions and guidance on standards, location, accuracy class, installation, operation, testing and maintenance, access, sealing, safety, anti-tampering features, quality assurance, calibration, and adoption of new technologies for correct accounting, billing and audit of electricity. The Regulations were amended in 2014 to specify the standards for metering of grid interactive Renewable Energy (RE) installations of 415 V and below, including net-meters installed at homes.

i ***Original notification, 2006***

http://www.cea.nic.in/reports/regulation/meter_reg.pdf

ii ***Amendment of 2010***

http://www.cea.nic.in/reports/regulation/amend_meter_reg.pdf

iii ***Amendment of 2014***

http://www.cea.nic.in/reports/regulation/amend_15122014.pdf

6.3.3 CEA (Technical standards for connectivity to the grid), 2007

CEA issued these regulations on 21 February 2007 for regulating the technical standards for connectivity to the grid. These regulations are applicable to all the users, requesters, Central Transmission Utility and State Transmission Utility. The aim of these regulations is to ensure the safe operation, integrity and reliability of the grid. There are detailed grid connectivity standards applicable for new as well as existing generating units, transmission lines, substation, distribution systems and bulk consumers.

i ***Original notification, 2007***

http://www.cea.nic.in/reports/regulation/grid_connect_reg.pdf

ii ***Amendment of 2012***

http://www.cea.nic.in/reports/regulation/grid_connectivity_12112013.pdf

6.3.4 CEA (Grid Standards) Regulations, 2010

CEA issued these regulations on 26 June 2010 to provide the requisite framework for operation and maintenance of electricity grid. The regulations are applicable for all entities, appropriate load despatch centres and regional power committees. These regulations specify standards for O&M of transmission lines in terms of voltage range, fault clearance time and harmonic distortion. The regulations also provide directions on maintenance planning, operational coordination, islanding schemes, categorisation of grid incidents, restoration of grid, safety procedures, maintenance management and disaster management.

i ***Original notification, 2010***

http://www.cea.nic.in/reports/regulation/grid_standards_reg.pdf

Deviation Settlement Mechanism and Related Matters:-

6.4.2 CERC (Deviation Settlement Mechanism) Regulations, 2014

The regulations on 'Deviation Settlement Mechanism' were issued by CERC on 06 January 2014, which replaced the erstwhile 'Unscheduled Interchange Mechanism' for settlement of deviations between scheduled and actual generation / drawl by various inter-state constituents. The objective of these regulations is to maintain grid discipline and grid security as envisaged in the Indian Electricity Grid Code, 2010 through the commercial mechanism for deviation settlement through drawl and injection of electricity by the users of the grid. The regulations provide the framework for calculation of the charges for system deviations for all time blocks. An amendment to the main Regulations introduced a separate deviation settlement mechanism for wind and solar power generators connected to inter-state network.

i ***Original notification, amended up to 2016***

<http://cercind.gov.in/2016/regulation/14.pdf>

6.4.3 CERC (Fees and Charges of Regional Load Despatch Centre) Regulations, 2015

These regulations, issued on 18 May 2015, deals with the determination of fees and charges, which are to be collected by Regional Load Despatch Centres from the generating companies, distribution licensees, inter-State transmission licensees, buyers, sellers and inter-State trading licensees. These regulations provide guidelines on the determination of fees and charges, truing up of annual charges, computation of capital costs, additional capitalisation and decapitalisation, debt-equity

ratio, and load despatch centre development fund. The regulations also prescribe the components of fees and charges, annual charges, system operation charges and market operation charges.

i ***Original notification***

<http://cercind.gov.in/2016/regulation/8.pdf>

6.4.4 CERC (Measures to relieve congestion in real time operation), 2009

CERC issued these regulations to provide measures to relieve congestion in real time system operation. To relieve congestion in the real time, a congestion charge shall be applied which will be payable by a Regional entity or entities causing congestion in inter-regional or intraregional link. These regulations provide a framework for determination of congestion charges, and maintaining congestion charge account by each Regional Load Despatch Centre.

Original notification, 2009

http://cercind.gov.in/Regulations/Congestion-Charge-Regulation_fnal_22.12.pdf

Corrigendum to original notification, 2010

http://cercind.gov.in/Regulations/corrigendum_to_Congestion_Charge_Regulation.pdf

6.5 Sharing of Transmission Charges and Losses

6.5.1 CERC (Sharing of ISTS charges & losses) Regulations, 2010

These regulations were issued by CERC on 15 June 2010, for specifying the principles of determination of transmission charges and how the same are to be shared between users. The regulations guided the transition from postage stamp based transmission pricing to a point of connection based transmission pricing.

i ***Original notification, amended up to 2016***

<http://cercind.gov.in/2016/regulation/15.pdf>

ii ***2016 notification on extension on validity of regulations***

<http://cercind.gov.in/2016/regulation/126.pdf>

ii ***Fifth amendment, 2017***

http://cercind.gov.in/2017/regulation/137_N.pdf

CERC Miscellaneous Regulations: -

6.5.2 CERC (Rates and T&C for use of intervening transmission facilities) Regulations, 2010

These regulations, issued by CERC on 23 September 2010, are applicable where the intervening transmission facilities incidental to inter-State transmission owned or operated by a licensee, are used or proposed to be used by any trading licensee or distribution licensee for transmission of power through long-term access, medium-term open access or short-term open access, and where the contracting parties have failed to mutually agree on the rates and charges for the usage of such intervening transmission facilities. Due to this, the regulations also require that there be an identifiable contract path. The regulations provide voltage wise transmission loss for every 50 KM of transmission line, and ceiling rates of transmission charges for different voltage levels.

i ***Original notification***

<http://cercind.gov.in/2016/regulation/3.pdf>

6.5.3 CERC (Grant of Regulatory Approval for execution of ISTS) Regulations, 2010

CERC issued these regulations on 31 May 2010 to streamline the procedure for according regulatory approval to Central Transmission Utility for network expansion in consonance with the National Electricity Plan. The regulations are applicable for providing approval of CERC, in case of transmission schemes identified in National Electricity Plan, or transmission schemes for generating stations who have sought long-term access, but with incomplete power purchase agreements, or in case of transmission schemes for solar parks authorized by the Central Government. The regulations specify evaluation criteria under which CERC will evaluate and approve the proposed schemes, and manner of recovery of charges

- i ***Original notification, amended up to 2015***
<http://cercind.gov.in/2016/regulation/13.pdf>

6.5.4 CERC (Sharing of Revenue from utilization of transmission assets) Regulations, 2007

The regulations on 'Sharing of revenue derived from utilization of transmission assets for other businesses were issued by CERC on 27 December 2007. The regulations specify how the revenue from other businesses (such as fibre optic communication) of the transmission licensee are to be shared in such a manner so as to reduce the overall transmission charges, and how the accounts are to be kept segregated between businesses.

- i ***Original notification***
<http://cercind.gov.in/2016/regulation/24.pdf>

6.5.5 CERC (Regulation of Power Supply) Regulations, 2010

CERC issued these regulations on 28 September 2010, to deal with scenarios where there is specific provision in the agreement between the beneficiaries and generating company or the transmission licensee for regulation of power supply in case of non-payment of outstanding dues or non-maintenance of payment security. The regulation provides in detail the guidelines to be followed by the licensees on the defaulting entity, in case of outstanding dues or no maintenance of Letter of Credit/any other agreed payment security mechanisms.

- i ***Original notification, amended up to 2016***
<http://cercind.gov.in/2016/regulation/26.pdf>

6.3.5 CERC (Communication system for inter-state transmission) Regulations, 2017

CERC issued these regulations on 15 May 2017 to lay down the rules, guidelines and standards to be followed by various persons and participants in the system for continuous availability of data for system operation and control including market operations. These regulations apply to the communication infrastructure to be used for data communication and tele-protection for the power system at national, regional and inter-State level and also include the power system at the state level till appropriate regulation on communication standards is framed by the respective state electricity regulatory commissions.

- i ***Original notification, 2017***
<http://cercind.gov.in/2017/regulation/134.pdf>

6.3.6 CERC (Standards of Performance of transmission licensees) Regulations, 2012

CERC issued these regulations on 17 September 2012, to specify standards of performance for the inter-state transmission licensees and to ensure their compliance. The regulations also aim to provide for an efficient, reliable, coordinated and economical system of electricity transmission, non-

adherence of which would entitle the affected parties to compensation. All inter-state transmission licensees are required to comply with the standards of performance specified in these regulations, such as standards relating to transmission system availability, restoration time, and methodology for compensation.

i ***Original notification***

http://cercind.gov.in/2012/regulation/SOP_Regulations_2012-25ep-notification.pdf

Fee and charges of RLDC and other related matters: -

<http://www.cercind.gov.in/2016/regulation/8.pdf>

6.6 Open Access

6.6.1 CERC (Grant of Connectivity, Long-term & Medium-term Open Access) Regulations, 2009

These regulations, issued by CERC on 07 August 2009, apply for the grant of connectivity, long-term access and medium-term open access, in respect of inter-State transmission system. The regulations specify procedure for making applications for connectivity and open access, priority of applications, nodal agency for each type of open access, eligibility conditions and related aspects.

i ***Original notification, amended up to 2016***

<http://cercind.gov.in/2016/regulation/11.pdf>

ii ***Sixth amendment, 2017***

<http://cercind.gov.in/2017/regulation/127.pdf>

6.6.2 CERC (Open Access in inter-State Transmission) Regulations, 2008

These regulations, issued by CERC on 25 January 2008, provides the procedures and conditions for short-term open access, both for bilateral and collective (power exchange) transactions. The regulations cover areas such as submission of open access application, payment of operating charges, payment of transmission charges, obtaining concurrence of state load despatch centre, congestion management, scheduling of transactions, and curtailment in case of transmission constraints.

i ***Original notification, amended up to 2016***

<http://cercind.gov.in/2016/regulation/10.pdf>

ii ***Fourth amendment, 2016***

http://cercind.gov.in/2016/regulation/Noti_125.pdf

6.7 Power Trade, Exchanges and Markets

6.7.1 CERC (Power Market) Regulations, 2010

These regulations, issued by CERC on 20 January 2010 govern the 'Over the Counter' (OTC) markets, delivery based power exchange market, and other exchanges (such as electricity based derivatives). It specifically details market design and terms & conditions for power exchanges, including eligibility criteria, application procedure and compliance norms. The regulations also specify the terms and conditions for setting up clearing corporation.

i ***Original notification, amended up to 2016***

<http://cercind.gov.in/2016/regulation/7.pdf>

Fixation of Trading Margins: -

6.7.2 CERC (Fixation of Trading Margin) Regulations, 2010

CERC issued these regulations on 11 January 2010, to fix a ceiling for trading margin that can be charged by inter-state licensees for inter-state trading transactions. As per these regulations, inter-state trading licensees shall not charge trading margin exceeding seven (7.0) paisa/kWh in case the sale price is exceeding Rupees three (3.0)/kWh and four (4.0) paise/kWh in case the sale price is less than or equal to Rupees three (3.0)/kWh.

- i *Original notification, amended up to 2016*
<http://cercind.gov.in/2016/regulation/5.pdf>

6.8 Grant of Transmission licence :-

6.8.1 CERC (Procedure, T&C for grant of Transmission license) Regulations, 2009

These regulations, issued on CERC on 26 May 2009 mainly deals with application for grant and issue of inter-state electricity transmission license, including eligibility criteria, application process, and license terms and conditions.

- i *Original notification, amended up to 2016*
<http://cercind.gov.in/2016/regulation/17.pdf>

6.9 Grant of trading licence:

6.9.1 CERC (Procedure, T&C for grant of trading license) Regulations, 2009

These regulations, issued on CERC on 16 February 2009 mainly deals with application for grant and issue of inter-state electricity trading license, including eligibility criteria, application process, and license terms and conditions.

- i *Original notification, amended up to 2016*
<http://cercind.gov.in/2016/regulation/18.pdf>

6.10 Indian Electricity Grid Code

The Indian Electricity Grid Code (IEGC) is a regulation made by the Central Commission in exercise of powers under clause (h) of subsection (1) of Section 79 read with clause (g) of sub-section (2) of Section 178 of the Act. The IEGC also lays down the rules, guidelines and standards to be followed by various persons and participants in the system to plan, develop, maintain and operate the power system, in the most secure, reliable, economic and efficient manner, while facilitating healthy competition in the generation and supply of electricity.

6.10.1 CERC (IEGC) Regulations 2010, Consolidated up to 4th Amendment

<http://www.cercind.gov.in/2016/regulation/9.pdf>

6.10.2 CERC (IEGC) (5th Amendment) Regulations 2017

<http://www.cercind.gov.in/2017/regulation/130.pdf>

6.10.3 CERC (IEGC) (6th Amendment) Regulations 2019

http://www.cercind.gov.in/2019/draft_reg/IEGC-6thAmendment2019.pdf

6.11 Connectivity, Long Term Access & Medium Term Open Access

6.11.1 CERC (Grant of Connectivity, LTA and MTOA in inter-State Transmission and related matters) Regulations 2009, Consolidated up to 5th Amendment

<http://www.cercind.gov.in/2017/regulation/127.pdf>

6.11.2 CERC (Grant of Connectivity LTA and MTOA in inter-State Transmission and related matters) (6th Amendment) Regulations 2016

http://www.cercind.gov.in/2017/regulation/SOR_127.pdf

6.11.3 CERC (Grant of Connectivity LTA and MTOA in inter-State Transmission and related matters) (7th Amendment) Regulations 2019

[http://www.cercind.gov.in/2019/regulation/Connectivity%20Regulations%20\(7th%20Amendment\).pdf](http://www.cercind.gov.in/2019/regulation/Connectivity%20Regulations%20(7th%20Amendment).pdf)

6.11.4 Connectivity LTA and MTOA detailed procedure 2009

[http://www.cercind.gov.in/2009/December09/Detailed%20Procedure\(approved\).pdf](http://www.cercind.gov.in/2009/December09/Detailed%20Procedure(approved).pdf)

6.11.5 Connectivity LTA and MTOA detailed procedure, Amendment dated 5th June 2015

https://webapps.powergrid.in/ctu/docs/files/regulations_detailed_procedures/2016/7/NOTIFICATION_OF_CERC.pdf

6.11.6 Connectivity LTA, MTOA detailed procedure, Amendment dated 17th Feb. 2017

https://webapps.powergrid.in/ctu/docs/files/GRANT_OF_CONNECTIVITY_MTOA_LTA_ISTS.pdf

6.12 CERC Conduct of Business Regulations

6.12.1 CERC (Conduct of Business) Regulations 1999

<http://www.cercind.gov.in/2016/regulation/27.pdf>

7. Summary of regulations in Maldives

7.1 Primary legislation, key policies, rules and guidelines

7.1.1 Law 4/96 (Provision of Utility Services), 2012 [DV]

The law delegates various duties and functions related to regulation of electricity industry, to the Maldives Energy Authority (MEA) - an independent regulatory organization affiliated with the Ministry of Environment and Energy.

i *Original notification (Divehi)*

http://www.energy.gov.mv/v1/wp-content/files/lawsandregulations/D01-Law_No._4-96.pdf

7.1.2 Electricity Regulation of Maldives, 2012 [DV]

i *Original notification (Divehi)*

http://www.energy.gov.mv/v1/wp-content/files/lawsandregulations/D02-Downloads-MEA_Qawaaidhu01.pdf

7.2 Technical Standards

7.2.1 MEA Metering Scheme Regulations

The 'Metering scheme regulations' were formulated by Maldives Energy Authority (MEA) to define the characteristics and requirements for the metering system and metering activities in the distribution network of the Republic of Maldives. The standards cover parameters such as location of meters, meter configuration, minimum capabilities of meters, technical requirements of associated metering equipment, meter reading, and testing and certification of meters.

i *Original notification*

http://www.energy.gov.mv/v1/wp-content/files/lawsandregulations/Metering_Scheme_Regulation.pdf

7.2.2 MEA Installation Standards Regulations

The 'Installation standards regulation' prepared by Maldives Energy Authority (MEA) prescribes the installation standards for electrical installations (overhead lines and underground cables), switchgears, control gears and generating stations (including RE power plants). The standards cover parameters such as voltage levels, minimum distance to be maintained, insulation and protection.

i *Original notification*

http://www.energy.gov.mv/v1/wp-content/files/lawsandregulations/Installation_Standards_Regulations.pdf

7.3 Licensing

7.3.1 MEA Energy (Electricity Licensing) Regulations 2012

These Regulations, also referred to as 'Electricity (Applications for Licenses and Exemptions) Regulation, 2012' were made by MEA on recommendations of the Ministry of Environment and Energy, under the Public Utilities Law 4/96 (the Act). The regulations specify the manner of submission of application for grant of license to carry out generation, transmission, distribution and

supply of electricity. The regulations also specify license application formats, documents that are to be submitted along with the application, application fees and the process for grantor license.

i ***Original notification***

http://www.energy.gov.mv/v1/wp-content/files/lawsandregulations/Regulations_on_License_for_Electricity_Operators.pdf)

7.4 Miscellaneous regulations

7.4.1 Net Metering Regulation 2015 [DV]

i ***Original notification (Divehi)***

<http://www.energy.gov.mv/v1/wp-content/files/lawsandregulations/20151230-Reg-NetMetering2015.pdf>

8. Summary of regulations in Nepal

8.1 Primary legislation, key policies, rules and guidelines

8.1.1 Electricity Act, 1992

Nepal's Electricity Act of 1992 provided the basis for private participation in electricity industry, with a clearly laid out licensing framework for generation and transmission activities. The Act also led to the creation of a dedicated department for hydropower development (Dept. of Electricity Development) within the Ministry of Energy. The Act remains the primary legislation on all matters relating to licensing in the electricity industry.

i *Amended up to 2002*

http://moen.gov.np/pdf_files/Electricity_Act_2049-english.pdf

8.1.2 Electricity Regulatory Commission Act, 2017 [NP]

The ERC Act of 2017 made provisions for setting up an independent regulatory commission for the regulation of electricity industry. The Act received the assent of President of Nepal on September 2017, and came into effect from December 2017. As per the act, the regulatory commission's powers, duties and functions involve market competition, protection of consumer interests, technical standards, tariff determination, formulation of mechanism for whole sale power purchase, dispute resolution etc.

i *Original notification (Nepali)*

http://moen.gov.np/pdf_files/electricity_regulatory_commission_act-2074.pdf

8.1.3 Hydropower development policy, 1992

The hydropower development policy of 1992 was formulated with the objective of supplying clean power, for the utilization of country's citizens and industries, by utilizing the hydropower potential, with private sector investments from within country and abroad. The policy promised assistance to hydropower projects through tax exemptions, land acquisition, protection from nationalization etc.

i *Original notification (Nepali)*

http://moen.gov.np/pdf_files/hydropower_development_policy_2049.pdf

8.1.4 Hydropower development policy, 2001

The hydropower development policy of 2001 emphasized on generating electricity at low cost by utilizing the water resources available in the country, extension of reliable and qualitative electricity service throughout the kingdom, tie-up of electrification with economic activities, rendering support to the development of the rural economy by extending rural electrification and development of hydropower as an exportable commodity.

i *Original notification (Nepali)*

http://moen.gov.np/pdf_files/hydropower_development_policy_2001.pdf

8.2 Grid code and system operations

8.2.1 NEA's Grid Code

The 'Grid Code' is an internal document of the Nepal Electricity Authority (NEA). The code specifies rules, regulations and technical as well as operating requirements that each Grid User must meet

to ensure quality of power supply, security and reliability of the Power System. The document also defines obligations and responsibilities of the Grid Owner (NEA Transmission and System Operation business group (TSO)), and all other parties using the Grid.

- i **Original version**
Not available

8.3 Licensing

8.3.1 Electricity Regulations, 1993

The Electricity Regulations, 1993 was notified in order to support and implement the provisions of Electricity Act 1992. The Regulations dealt with detailed methodology for licensing, license application formats, technical standards for electricity and safety measures.

- i **Amended up to September 2007**
http://moen.gov.np/pdf_files/Electricity_Regulation_2050-english.pdf
- ii **Fourth Amendment, 2016 (Nepali)**
http://www.moen.gov.np/pdf_files/Electricity-Regulation-2073-Fourth-Amendment.pdf

8.4 Generation and transmission tariffs

8.4.1 Electricity tariff fixation rules, 1994

The electricity tariff fixation rules, 1994 were notified under power granted to GoN under section 40 of Electricity Act, 1992. The rules provided for the creation of an Electricity Tariff Fixation Commission, and also prescribed procedure for fixation of tariff and other charges.

- i **Amended up to 1999**
<http://www.doed.gov.np/policy/electricity-tariff-fixation-rules-english.pdf>

8.5 Miscellaneous regulations

8.5.1 Electricity theft control act, 2002

- i **Amended up to 2010**
<http://www.lawcommission.gov.np/en/documents/2015/08/electricity-theft-controlact-2058-2002.pdf>

8.5.2 Grid connected alternative energy procedures, 2018 [NP]

- i **Original notification (Nepali)**
http://moen.gov.np/pdf_files/Grid-Connected-Alternative-Energy-Working-Procedure-2074.pdf

8.5.3 Foreign currency exchange directives, 2018 [NP]

- i **Original notification (Nepali)**
http://moen.gov.np/pdf_files/Electricity_Leakage_Control_Act_2058-nepali.pdf

8.5.4 NEA's community electricity distribution bylaws, 2003

- i **Original notification**
http://www.nea.org.np/admin/assets/uploads/supportive_docs/Community%20Electricity%20Distribution%20Bylaw.pdf

9. Summary of regulations in Pakistan

9.1 Primary legislation, key policies, rules and guidelines

9.1.1 Regulation of Generation, Transmission & Distribution of Electric Power Act, 1997

The Electric Power Act of 1997 provides for the regulation of generation, transmission and distribution of electric power in the whole of Pakistan. The Act makes provision for the establishment of National Electric Power Regulatory Authority (NEPRA) and makes it responsible for regulating the provision of electric power services, including grant of licenses for generation, transmission and distribution of electric power, prescribe procedures and standards for investment programs across the electric power value chain etc.

i. **Original notification with amendments up to 2011**

Internet:<http://www.nepra.org.pk/Legislation/Act/Regulation%20of%20Generation%20Transmission%20and%20Distribution%20of%20Electric%20Power%20Act%201997%20along%20with%20all%20amendments.pdf>

ii. **Eighth amendment, 2012**

[http://www.nepra.org.pk/Legislation/1-Act/8th%20Amendment%20\(No.%20F22\(14\)12012-Legis.\).PDF](http://www.nepra.org.pk/Legislation/1-Act/8th%20Amendment%20(No.%20F22(14)12012-Legis.).PDF)

9.2 Cross Border Electricity Trade

9.2.1 NEPRA (Import of Electric Power Regulations), 2017

The Import of Electric Power Regulation came into force in 2017. These regulations specifies the process that will be followed in case of import of electric power into Pakistan. The regulations also authorize NEPRA to check the power rate (Tariff) proposed by the seller to be reasonable and prudent.

i. **Original notification**

[http://www.nepra.org.pk/Legislation/3-Reg/3.17%20IMPORT%20OF%20ELECTRIC%20POWER/Notification%20\(SRO%20549\(I\)2017\)%20Import%20Electric%20Power%20Regulations,%202017.PDF](http://www.nepra.org.pk/Legislation/3-Reg/3.17%20IMPORT%20OF%20ELECTRIC%20POWER/Notification%20(SRO%20549(I)2017)%20Import%20Electric%20Power%20Regulations,%202017.PDF)

ii. **Corrigendum**

[http://www.nepra.org.pk/Legislation/3-](http://www.nepra.org.pk/Legislation/3-Reg/3.17%20IMPORT%20OF%20ELECTRIC%20POWER/Corrigendum.pdf)

[Reg/3.17%20IMPORT%20OF%20ELECTRIC%20POWER/Corrigendum.pdf](http://www.nepra.org.pk/Legislation/3-Reg/3.17%20IMPORT%20OF%20ELECTRIC%20POWER/Corrigendum.pdf)

9.3 Technical Standards

9.3.1 NEPRA Power Safety Code for Transmission & Distribution Licensees, 2015

The Power Safety Code for Transmission and Distribution Licensees came into effect in 2015. The safety code proposes instructions to be followed by licensees to ensure that licensee's networks are planned, operated, developed and maintained in an efficient and safe way without compromising on safety of any kind related to system, personnel and others.

i. **Original notification**

<http://www.nepra.org.pk/Legislation/6-Codes/6.4%20Power%20Safety%20Code%20for%20Transmission%20&%20Distribution%20Licensees%202015/POWER%20SAFETY%20CODE%20FOR%20TRANSMISSION%20&%20DISTRIBUTION%20LIC.pdf>

9.3.2 NEPRA Performance Standards (Transmission) Rules, 2005

The performance standards rules for transmission licensee came into effect in 2005. The performance standard rules lays down operational performance criteria for transmission system and also operational performance criteria for reporting purposes.

i. **Original notification**

[http://www.nepra.org.pk/Legislation/2-Rules/2.7%20NEPRA%20Performance%20Standards%20\(Transmission\)%20Rules,%202005/Performance%20Standards%20\(Transmission\)%20Rules%202005.pdf](http://www.nepra.org.pk/Legislation/2-Rules/2.7%20NEPRA%20Performance%20Standards%20(Transmission)%20Rules,%202005/Performance%20Standards%20(Transmission)%20Rules%202005.pdf)

ii. **2014 Amendment**

[http://www.nepra.org.pk/Legislation/2-Rules/2.7%20NEPRA%20Performance%20Standards%20\(Transmission\)%20Rules,%202005/1st%20Amendment%20\(S.R.O.65\(I\)2014\).PDF](http://www.nepra.org.pk/Legislation/2-Rules/2.7%20NEPRA%20Performance%20Standards%20(Transmission)%20Rules,%202005/1st%20Amendment%20(S.R.O.65(I)2014).PDF)

9.3.3 NEPRA Performance Standards (Generation) Rules, 2009

The performance standards rules for generation facilities came into effect in 2009. The purpose of these rules are to ensure that electric power generation facilities and power plants are efficiently operated to further ensure reliability and adequacy to the transmission and distribution service providers. The rules also require generation licensees to provide information to the Authority (NEPRA) regarding operation, maintenance and performance of their generation facilities.

i. **Original notification**

[http://www.nepra.org.pk/Legislation/2-Rules/2.8%20NEPRA%20Performance%20Standards%20\(Generation\)%20Rules,%202009/Performance%20Standards%20\(Generation\)%20Rules%202009%20-%20SRO%201005-I-2009.PDF](http://www.nepra.org.pk/Legislation/2-Rules/2.8%20NEPRA%20Performance%20Standards%20(Generation)%20Rules,%202009/Performance%20Standards%20(Generation)%20Rules%202009%20-%20SRO%201005-I-2009.PDF)

9.4 Grid code and system operations

9.4.1 NEPRA National Transmission & Distribution Company Grid Code, 2005

The Grid Code of Pakistan has been issued in 2005 in accordance with the Regulation of Generation, Transmission and Distribution of Electric Power Act 1997. The Grid Code sets-out criteria, guidelines, basic rules, procedures, responsibilities, standards and obligations for the operation, maintenance and development of the electricity transmission system of Pakistan. The primary objectives of the Grid Code are to establish effective, transparent, non-discriminatory and coordinated approach for operation and maintenance and development of the Transmission system. In addition, provisions have also been incorporated to ensure equitable management of technical matters in the interest of all parties connected to the grid, including distribution licensee, generators, consumers and any other user.

i. **Original Notification**

<http://www.nepra.org.pk/Legislation/6-Codes/6.2%20NTDC%20The%20Grid%20Code%20June%202005%20with%20Grid%20Code%20Addendum%20No.%20I%20&%20II/Grid%20Code%202005.pdf>

9.5 Open Access

9.5.1 NEPRA Wheeling of Electric Power Regulations, 2016

The wheeling of electric power regulations came into effect in 2016. These regulations promotes non-discriminatory open access to transmission and distribution system to applicants who either are connected or intend to connect with the transmission or distribution system. The regulations also set out the process for availing wheeling of power by generating company.

i. **Original Notification**

[http://www.nepra.org.pk/Legislation/3-Reg/3.16%20NEPRA%20%20Wheeling%20of%20Electric%20Power%20Regulations/SRO%20549\(I\)2016.PDF](http://www.nepra.org.pk/Legislation/3-Reg/3.16%20NEPRA%20%20Wheeling%20of%20Electric%20Power%20Regulations/SRO%20549(I)2016.PDF)

9.6 Power Trade, Exchanges & Markets

9.6.1 NEPRA Market Operator Registration, Standards and Procedures Rules, 2015

These regulations came into effect in 2015 and specifies the process that shall be followed by an entity for the application and registration as market operator and the function and duties to be discharged by the entity as market operator.

i. **Original notification**

[http://www.nepra.org.pk/Legislation/2-Rules/2.10%20NEPRA%20\(Market%20Operator%20Registration,%20Standards%20and%20Procedure\)%20Rules,%20%202015/Market%20operator%20Registration,%20Standards%20and%20Procedure%20Rules,2015.PDF](http://www.nepra.org.pk/Legislation/2-Rules/2.10%20NEPRA%20(Market%20Operator%20Registration,%20Standards%20and%20Procedure)%20Rules,%20%202015/Market%20operator%20Registration,%20Standards%20and%20Procedure%20Rules,2015.PDF)

ii. **First amendment, 2015**

[http://www.nepra.org.pk/Legislation/2-Rules/2.10%20NEPRA%20\(Market%20Operator%20Registration,%20Standards%20and%20Procedure\)%20Rules,%20%202015/1st%20Amendment%20\(Market%20operator%20Registration,%20Standards%20and%20Procedure%20Rules,2015\).PDF](http://www.nepra.org.pk/Legislation/2-Rules/2.10%20NEPRA%20(Market%20Operator%20Registration,%20Standards%20and%20Procedure)%20Rules,%20%202015/1st%20Amendment%20(Market%20operator%20Registration,%20Standards%20and%20Procedure%20Rules,2015).PDF)

9.7 Licensing

9.7.1 NEPRA Licensing (Generation) Rules, 2000

The NEPRA licensing (Generation) rules came into force in 2000 and lays down procedures towards submission of application to obtain generation license. Based on these rules and the other NEPRA rules and regulations, the Authority (NEPRA) may grant a generation licence to any person to engage in the generation business commensurate with the useful life of the unit or unless otherwise stated.

i. **Original notification**

[http://www.nepra.org.pk/Legislation/2-Rules/2.3%20NEPRA%20Licensing%20\(Generation\)%20Rules,%202000/Licensing%20\(Generation\)%20Rules%202000.PDF](http://www.nepra.org.pk/Legislation/2-Rules/2.3%20NEPRA%20Licensing%20(Generation)%20Rules,%202000/Licensing%20(Generation)%20Rules%202000.PDF)

9.7.2 NEPRA Licensing (Application and Modification Procedure) Regulations, 1999

NEPRA (Application and Modification Procedure) Regulations came into force in 1999. These regulations set out the procedure and processes that shall be followed by an entity for the application of grant of generation, transmission or distribution licensee. These regulations also

outline the eligibility criteria for the grant of licensee, application requirements, application fees, and other specific schedules and formats for submission of application.

i. ***Amended up to 2012***

[http://www.nepra.org.pk/Legislation/3-Reg/3.1%20NEPRA%20Licensing%20\(Application%20and%20Modification%20Procedure\)%20Regulations,%201999/NEPRA%20Licensing%20\(Application%20%20Modification%20Procedure\)%20Regulations%201999%20along%20with%20all%20amendments.pdf](http://www.nepra.org.pk/Legislation/3-Reg/3.1%20NEPRA%20Licensing%20(Application%20and%20Modification%20Procedure)%20Regulations,%201999/NEPRA%20Licensing%20(Application%20%20Modification%20Procedure)%20Regulations%201999%20along%20with%20all%20amendments.pdf)

ii. ***Amendment I of 2017***

[http://www.nepra.org.pk/Legislation/3-Reg/3.1%20NEPRA%20Licensing%20\(Application%20and%20Modification%20Procedure\)%20Regulations,%201999/NEPRA%20Licensing%20Application%20and%20Modification%20Regulation%201999.PDF](http://www.nepra.org.pk/Legislation/3-Reg/3.1%20NEPRA%20Licensing%20(Application%20and%20Modification%20Procedure)%20Regulations,%201999/NEPRA%20Licensing%20Application%20and%20Modification%20Regulation%201999.PDF)

iii. ***Amendment II of 2017***

[http://www.nepra.org.pk/Legislation/3-Reg/3.1%20NEPRA%20Licensing%20\(Application%20and%20Modification%20Procedure\)%20Regulations,%201999/AMPR-1999%2003-05-2017%206071.pdf](http://www.nepra.org.pk/Legislation/3-Reg/3.1%20NEPRA%20Licensing%20(Application%20and%20Modification%20Procedure)%20Regulations,%201999/AMPR-1999%2003-05-2017%206071.pdf)

9.8 Generation and Transmission Tariff

9.8.1 NEPRA (Tariff Standards and Procedure) Rules, 1998

These rules specify the procedure for filing of petition and communication for tariff. In addition, these rules allow NEPRA to issue standards and guidelines regarding the substance or contents of filings, and to assist persons seeking to file petition and communications.

i. ***Original notification with amendments***

[http://www.nepra.org.pk/Legislation/2-Rules/2.1%20NEPRA%20Tariff%20Standards%20and%20Procedure%20Rules,%201998/NEPRA%20\(Tariff%20Standards%20and%20Procedure\)%20Rules%201998%20along%20with%20all%20amendments.pdf](http://www.nepra.org.pk/Legislation/2-Rules/2.1%20NEPRA%20Tariff%20Standards%20and%20Procedure%20Rules,%201998/NEPRA%20(Tariff%20Standards%20and%20Procedure)%20Rules%201998%20along%20with%20all%20amendments.pdf)

ii. ***Amendment of 2014***

[http://www.nepra.org.pk/Legislation/2-Rules/2.1%20NEPRA%20Tariff%20Standards%20and%20Procedure%20Rules,%201998/2nd%20Amendment%20\(NOTIFICATIONS%20SRO%20732\).pdf](http://www.nepra.org.pk/Legislation/2-Rules/2.1%20NEPRA%20Tariff%20Standards%20and%20Procedure%20Rules,%201998/2nd%20Amendment%20(NOTIFICATIONS%20SRO%20732).pdf)

9.8.2 NEPRA Competitive Bidding Tariff (Approval Procedure) Regulations, 2017

These regulations specify the manner of conduct of competitive bidding by the licensees, including conditions for competitive bidding, approval of RFP by NEPRA and approval of bid evaluation report and tariff.

i. ***Original Notification***

[http://www.nepra.org.pk/Legislation/3-Reg/3.7%20NEPRA%20Competitive%20Bidding%20Tariff%20\(Approval%20Procedure\)%20Regulations,%202008/NCBT-01%2003-05-2017%206072.PDF](http://www.nepra.org.pk/Legislation/3-Reg/3.7%20NEPRA%20Competitive%20Bidding%20Tariff%20(Approval%20Procedure)%20Regulations,%202008/NCBT-01%2003-05-2017%206072.PDF)

9.9 Procedural

9.9.1 NEPRA Complaint Handling and Dispute Resolution (Procedure) Rules, 2015

The Complaint Handling and Dispute Resolution Procedure Rules specifies procedures that will be followed in case of dispute arising between parties.

i. **Original notification**

[http://www.nepra.org.pk/Legislation/2-Rules/2.11%20NEPRA%20Complaint%20Handling%20and%20Dispute%20Resolution%20\(Procedure\)%20Rules,%202015/NEPRA's%20Compalint%20Handling%20and%20Dispute%20Resolution%20\(Procedure\)%20Rules%202105.PDF](http://www.nepra.org.pk/Legislation/2-Rules/2.11%20NEPRA%20Complaint%20Handling%20and%20Dispute%20Resolution%20(Procedure)%20Rules,%202015/NEPRA's%20Compalint%20Handling%20and%20Dispute%20Resolution%20(Procedure)%20Rules%202105.PDF)

9.9.2 NEPRA Resolution of dispute between IPPs and other Licensees Regulation, 2003

These regulations require licensee to submit their disputes to NEPRA for resolution. These regulations are particularly applicable to licensees who have entered into an agreement prior to the enactment of the Act.

i. **Original notification**

[http://www.nepra.org.pk/Legislation/3-Reg/3.4%20NEPRA%20\(Resolution%20of%20Disputes%20between%20Independent%20Power%20Producers%20and%20other%20Licensees\)%20Regulations,%202003/Resolution%20of%20Disputes,%202003.PDF](http://www.nepra.org.pk/Legislation/3-Reg/3.4%20NEPRA%20(Resolution%20of%20Disputes%20between%20Independent%20Power%20Producers%20and%20other%20Licensees)%20Regulations,%202003/Resolution%20of%20Disputes,%202003.PDF)

9.9.3 NEPRA (Review Procedure) Regulation, 2009

The Review Procedure Regulations were enacted in 2009 and were amended in 2014 and 2017. These regulations outlines the procedure that the Authority may follow for filing or reversing or modifying any order that it has passed.

i. **Original Notification**

[http://www.nepra.org.pk/Legislation/3-Reg/3.8%20NEPRA%20\(Review%20Procedure\)%20Regulations,%202009/SRO%201144-1-2009%20Review%20Procedure%20Regs%202009.PDF](http://www.nepra.org.pk/Legislation/3-Reg/3.8%20NEPRA%20(Review%20Procedure)%20Regulations,%202009/SRO%201144-1-2009%20Review%20Procedure%20Regs%202009.PDF)

ii. **Amendment I (2014)**

[http://www.nepra.org.pk/Legislation/3-Reg/3.8%20NEPRA%20\(Review%20Procedure\)%20Regulations,%202009/1st%20Amendment%20\(SRO%201036\(I\)%202014\).PDF](http://www.nepra.org.pk/Legislation/3-Reg/3.8%20NEPRA%20(Review%20Procedure)%20Regulations,%202009/1st%20Amendment%20(SRO%201036(I)%202014).PDF)

iii. **Amendment II (2017)**

[http://www.nepra.org.pk/Legislation/3-Reg/3.8%20NEPRA%20\(Review%20Procedure\)%20Regulations,%202009/Ammendments%20in%20Review%20Procedure%20Regulations%202009.PDF](http://www.nepra.org.pk/Legislation/3-Reg/3.8%20NEPRA%20(Review%20Procedure)%20Regulations,%202009/Ammendments%20in%20Review%20Procedure%20Regulations%202009.PDF)

9.9.4 NEPRA (Procedure for filing appeal before the Authority) Regulations, 2012

The document lays down the procedure for filing appeal against orders of NEPRA. The appeal is to be filed within 30 days of the issue of order.

i. **Original notification**

[http://www.nepra.org.pk/Legislation/3-VersionReg/3.11%20NEPRA%20\(Procedure%20for%20filing%20appeal%20before%20the%20Authority\)%20Regulations,%202012/Notification%20NEPRA%20Procedure%20for%20Filing%20of%20Appeal%20Regulations%202012.PDF](http://www.nepra.org.pk/Legislation/3-VersionReg/3.11%20NEPRA%20(Procedure%20for%20filing%20appeal%20before%20the%20Authority)%20Regulations,%202012/Notification%20NEPRA%20Procedure%20for%20Filing%20of%20Appeal%20Regulations%202012.PDF)

ii. **First amendment, 2013**

[http://www.nepra.org.pk/Legislation/3-Reg/3.11%20NEPRA%20\(Procedure%20for%20filing%20appeal%20before%20the%20Authority\)%20Regulations,%202012/1st%20Amendment%20\(NEPRA%20Licensing%20\(Procedure%20for%20Filing%20Appeals\)%20Regulations,%202012\).PDF](http://www.nepra.org.pk/Legislation/3-Reg/3.11%20NEPRA%20(Procedure%20for%20filing%20appeal%20before%20the%20Authority)%20Regulations,%202012/1st%20Amendment%20(NEPRA%20Licensing%20(Procedure%20for%20Filing%20Appeals)%20Regulations,%202012).PDF)

9.10 Miscellaneous

9.10.1 NEPRA Licensing (Distribution) Rules, 1999

i. **Original notification**

[http://www.nepra.org.pk/Legislation/2-Rules/2.2%20NEPRA%20Licensing%20\(Distribution\)%20Rules,%201999/Licensing%20\(Distribution\)%20Rules%201999.PDF](http://www.nepra.org.pk/Legislation/2-Rules/2.2%20NEPRA%20Licensing%20(Distribution)%20Rules,%201999/Licensing%20(Distribution)%20Rules%201999.PDF)

9.10.2 NEPRA Fees Rules, 2002

i. **Original notification**

[http://www.nepra.org.pk/Legislation/2-Rules/2.4%20NEPRA%20\(Fees\)%20Rules,%202002/NEPRA%20Fee%20Rules%20along%20with%20amendment%202014.pdf](http://www.nepra.org.pk/Legislation/2-Rules/2.4%20NEPRA%20(Fees)%20Rules,%202002/NEPRA%20Fee%20Rules%20along%20with%20amendment%202014.pdf)

9.10.3 NEPRA Performance Standard (Distribution) Rules, 2005

i. **Original notification**

[http://www.nepra.org.pk/Legislation/2-Rules/2.6%20NEPRA%20Performance%20Standards%20\(Distribution\)%20Rules,%202005/NEPRA%20Performance%20Standards%20\(Distribution\)%20Rules%202005%20along%20with%20amendments.pdf](http://www.nepra.org.pk/Legislation/2-Rules/2.6%20NEPRA%20Performance%20Standards%20(Distribution)%20Rules,%202005/NEPRA%20Performance%20Standards%20(Distribution)%20Rules%202005%20along%20with%20amendments.pdf)

9.10.4 NEPRA Uniform System of Accounts Rules, 2009

i. **Original notification**

[http://www.nepra.org.pk/Legislation/2-Rules/2.9%20NEPRA%20\(Uniform%20System%20of%20Accounts\)%20Rules,%202009/NEPRA%20Uniform%20System%20of%20Accounts%20Rules%202009.pdf](http://www.nepra.org.pk/Legislation/2-Rules/2.9%20NEPRA%20(Uniform%20System%20of%20Accounts)%20Rules,%202009/NEPRA%20Uniform%20System%20of%20Accounts%20Rules%202009.pdf)

ii. **2014 Amendment**

[http://www.nepra.org.pk/Legislation/2-Rules/2.9%20NEPRA%20\(Uniform%20System%20of%20Accounts\)%20Rules,%202009/1st%20Amendment%20\(NOTIFICATIONS%20SRO%20735\).pdf](http://www.nepra.org.pk/Legislation/2-Rules/2.9%20NEPRA%20(Uniform%20System%20of%20Accounts)%20Rules,%202009/1st%20Amendment%20(NOTIFICATIONS%20SRO%20735).pdf)

9.10.5 NEPRA Supply of Electric Power Regulations, 2015

i. **Original Notification**

[http://www.nepra.org.pk/Legislation/3-Reg/3.14%20NEPRA%20\(Supply%20of%20Electric%20Power\)%20Regulations,%202015/SRO%201134\(I\)2015%20Nepa%20Supply%20of%20Electric%20Power%20Regulations%202015.PDF](http://www.nepra.org.pk/Legislation/3-Reg/3.14%20NEPRA%20(Supply%20of%20Electric%20Power)%20Regulations,%202015/SRO%201134(I)2015%20Nepa%20Supply%20of%20Electric%20Power%20Regulations%202015.PDF)

9.10.6 NEPRA Interim Power Procurement (Procedure & Standards) Regulations, 2005

i. **Original Notification**

[http://www.nepra.org.pk/Legislation/3-Reg/3.6%20NEPRA%20Interim%20Power%20Procurement%20\(Procedure%20&%20Standards\)%20Regulations,%202005/NEPRA%20Interim%20Power%20Procurement%20\(Procedure%20and%20Standards\)%20Regulations%202005%20along%20with%20all%20amendments.pdf](http://www.nepra.org.pk/Legislation/3-Reg/3.6%20NEPRA%20Interim%20Power%20Procurement%20(Procedure%20&%20Standards)%20Regulations,%202005/NEPRA%20Interim%20Power%20Procurement%20(Procedure%20and%20Standards)%20Regulations%202005%20along%20with%20all%20amendments.pdf)

10. Summary of regulations in Sri Lanka

10.1 Primary legislation, key policies, rules and guidelines

10.1.1 Electricity Act, 2009

The Parliament approved the Sri Lanka Electricity Act in 2009, empowering Public Utilities Commission of Sri Lanka to act as the economic, technical and safety regulator for the electricity industry in Sri Lanka. The Act was introduced with an aim to encourage efficiency improvements in generation, transmission and distribution segment of the electricity sector, promote cost reflective tariffs & charges, facilitate consumer service and promote investment in construction of new generation, transmission line and distribution lines etc.

i. **Original notification**

http://www.pucsl.gov.lk/english/wpcontent/themes/pucsl/pdfs/electricity_act_2009.pdf

i. **Amended in 2013**

<http://www.pucsl.gov.lk/english/wp-content/uploads/2013/09/Act-31E.pdf>

10.1.2 Public Utilities Commission of Sri Lanka Act, 2002

The Public Utilities Commission of Sri Lanka Act was enacted in 2002 and applies to public utility industries. By virtue of this Act, the Public Utilities Commission of Sri Lanka was established for policy formulation and regulation of the electric power, distribution, water supply, petroleum resources and other public utilities in Sri Lanka. The commission also has a mandate to act both as a consumer protection authority, as well as an advisory, inspection and policy formulation body and to promote competition and efficiency among utility providers.

i. **Original notification**

http://www.pucsl.gov.lk/english/wp-content/uploads/2017/12/35-2002_E.pdf

10.1.3 National Energy Policy, 2008

The Government of Sri Lanka introduced national Energy Policy in 2008. This policy outlines the government's vision to develop and manage energy sector in order to achieve the millennium development goals. The policy also spells out the initiatives that the government will undertake to expand the delivery of affordable energy to a larger share of population, improve energy sector planning, regulation and management.

i. **Original Notification**

<http://www.pucsl.gov.lk/english/wp-content/themes/pucsl/pdfs/annexes/annex01-national-energy-policy.pdf>

10.2 Technical Standards

10.2.1 Electricity (Transmission) Performance Standards Regulations, 2016

The Electricity (Transmission) Performance Standards Regulations of 2016 were issued under the provision of Section 54 of the Electricity Act 2009. These regulations established procedural rules, requirement and indices for the assessment of transmission system performance in the context of availability, reliability and quality among others. The regulations also lays down the methodology

for assessing the compensation to be paid to the consumers in the event the performance indices falls below the benchmark.

i. **Original notification**

<http://www.pucsl.gov.lk/english/wp-content/uploads/2016/09/Transmission.pdf>

10.3 Grid Code and System Operation

10.3.1 Grid Code, 2014

The Grid Code of Sri Lanka has been formulated under terms specified in the Electricity Act 2009. The Grid Code specifies criteria, guidelines, basic rules, procedures, responsibilities, standards and obligations for the operation, maintenance and development of the electricity transmission system of Sri Lanka. The primary objectives of the Grid Code are to establish effective, transparent, non-discriminatory and coordinated approach for operation and maintenance and development of the Transmission system. In addition, provisions have also been incorporated to ensure equitable management of technical matters in the interest of all parties connected to the grid, including distribution licensee, generators, consumers and any other users.

i. **Original Notification**

<http://www.pucsl.gov.lk/english/wp-content/uploads/2014/04/Grid-Code-March-2014-Final1.pdf>

10.4 Transmission investment and pricing

10.4.1 Transmission Planning Code, 2011

Transmission planning code was formulated in 2011. The transmission planning code provided for all round development of transmission system to ensure that the system is capable of delivering power from generating plants to various load centres across the country in a reliable and secure way.

i. **Original Notification**

http://www.pucsl.gov.lk/english/wpcontent/themes/pucsl/pdfs/Transmission_Planning_Code_25_April_2011_Publish.pdf

10.5 Licensing

10.5.1 Electricity (Applications for Licenses and Exemptions) Regulation, 2009

The Electricity (Application for Licenses and Exemption) Regulation came into force in 2009 and lays down procedures related to submission of application for a license to generate, transmit or distribute electricity or for exemption from obtaining license for generation or distribution in Sri Lanka.

i. **Original Notification**

http://www.pucsl.gov.lk/english/wpcontent/themes/pucsl/pdfs/regulations_electricity_applications_licences_extensions.pdf

10.6 Generation and Transmission Tariffs

10.6.1 Electricity Procurement Rules, 2016

The electricity procurement rules came into effect in 2016 and applies to procurement of electricity

by transmission licensee. These rule outlines procedure for procuring additional electricity from new generating plants or from existing plants undergoing expansion.

i. **Original notification**

http://www.pucsl.gov.lk/english/wp-content/uploads/2016/12/1972-10_E.pdf

10.6.2 Tariff Methodology, 2015

The document prescribes the methodology for determination of bulk supply tariff for distribution licensees, and for determination of distribution tariff and retail tariff.

i. **Original notification**

<http://www.pucsl.gov.lk/english/wp-content/uploads/2016/03/Tariff-Methodologyamended-Version.pdf>

10.6.3 Tariff Methodology for Bulk Supply Consumers, 2016

The document prescribes the methodology for determination of tariff for Bulk Supply Consumers who are connected to the transmission system at 220kV/132kV levels, which is different from the methodology adopted for determination of bulk supply tariff for distribution licensees.

i. **Original notification**

<http://www.pucsl.gov.lk/english/wp-content/uploads/2016/06/Tariff-Methodology-for-Transmission-Customers.pdf>

10.6.4 Electricity (Procedure for review and adjustment of tariffs) Rules, 2016

The Electricity procedure for review and adjustment of tariffs rules came into force in 2016 and outlines detailed procedure for each licensee to file tariff to the commission for approval of the allowed revenue as well as review and adjustment of tariffs.

i. **Original notification**

http://www.pucsl.gov.lk/english/wp-content/uploads/2016/12/1978-21_E.pdf

10.7 Procedural matters

10.7.1 Electricity (Dispute Resolution Procedure) Rules, 2015

The Electricity Dispute Resolution Procedure Rule were first implemented in 2011. These rules were then subsequently replaced in 2015 with new set of rules. The dispute resolution rules specifies procedures that will be followed in case of dispute arising between parties i.e. Between two licensees, a licensee and a customer or a licensee and other affected party.

i. **Original notification**

http://www.pucsl.gov.lk/english/wp-content/uploads/2016/03/1951_01-English.pdf

10.7.2 Regulatory Manual, 2014

The manual represents the code of practice that governs the functions of the Commission. It describes the general and industry specific procedures and processes adopted by PUCSL.

i. **Original notification**

<http://www.pucsl.gov.lk/english/wp-content/uploads/2014/05/Regulatory-Manual-March-2013-Version-3.pdf>

10.8 Miscellaneous

10.8.1 Electricity (Distribution) Performance Standards Regulations, 2016

i. *Original notification*

<http://www.pucsl.gov.lk/english/wp-content/uploads/2016/09/Distribution.pdf>

10.8.2 Consumer (Composition of the Consultative Committee) Regulations, 2009

i. *Original notification*

http://www.pucsl.gov.lk/english/wpcontent/themes/pucsl/pdfs/regulations_consumer_consultative_committee.pdf

10.8.3 Electricity (Electrical Inspectors' functions, duties & procedures) Regulations, 2014

i. *Original notification*

<http://www.pucsl.gov.lk/english/wp-content/uploads/2015/01/Electrical-Inspectors-Functions.pdf>

10.8.4 Electricity (Safety, Quality and Continuity) Regulations, 2016

i. *Original notification*

<http://www.pucsl.gov.lk/english/wp-content/uploads/2016/09/Continuity.pdf>

10.8.5 Utility Driven Demand Side Management (DSM) Regulations, 2016

i. *Original notification*

<http://www.pucsl.gov.lk/english/wp-content/uploads/2016/09/Environment.pdf>

10.8.6 Methodology for Merit Order Dispatch, 2011

i. *Original notification*

http://www.pucsl.gov.lk/english/wpcontent/themes/pucsl/pdfs/methodology_for_merit_order_dispatch_25_april_2011_publish.pdf

10.8.7 Methodology for Feed-In-Tariffs – Non Conventional & RE Sources, 2011

i. *Original notification*

http://www.pucsl.gov.lk/english/wpcontent/themes/pucsl/pdfs/ncre_tariffs%20methodology.pdf

10.8.8 General policy guidelines on electricity industry for PUCSL, 2009

i. *Original notification*

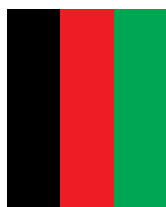
http://www.pucsl.gov.lk/english/wpcontent/themes/pucsl/pdfs/general_policy_guidelines_eng.pdf

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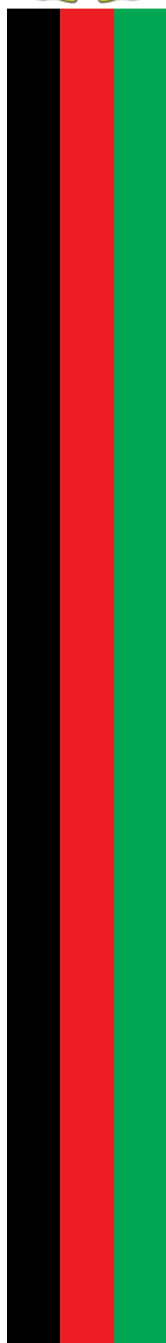


Afghanistan

Primary Legislation, Key Policies and Guidelines



Islamic Republic of Afghanistan



Ministry of Energy and Water
Power Services Regulation Act

2016



Legislative Decree of the President of Islamic Republic of Afghanistan

On Endorsement of Power Services Regulation Act

Article 1:

In pursuance of provision of Article 79 of Afghan constitution , I endorse the Power Services Regulation Act which has been approved in (12) Chapters and (53) Articles based on the Approval No. 19 dated 26/08/2015 of the Cabinet of Islamic Republic of Afghanistan.

Article 2:

The Minister of Justice and Minister of State for Parliamentary Affairs shall be bound to Present this Decree to the National Assembly within (30) days after the first session of this Assembly.

Article 3:

This decree shall come into force from the date of endorsement and shall be published in the Official Gazette along with the approval of the Cabinet and the said law.

Mohammad Ashraf Ghani

**President of Islamic Republic of Afghanistan the Approval of the Cabinet of
Islamic Republic of Afghanistan on Power Services Regulation Draft Act**

No: 19

Dated: 04th of Asad 1394

**I, endorse the Power Services Regulation Draft Act which has been approved
on 04/06/1394 by the cabinet of Islamic Republic of Afghanistan in twelve
chapters and fifty three articles.**

Mohammad Ashraf Ghani

President of Islamic Republic of Afghanistan

Power Services Regulation Act

Chapter 1

General Provisions

Basis

Article 1:

This law has been enacted in the light of Provision of Article 10 of the Afghan constitution.

Objectives

Article 2:

The objectives of this law shall be as following:

- 1- To supply electrical energy from natural resources of the country and imported energy.
- 2- To improve the quantity and quality of energy services, and its development and promotion.
- 3- Economic growth and development as well as public welfare.
- 4- Public access to the electricity energy services in exchange to a fair price.
- 5- Non-discriminatory access of the electricity energy service providers to the market.
- 6- Regulation of electricity related affairs throughout the country.

Terminologies

Article 3:

The following terminologies shall convey the following meanings in this Law:

- 1- Electricity Energy Services:** he services through which the electricity shall be supplied to consumers in exchange of a fixed price.
- 2- Electricity Power Plants:** the buildings and the equipment that shall be used for generation, transmission and distribution of electricity energy.

- 3 - Electricity Network:** the systems by which the electricity energy shall be supplied using equipment, substations , transformer stations, junctions, cables , lines and other related equipment.
- 4 - License:** a written permit which shall be issued to the applicant in accordance with the provisions of this law for production, import, export, transmission and distribution of the electricity energy and other related activities.
- 5 - Contract:** a written document that shall be concluded between the Ministry of Energy and Water and the holder of the license in accordance with the provisions of this Law in order to construct and assemble the electricity energy facilities, and the rights and obligations of the parties shall be specified therein
- 6 - Tariff:** the written document that shall be used on behalf of the permit holder in accordance with the provisions of this law, to determine the price of electricity consumption.
- 7 - Fees:** financial fund received from license holder in exchange of each unit of production or transmission or Distribution or import and or export of electricity.
- 8 - Consumer:** a natural or legal person/entity who demands and makes use of the electricity paying for the services included in the tariff.
- 9 - Distribution:** Electrical Energy supply to the consumers through medium and low-voltage networks and in exceptional cases, from high voltage networks up to 110 KV.
- 10 - Distribution Procedure:** Technical rules and principles observing which, the operation responsibilities and technical design of all types of distribution networks of the substations, including the criteria on consumer connection to the network and transmission of electricity shall be described in compliance with the national and international standards.

- 11 - Power Distribution System:** the total lines and equipment used in transmission of electricity to the consumers through medium and low voltage.
- 12 - Electricity Dispatching Center:** the center which functions to provide reliable and economic power, awareness, timing and to set and schedule production capacity, and the ability to import and transfer the power.
- 13 - Interconnection:** physical, technical, and commercial relationship between the electricity networks made in accordance with the provisions of this law based on the separate agreements.
- 14 - Market Dominant Force:** a natural or legal person/entity holding license for electric energy services and having (40) percent or more of gross income of a specified electrical energy market on the basis of the assessment Electric Power Regulation Department of the Ministry of Energy and Water considering certain categories of services and geographical boundaries.
- 15 - Recognized Standard:** the technical specifications and national, regional and international standards published in the area of electricity power.
- 16 - Electricity Zone:** a certain geographical area determined for the purpose of electricity supply.
- 17 - Renewable Energy Sources:** The stable, unlimited, and non-fossil provision of natural (hydro, wind, solar, biomass and geothermal) resources.
- 18 - Transmission System:** The high voltage power transmission lines and equipment used to transmit the electricity current.
- 19 - Land Area:** a certain area in which the license holder makes construction and installation of electric power generation facilities,

substations, and the transformer stations in accordance with the provisions of this law.

20 - Sub-area: a certain area not included in the license but the license holder carries out some works relating to transmission, distributions, import and export of electricity to the mentioned area on the basis of the owner agreement in accordance with the provisions of this Law.

21 - Accident: a mishap occurred during construction activities, installation and operation of facilities, transmission, distribution, import and export of electricity resulting into physical and material loss , injuries or casualties.

22 - Confidential Information: the technical, financial and business documents and information belonging to design, restoration of insurance status, activities, planning, maintenance, management and financing of energy services and other activities related to the electricity facilities of suppliers, users and consumers.

23 - Transmission System Operator: a person responsible for operation, maintenance and development of transmission in certain areas, and interconnections with other networks to strengthen the system in long-term to meet the requirements of the electric power transmission.

24 - License Holder: the real or legal person/entity that the activity license of electricity generation, transmission, distribution, import and export has been registered and recorded in his/her name in accordance with the provisions of this Law.

25 - Dependent Competitor: the person or party controlled by another person or party, or controls other person or party, and or are two or more persons or parties that are controlled by the same person or party.

Implementing Authority

Article 4:

The Ministry of Energy and Water shall be responsible for implementing the provisions of this law at the state level and may provide electric energy services by itself or through other government institutions, foreign and domestic private sector or in a joint way.

Energy Regulation Authority

Article 5:

In order to achieve the objectives stated in this law and for effective and better electricity service delivery, the Energy Services Regulation Department shall function within the Ministry of Energy and Water.

Abbreviated Name

Article 6:

In the context of this Law, the Energy Services Regulation Authority shall hereinafter be referred to the Authority.

Duties and Authorities of the Agency

Article 7:

The Agency shall have the following duties and authorities:

- 1- To submit electrical energy consumption tariffs for approval to the Government after confirmation of the Ministry of Energy and Water.
- 2- To provide of facilities to attract domestic and foreign investment in the area of energy services under this law.
- 3- To prepare the National Development Program for supply of electricity to rural areas the use of renewable sources in collaboration with the Ministry of Rural Rehabilitation and Development.
- 4- To regulate and guarantee the quality and quantity of electricity in accordance with the provisions of this law.
- 5- To register, issue, extend, suspend, and revoke the activity licenses under this law.

- 6- To address the complaints of consumers and license holders and to resolve disputes arising out of the mentioned issues in accordance with the provisions of this law.
- 7- To create technical, economic, financial, and marketing committees, and other energy advisory committees.
- 8- To appoint auditors to take care of the provisions of this law and the terms set forth in the license.
- 9- To issue orders to prevent violations of the terms of licenses under this law.
- 10- To impose cash fine under this law.
- 11- To establish a single calculating unit system for transparent calculation of power supply and its control.
- 12- To identify dominant personality in the energy supply market.
- 13- To assign dominant personality in the market to provide electricity services to consumers and other license holders without discrimination under this law.
- 14- To continuously monitor electrical energy services all over the country.
- 15- To create electrical energy services database.
- 16- To monitor the activities of the license holders in order to comply with international conventions of power sector to which Afghanistan has acceded.
- 17- To determine technical standards for electrical equipment and its approval through concerned authorities.
- 18- To regulate and monitor the activities of license holders in accordance with the provisions of this law.
- 19- To protect the interests of electricity consumers.
- 20- To prevent the abuse of dominant force in the market.
- 21- To provide healthy competition environment for the license holders.
- 22- To identify the contingent violations of the provisions of this law and the terms of the licenses.

- 23- To oblige the license holders to compensate damages arising from violation of the terms of licenses.
- 24- To submit annual report to the office of the Ministry of Energy and Water.
- 25- To perform other duties stipulated in this law.

Chapter 2

Regulation of Energy Services

Obtaining Permit

Article 8:

- (1) Without obtaining the license and concluding contract, no one shall take action on construction, installation and assembly of the equipment, production facilities, transmission, distribution, import and export of Electricity power.
- (2) Real or legal persons/entities that avail the means of production of the electrical energy for their personal usage shall be exempted from the provisions of paragraph (1) of this Article, provided that the technical conditions have been adhered in accordance with the accepted standards.
- (3) Energy services up to one-hundred kilowatts that are supplied for rural areas by the real and legal entities shall be exempted from the provisions of paragraph (1) of this Article.

Qualifications for Permit Applicant

Article 9:

- (1) A person/entity may obtain the license set forth in this law and make the contract that has the following qualifications:
 - 1- Domestic legal person or entity established in accordance with the provisions of Afghan laws and that has obtained the investment license.
 - 2- Foreign legal person or entity established in accordance with the

provisions of the laws of his/her/its subject country and that has obtained investment license based on the provisions of law in Afghanistan.

- 3 - Having enough capital to provide machinery, equipment and tools and necessary expertise to implement the terms of the license.
- 4 - Provide a financial guarantee to the agency.

(1) The following persons or entities may not obtain licenses under this law:

- 1- Legal entity in which the persons set forth in Article 151 of the Afghan constitution, or their immediate relatives are members.
 - 2- Legal entity that its dissolution order has been issued by a competent court.
 - 3- Legal entity that its one or more shareholders or members of its Executive Board or Board of Directors have lost their full legal capacity.
 - 4- Legal entity that its one or more shareholders or members of the Board are performing job in the Ministry of Energy and Water.
 - 5- Legal entity that a competent court has issued the bankruptcy sentence about the member of its Executive Board or Board of Directors.
 - 6- Legal person/entity whose license has been revoked, unless at least two years has been passed from the date of its revocation.
- (3) If persons mentioned in Article 151 of the Afghan constitution have been the members of the legal entity mentioned in section (1) of paragraph (1) of this Article before occupation of the duty, they shall be obliged to resign their membership of the legal entity.
- (4) In order to obtain a permit, foreign legal persons/entities shall be obliged to establish and activate their permanent agencies in Afghanistan and maintain operation documents relating to the energy services therein.
- (5) Companies that apply to obtain the licenses and make contracts shall

be required to submit the names of their shareholders with the amount of capital share of each one to this Department.

Types of Licenses

Article 10:

- (1) The licenses set forth in this law shall be as follows:
 - 1- Electricity Generation License.
 - 2- Electricity Transmission License.
 - 3- Electricity Distribution License.
 - 4- Electrical Energy Import License.
 - 5- Electrical Energy Export License.
- (2) Licenses referred to in paragraph (1) of this Article shall be granted by the Department in exchange for certain fees and provision of a financial guarantee.
- (3) Fees set forth in paragraph 2 of this Article shall be determined by proposal of Ministry of Energy and Water (MEW) and approval of government, and received by the Department and transferred to the government bank account .
- (4) The amount of financial guarantee set forth in paragraph 3 of this Article shall be determined by proposal of the Ministry of Energy and Water and the approval of the government and transferred to the deposit account in the bank.

Validation of License

Article 11:

The validity period of licenses under this Act shall be determined as follows:

- 1- Electricity Generation licenses for a maximum of 25 years.
- 2- Electricity transmission licenses for a maximum of 25 years.
- 3- Electricity distribution licenses for a maximum of 20 years.
- 4- Electricity import licenses for a maximum of 15 years.
- 5- Electricity export licenses for a maximum of 15 years.

Competitive Process:

Article 12:

- (1) In order to ensure public interests, the Department starts a competitive process in relation to the applicants obtaining licenses, for provision of electricity services as follows:
 - 1- Publish notifications for the public awareness about the submitted applications, provided that confidential and specific information set forth in the applications remain confidential.
 - 2- Providing the opportunity of (45) days to the applicants of power supply following publication of the notifications with an aim to submit applications.
- (3) If the department receives another request after publication of notification, it shall evaluate the requests within 25 working days and grant the license to the most qualified applicant, and if any other applicant does not refer, the mentioned applicant shall be granted the license in this case.

Obligation of the License Holder:

Article 13:

The license holder shall be obliged to observe the following:

- 1- The provision of energy services in accordance with the contents of license.
- 2- Preparation of a work plan and budget and other information required to the Department.
- 3- Payment of compensation to the affected party for damage caused by the activities related to the supply of electricity.
- 4- Report the activities and statements of the department on demand.
- 5- Maintain records and books of account and operation costs during the implementation of activities and delivery of energy services.
- 6- Compliance with the laws and regulations of health care, environment and safety (safe technique) of the work area and staff.
- 7- Payment of the income tax and customs duties in accordance with law.

- 8- Regulation of accounting in accordance with Afghan law and international standards.
- 9- Payment of the approved fees.

Recruitment of Workers

Article 14:

- (1) In order to carry out the relevant activities, the Licensee shall be required to hire Afghan workers and provide them with professional training and technical expertise.
- (2) The licensee may hire foreign skilled workers by the permission of the Department, if domestic workers by the same level or higher is not available.

Renewal of License

Article 15:

- (1) In case of no violation of provisions of this law and the terms of license, the license holder may request the extension of license, 60 working days prior to expiration of the period and provide the appropriate reasons and explanations in written to the Department.
- (2) The Department shall be required to evaluate the application and approve or reject it within 20 working days, and in case of confirmation extend the license, and in case of rejection, notify the applicant in written on its reasons. If not satisfied, the applicant may refer to the authority set forth in the license or contract or the authorities mentioned in Article 41 of this law.

Cases of License Suspension

Article 16:

- (1) If the license holder violates the terms of the license or provisions of this law, the Department may justify him/her in written to correct the defects or advice and warn the license holder as the case may be.

- (2) If the license holder ignores the decision made, the Department may respectively amerce the license holder with the imposition of cash fine or suspend the license within (90) days considering the following conditions:
 - 1- In case of repeated violations after imposition of the fine, up to (20) days.
 - 2- In case of continuing infringement or being failed to resolve the defects despite the warning and without cogent reason, up to (45) days.
 - 3- In case the extension request is proved false or deceptive, up to (60) days.
 - 4- In case of non-payment of the payable fees on due date and receipt of a relevant written notice, up to (90) days.
- (3) In case of being unsatisfied with the suspension order, the license holder may refer to the Dispute Resolution Authority mentioned in the licenses or contracts, or authorities mentioned in Article 41 of the law.

Cases of the License Revocation

Article 17:

- (1) The department may revoke licenses under this law in the following cases:
 - 1- In case of continuous violation of the provisions of Article 16 of this law, despite the punishments envisaged.
 - 2- In case of delay or postponement of the activities under licenses without any cogent reason.
 - 3- In case of non-payment of taxes and land lease tax in the specified time.
 - 4- In case of issuance of bankruptcy order to the holder of license.
- (2) The decision to abolish the license holder's license shall be taken when the Department already has officially warned the license holder regarding the provisions set forth in paragraph (1) of this Article, but the license holder has been disrespectful within the period contained in the warning, without any cogent reason.
- (3) If not satisfied, the applicant may refer to the authority set forth in the license or contract or the authorities mentioned in Article 41 of this law.

- (3) If not satisfied, the applicant may refer to the authority set forth in the license or contract or the authorities mentioned in Article 41 of this law.
- (4) Revocation of license shall not relieve the license holder from liabilities set forth in the license.
- (5) If the license is revoked, the license holder shall be obliged to remove their machineries, equipment, instruments and installations out of the area set forth in the license, or sell it within (6) months after receiving of a written notice, in this case, the Ministry of Energy and Water shall have the priority right to purchase.
- (6) If the equipment, instruments, machineries and installations installed are not sold or removed after the expiration of the period specified in paragraph (5) of this Article, it shall depend to the Ministry of Energy and Water thereafter.

Chapter 3

Establishment, Construction and Installation of Power Production Facilities

Construction and installation of facilities

Article 18:

Construction and assembly of energy generation plants with transmission and distribution systems or without it, shall be carried out after obtaining the license based on a separate contract.

Use of land

Article 19:

- (1) If the land needed for the construction and installation of contracted electric power facilities is governmental property, , the Ministry of Energy and Water shall provide necessary leasing facilities to the contractor within the period specified in the contract according to the terms of the contract and license.
- (2) The Department shall provide the right of having proper traffic road and other easement necessary for construction of the buildings and installation

of power generation facilities.

If the needed land for the easement is a private property, the Department shall obtain the passage permit from the owner or possessor of the property considering the easement rights, in accordance with the law.

- (3) If the owner or occupier of the easement land receives damage as a result of road passage of the license holder, the license holder shall be obliged to compensate the damage.
- (4) If the owner or occupier of the easement land is not satisfied with the offered compensation, he/she may refer to the Department or the Court.

Construction of Rooms and Other Buildings

Article 20:

The license holder may construct rooms and necessary buildings in order to provide energy services and assembly facilities .

Land Lease

Article 21:

- (1) If the land required for activities of energy services, is a private property, the license holder may lease the mentioned, with the consent and agreement of the owner, otherwise the Ministry of Energy and Water may make acquisition of private property to supply the public power.

Easement Right

Article 22:

- (1) If the holder of power generation license needs to commute out of the area under licenses and the mentioned area covers an area greater than the area of the easement rights, and if the land under the license is a governmental property, the department shall be required to obtain a traffic permit from the respective department and if the land is a private property, the license holder shall have to lease it.
- (2) The department may also observing easement rights of the license holder, grant the right of usage of the easement area which is a state property to other persons.

Re-habitation or Fair Replacement**Article 23:**

- (1) If the residents are forced to leave the area as a result of infrastructure activities of power services, the Department shall, before implementation of the project and in coordination with the concerned departments, provide them housing in another place as the final option; In this case, the license holder shall, prior to implementation of the project prepare the re-habitation plan of the affected person in consultation with them, and provide financial resources or fair replacement to the displaced residents.
- (2) If the activity set forth in Paragraph (1) of this Article is performed by the Department, it shall, before implementation of the project be obliged to provide financial resources to displaced residents in consultation with the concerned Departments to meet their expenses and compensation.

Transfer of License**Article 24:**

- (1) The license holder may propose to the Department the transfer of all or part of the privileges of related license to a person eligible under this law.
- (2) The license holder may only agree the transfer of license when the holder has fulfilled its legal obligations and the transferee is eligible under the terms and conditions of this law and undertakes the obligations of the license holder.

Chapter 4**Tariffs****Implementation of Approved Tariff****Article 25:**

- (1) The license holder who is the dominant force in the market may only implement the approved tariffs on the consumers. Approval of tariffs shall be one of the conditions of the license and shall be applied on all license holders without discrimination.

- (2) The tariffs may not be discriminatingly imposed to the benefit or detriment of any person without cogent reasons.
- (3) The departments may, in the following cases revise the tariffs of electricity services:
 - 1- In the event that obvious compromise prevail between the electricity companies in determining the rate of electricity.
 - 2- In the event that one or more companies deliberately have taken measures to destabilize the market in imposition of the tariff.
 - 3- If tariffs are levied by the companies in a deceptive form .

Publishing Tariffs

Article 26:

- (1) The license holder who has a dominant force in the market, shall be obliged to publish the latest tariff of electricity services supplied in the market as follows:
 - 1- Registration of the approved tariffs in the Department.
 - 2- Free of charge publish of the copies of tariffs on the relevant website for public access.
 - 3- Keep copies of tariffs in the respective offices for public use.
- (2) The license holder who is the dominant force in the market shall be obliged to prepare all parts of the tariff to applicants in exchange of a specified amount of remuneration determined by the Department in accordance with the conditions set forth in the license.

Chapter 5 Competition

Determination of Dominant Force in the Market

Article 27:

The holder of license determined by the Department as a dominant force in the market, shall be obliged to submit a written request to the Department within (10) business days according to the procedures, in order to record their new responsibilities as the dominant force in the market.

Misuse of Dominant Force in the Market

Article 28:

- (1) The license holder, who is the dominant force in the market, may not do activities that lead to the misuse of the market. The following shall be deemed to be misusing points of a dominant force in the market:
 - 1- Failure to respond to the competitor's demand on providing limited sources within a month after the demand and with reasonable conditions and limits, provided that such a facility shall be available to the license holder.
 - 2- Bringing together the energy services by imposition of conditions, limits and determination of price by the license holder who has a dominating force in the market and impose it as a condition(s) on the new competitors to reduce competition.
 - 3- Surpassing in the acquisition or preservation of limited resources, including the right of traffic to carry out energy services activities in order to prevent the entry of other competitors in the market.
 - 4- Delivery of services at a price lower than the cost of service or any other rate approved by the Ministry of Energy and Water.
 - 5- Discount on a service that serves to reduce competition and compensate it in another service.
The cases that the Ministry of Energy and Water has specifically approved such discounts in the tariffs are exempted from this provision.
 - 6- Incompetency in implementation of obligations of interpersonal connection under this law.
 - 7- Discrimination in the provision of interpersonal connections access or other services or facilities to competitors. Where the conditions are admissible based on the difference in prices, insufficiency of facilities or available resources, shall be exempted.
- (2) The following measures that prevents the development of the market and entry of the competitors to the market, shall also forbidden:
 - 1- Determination of prices to the competitor upon wholesale transaction increase or decrease the prices in order to harm the competitor or both that makes the benefit or entry of the competitor to the market impossible.

- 2- Asking the license holder or forcing the competitor to avoid the sale.
- 3- Setting up the technical specifications of the relevant network or its price in a way that prevents the network activities and/or the purchasing of the competitor's services.
- 4- Evasion to provide timely technical information, resources, information and other business data needed to new competitors to provide services.
- 5- Using the information gained from competitor on interpersonal connection or supply of services by the license holder who has the dominant force in order to compete with them.

Anti-Competitive Activities

Article 29:

No one shall be permitted to take actions in limiting or disrupting activities related to electricity supply competition in the market; the following shall be considered to include these activities:

- 1- Setting prices or other conditions, or service limits in electricity market.
- 2- Assignment of person who wins the contract in the electricity market.
- 3- Division, partner or determination of electricity markets.

Determination of Misuse of Dominant Market Force and Anti-Competitive Activities

Article 30:

The Department may itself or through the complaint or information, determine misuse of dominant market force or anti-competitive activity of the license holder and shall take necessary measures in this regard. The measures taken by the Department shall be applicable in this regard, unless the other party not satisfied with it and refers to the dispute resolution authority or a court.

Measures Preventing Misuse or Anti-Competition Activity

Article 31:

The Department shall be obliged to take the following measures in order to prevent misuse of dominant force and anti-competitive activity:

- 1- To appoint one or more persons to stop the measures which lead to abuse or anti-competitive activities, and/or to reduce its arising impacts
- 2- To review reports prepared by the responsible persons and gain information about stoppage or continuation of prohibited activities and taking actions necessary to eliminate the negative impacts of these activities on the market, competitors and consumers.
- 3- To oblige individuals included in the decision to prepare tariffs based on cost paid and implement it within (20) working days after registration in the Department.
- 4- To deprive offenders who frequently commit crime from adopted decisions on some commercial areas or prohibiting the activities of other entities or their book of accounts, provided that the permit holder has already been warned of such a decision in written and the effectiveness of decision is ensured.

Network Interconnection and Access to it

Commitments related to Interconnection

Article 32:

- (1) The license holder shall be obliged to provide interconnection of the electricity networks with regard to the provisions of this law and the terms of the relevant license.
- (2) The permit holder, who has a dominating force in the market, shall effectively and non-discriminatingly ensure interconnection in possible technical areas amongst other permit holders.
- (3) The permit holder who has a dominating force in the market shall be obliged to

make available to the other license holders, the accounting information, technical specifications, network characteristics, and the conditions and limits along with the price approved by the Department.

- (4) The department may oblige the license holders who have dominant force in the market to make available equal opportunities (including price, timeframe and quality) to affiliated and non-affiliated competitors under identical conditions.
- (5) The license holder may reject the request for interpersonal connection based on justified reasons on lack of technical facilities.
- (6) If the interpersonal connection that has been requested at a specific location is unpractical based on the technical reasons and practical in one or more points, the supplier shall be obliged to explain to the applicant the reasons of all the technical and commercial conditions that allow connection.
- (7) The holder of licenses that do not have a dominating force in the market, shall have the right to negotiate requirements with each other about the conditions of interpersonal connection; in case of failure to reach an agreement, they may refer the relevant decision to the Ministry of Energy and Water. The decision made by the Ministry of Energy and Water shall be applicable on the parties.

Suggesting Interconnection Points

Article 33:

- (1) The licensee who has a dominant force in the market shall be obliged to submit the list of requested connection points in accordance with the provisions of this law to the Department for approval.
- (2) The licensee, who has been identified by the Department as a dominant force in the market, shall within 20 working days of identification, provide the proposal of connection points for approval to the Department which contains the following technical and commercial information:
 - 1- List of all connection standards and services, and its explanation,
 - 2- Location of connection points, conditions and limits of its connection and disconnection,

- 1- All applicable technical requirements and protocols for connection,
- 2- Conditions of testing the operation of connections,
- 3- Power flow control during connection,
- 4- Requirements in order to identify the connection lines,
- 5- The least conditions to notify any changes, annexes and termination conditions of the connection Agreement,
- 6- Other technical data needed to create the possibility of connection in accordance with the provisions of this law.

Commercial proposal includes:

- 1- Applicable tariffs and its conditions and limits, in a manner that shall be appropriate, non-discriminatory and on the basis of estimation on increment in revenues and expenditures,
 - 2- Protectable confidential information,
 - 3- Other commercial information needed to implement interpersonal connection in accordance with the provisions of this law,
- (3) Having received the connection points proposal, the department shall be obliged to release a statement in order to collect public opinion and publish it in the relevant website, and use the connection points after reviewing the comments and responses provided,.
- (4) The department may amend the proposal for interpersonal connection points considering the provisions of paragraph (2) of this article.
- (5) The licensee responsible for providing interpersonal connection in accordance with the provisions of this Law, shall implement the interpersonal connection based on the approved proposal of the interpersonal connection points. Any change to the proposal of interpersonal connection points shall not be allowed before approval and registration in the Department.

Implementation of Suggestion on Connection Points

Article 34:

- (1) Interpersonal connection service provider shall provide the answer within (40) business days from the date of receipt of the request based on approved proposal.
- (2) If the interpersonal connection service provider is not able to connect the requested connection points, it shall be obliged to inform the applicant and suggest another alternative. In case of agreement of the parties to the proposed alternative, the parties shall conclude the related contract and publish them on the website of the Department.

In case of disagreement, the applicant may refer to the Department to resolve the dispute, in this case the decision taken by the Department shall be applicable.

Chapter 7 Access to Properties

Use of Property

Article 35:

- (1) The License holder may himself/herself or through the Department obtain the agreement of relevant authorities in order to build, maintain, and activate the transmission services network, distribution, import and export of electricity from the highways and public properties.
- (2) The department may, at the request of the relevant agencies at their capacity, give necessary guidance to the license holder in relation to the change in the network course, transmission, distribution, import and export of electricity power.
- (3) The department may upon obtaining the consent of relevant agencies or landlord, grant license holder the permit for construction, excavations or extension of cables in the ground, underground or in the electric power networks, as appropriate.

- (4) The license holder may use the facilities mentioned in this article only when it does not disturb operation of the existing power networks or preventive measures of maintenance of public roads, water supply, canalization and sewerage, oil and gas pipelines, and telecommunications facilities or other public facilities.
- (5) The cost of repositioning or modifying the existing facilities granted to the new network under this law, shall be borne by the demander, and the cost for protective measures stated in this Article shall be the responsibility of the license holder.

Ancient, Cultural, Historical Traces and the Environment Protection

Article 36:

The license holder shall be obliged to, in accordance with provisions of relevant laws, observe respect for maintenance of the areas having historical, cultural, archaeological and environmental importance.

Joint Space Use

Article 37:

- (1) If the holders of licenses install required devices in a place in where actually another network is operating, they shall obtain the consent of the earlier holders of licenses in this regard.
- (2) If a place is used jointly, the costs based on mutual consent shall be divided amongst parties or else, the parties may submit the matter to the Department for decision making.
- (3) The license holder who has a dominating force in the market shall be obliged to register and record the tariffs, terms and conditions of use of common space in the department.

Chapter 8

Protection of Electricity Consumers

Power Supply Conditions

Article 38:

- (1) The department shall be obliged to adjust the conditions for provision of electricity services considering consumer interests and on the basis of special procedure.
- (2) The procedure shall include the following:
 - 1- Preparation of the statement documents and other instruments in one of the official languages of Afghanistan.
 - 2- The right of access to common property in order to provide energy services on the basis of consent of the owner.
 - 3- The right to use electricity services.
 - 4- Ensuring consumers protection on the use of energy services.
 - 5- Protection of consumer's recorded confidential documents.
 - 6- Compensation of incomplete and defective services to the consumers.
 - 7- Scope of the responsibilities of the license holder.
 - 8- Determination of time period for payment of tariffs and fees .
 - 9- Suspension, disconnection and resupply of electricity energy services.
 - 10- The manner of reviewing consumers complaints.
 - 11- Other issues considered necessary under this law by the department.

Chapter 9

Investment Support

Encourage and Support

Article 39:

The investment in the area of energy services and its infrastructure facilities shall take place in accordance with the provisions of the Investment Law and the provisions of this law, and the investor shall be benefitted from the privileges and possessions of investment under the relevant laws and regulations.

Foreign Investment

Article 40:

- (1) Foreign investment in energy services and its infrastructure facilities shall be subject to the private investment law in the following cases:
 - 1- Access to banking facilities,
 - 2- The transfer of capital and its profit,
 - 3- Transfer of the actual foreign debt and its other payments,
 - 4- Sale of approved enterprise and transfer of its income.
 - 5- Expropriations, compensation and the transfer of its funds and the right of reference to the court.
- (2) The holder of licenses, importers and vendors of the electricity energy equipment shall have to perform their tax obligations under provisions of the law.

Chapter 10

Dispute Resolution

Dispute Resolution Authority

Article 41:

- (1) If disputes arise between the holder of the license and the Department or the holder of licenses and other persons on energy supply activities, the parties may resolve it by mutual negotiation or through the disputes resolving authority set forth in the license or contract. In case, mentioned authority is not specified, they may refer to one of the following references or authorities:
 - 1- Mediation of experts based on consent of parties,
 - 2- The Disputes Resolution Board of the Ministry of Energy and Water ,
The dispute resolution Board shall be determined in the following manner based on proposal of the Ministry of Energy and Water and approval of the government:
 - One of the independent qualified experts,
 - One of the electrical energy services experts,
 - A lawyer proposed by the Afghanistan Lawyers Union

- 3- Commercial Dispute Resolution Center of the Chamber of Commerce and Industry of Afghanistan,
 - 4- Financial Disputes Resolution Commission under the DAB Law.
 - 5- International Center for Settlement of Investment Disputes (ICSID),
 - 6- The United Nations Commission for International Trade Rights Arbitration Law (UNCITRAL),
 - 7- The competent court in Afghanistan,
- (2) In case of conflict, a foreign investor may refer to one of the references contained in items (4 and 5) of paragraph (1) of this Article.
 - (3) The decision of is the authority referred to, shall be deemed final.
 - (4) In cases under paragraph (1) of this Article, the license shall be valid until the end of that period, unless the license holder demands suspension or transfer of a part of its obligations to the Department.

Chapter 11

Violations and Disciplinary Actions

Fines

Article 42:

- (1) A person, who makes construction of facilities or infrastructure of supply, distribution, transfer, import and export of electricity energy without obtaining licenses, shall be obliged to pay a fine equivalent to five percent of the total investment.
- (2) If the licensee misuses the dominant force in the market, it shall in addition to compensation for damages, be also fined an amount equivalent to ten percent of total loss compensation.
- (3) If the licensee who has a dominating force in the market, without a valid reason denies access to the network or the use of common locations, in addition to compensation for damage to the permit holder shall also be obliged to pay a fine equivalent to ten percent of loss compensation.
- (4) If the licensee without obtaining the approval of the tariff takes measures in publication of the tariff, or receives payments more than specified fees, in

addition to compensation shall be obliged to pay a fine equivalent to the illegal fees received.

- (5) If the licensee does not provide to the Department the copies of documents containing technical and financial information, expenses, interpersonal connections, internal protocols, changes and increases, shall be obliged to pay a fine equivalent to fifty percent of the fee determined by the respective license.
- (6) If the licensee fails to deliver services as subsidies in accordance with the criteria of license or provides the services contrary to the provisions of this law, it shall be obliged to pay the amount equivalent to the subsidy.
- (7) If the licensee transfers the license to another person without prior consent of the department, it shall be obliged to pay a fine equivalent to ten percent of the total investment.
- (8) If the licensee operates the electricity energy equipment without prior permission of the Department or uses the appliances and equipment that would cause threat, severe damage and frequent interference and disconnection of the electricity, in addition to compensation for damage shall also pay a fine equivalent to twenty percent of compensation.
- (9) If the licensee does not pay the fees by the due date, it shall be obliged to pay a cash fine equivalent to two fold of the determined fee.
- (10) If the licensee makes the use of electricity energy machineries and installation in private land areas without the right of use, it shall be obliged to pay for the damages incurred to the affected person.
- (11) If the licensee does not provide the requested information to the Department or refuses the legal demands necessary for the consumers information access in accordance with the provisions of this law, it shall be obliged to pay a fine equivalent to fifty percent of the fee determined by the respective licenses.

Non-Satisfaction

Article 43:

If a person does not consent to the fine imposed by the Department, he/she may refer the objection to the dispute resolution authority.

Chapter 12

Final provisions

Lease of Electricity Power Plants

Article 44:

The Authority may lease the electrical energy plants in accordance with the relevant provisions of the law. The lease period , conditions, and manner of use shall be specified in the contract.

Terms of Use of the Instruments and Equipments

Article 45:

- (1) The equipments and tools of the electricity network may be used when they comply with the approved standards of the Ministry of Energy and Water.
- (2) The department shall issue the permit for operation of the equipment of the electricity network used by the holders of licenses in Afghanistan according to the regional and international standards and the relevant procedures.
- (3) The owner of approved equipments under paragraph (2) of this Article shall be obliged to hold the documentation that show the source and approving department.

Preparing the Grounds for Access of General Public to the Energy Services

Article 46:

MEW shall be obliged to step by step ensure and prepare the grounds for access of general public to the energy services in terms of its quality and quantity in accordance with the objectives set forth in this Law and national development within the country.

Correction of Defects in case of Violation

Article 47:

- (1) If the holder of the license violates the terms of license, procedures, regulations or provisions of this Act, the department may issue a written guidance on correction of the deficiencies within the certain period, or impose fines under this Act or suspend or revoke the relevant license.
- (2) Cash fine under the law shall be imposed by the Department and transferred to the government account.

Publication of Documents through Website

Article 48:

- (1) The Department may publish the notifications, decisions, licenses, suggestions and agreements related to interpersonal network connection and other such non-confidential documents through the relevant website.
- (2) The Departments may make available to the applicants the copy of documents set forth in paragraph (1) of this article in exchange of price specified by law.

Delivery of Payments to the Government Account

Article 49:

Fees, the right to lease state property and other payments shall be transferred to the government account and in case of refusal or delay in delivery of payments, the mentioned funds shall be obtained as a debt from other assets of the permit holder as prescribed by a competent court.

Language used in Preparation of Documents

Article 50:

- (1) The preparation of documents and correspondence may be conducted in English and the native language of the license holder, in addition to one of the two official languages (Pashto and Dari).

- (2) Document presented in foreign language shall be translated by an authorized translator into one of the two languages (Pashto or Dari) by the expenses of the license holder and deemed valid after confirmation of the legal authorities.

Transitional Provisions

Article 51:

- (1) Licenses that have been issued prior to the enforcement of this law shall be valid if not contrary to the provisions of this Act.
- (2) If the licenses referred to in paragraph (1) of this article violate the provisions of this law, the license holders shall be obliged to obtain the relevant licenses from the Department within six months after the enforcement of this law in accordance with the terms of the license, otherwise it shall be invalid.

Proposal for Regulation and Enactment of Procedure

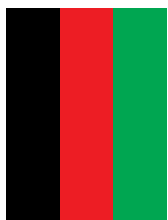
Article 52:

MEW may propose regulations and impose procedures not contrary to the provisions of this Act for the better implementation of this law.

Date of Enforcement

Article 53:

This law shall come into force from the date of endorsement and published in the Official Gazette.



Islamic Republic of Afghanistan



Ministry Of Energy and Water

RENEWABLE ENERGY POLICY

FOREWORD

Afghanistan has enormous Renewable Energy Resources with excellent to fairly good generation potential. These resources are spread over wide geographical areas throughout the country, in contrast to the other conventional energy resources, which are concentrated and location specific.

Afghanistan can produce around 318 GW of electricity utilizing available renewable energy sources in the country through diverse renewable energy portfolio representing Hydro (23,000 MW), Wind (67,000 MW), Solar (222,000 MW), Geothermal (3,000 – 3,500 MW), Biomass (4000 MW). However, so far only parts of hydroelectric power projects have been implemented.

Rapid deployment of renewable energy projects in Afghanistan will bring significant socio-economic benefit, employment opportunity and access to energy, energy security, overall growth and possibilities for International Climate Change Mitigation support. The Government of Afghanistan would like to be a partner of international of more than percent of energy supply. The national renewable energy market is expected to grow strongly in the coming decade and beyond.

The Ministry of Energy and Water (MEW) has developed the Renewable Energy Policy Afghanistan, and which envisage main streaming of renewable energy projects in the development and growth of REN sector particularly in the PPP mode.

The Policy will be implemented in two terms – TERM 1 (2015- 2020) will create and support an atmosphere and activities for the development and growth of REN sector particularly in the PPP mode, and will take remarkable tendency of private sector to invest in renewable energy sector and TERM 2 (2021-2032) will deploy REN in full commercialization mode, based on the experience gained under the short term, the policy for the next phases will be consolidated and elements of competition will be introduced.

Some salient features of Renewable Energy Policy are:



- I. It invites investment from the private sector under the following categories of proposals:
 - a. Independent power projects (IPPs) for sale of power to the grid only.
 - b. Captive power producers cum grid spillover power projects sells to electricity Distributer Company like small solar schemes top roofs.
 - c. Isolated grid power projects i.e. small, stand-alone projects.

- II. Electricity purchase by Utility (ies) from qualifying renewable energy projects that has been made mandatory under RPS.

- III. This permits investor in accordance to electricity services law to generate electricity based on renewable energy resources at one or multiple location (s) and receive an equivalent amount for own use elsewhere on the grid at the investor's own cost of generation by accounting transmission losses and paying for wheeling charges.

- IV. This policy allows net metering and billing so that the producer can sell surplus electricity at one time and receive electricity from the grid at another time and settle accounts on net basis as agreed under power purchase agreement. This will directly benefit the economics of small scale power producers, dispersed generation and optimize capacity utilization of installed systems.

- V. The policy delicensens and deregulates small scale power production through renewable resources below 100 kW according to Part Three Article Eight Clause Two of Afghanistan regulatory Electricity services law . These provisions will beneficial micro, mini and small hydro projects as well as solar-based electricity production.

- VI. This lays down simplified and transparent principles of tariff determination and insulates the investor from resource variability risk, which is allocated to the power purchaser.

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- VII. This facilitates projects to obtain carbon credits for avoided greenhouse gas emissions, helping improve financial returns and reducing per unit costs for the purchaser.
- VIII. This policy strengthens guidelines according to economic strategies for attraction of private sector, And Ministry of Energy and Water is hopeful that this policy avail for better condition of electricity distribution, take part in rapid sustainable economic growth and environment.
- IX. The policy may require an amendment and minor changes based on the experience and /or technical difficulties of projects, utility (ies) payments, investor's suggestions and recommendations.

I wish to express my sincere gratitude to energy policy department by virtue of consideration their responsibilities with the support of German Cooperation (GIZ) has taken the initiative of developing Afghanistan Renewable Energy Policy through a process of wide stakeholder consultations at different stages, from formulation till finalization of the policy.

I thanks the German international Cooperation for their invaluable financial support and for drafting Afghanistan Renewable Energy Policy. I am strongly encouraged to see the participation of the Afghan people, International Community and sincerely appreciate the efforts of all those who contributed to the development of this important document.

Regards

Engineer Ali Ahmad Osmani
Minister of Energy and Water

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The Renewable Energy Policy has been drafted in a collaborative manner. Various ministries, organizations and their representatives have been consulted and are duly acknowledged here for their support, guidance and valuable inputs throughout the process of development of this National Renewable Energy Policy.

1. Deputy Minister of Energy, Ministry of Energy and Water
2. Energy Policy Directorate, Ministry of Energy and Water
3. Renewable Energy Directorate, Ministry of Energy and Water
4. Energy Programming Directorate, Ministry of Energy and Water
5. Inter-Ministerial Commission for Energy Secretariat Team
6. National Area Based Development Program Energy for Rural Development, Ministry of Rural Rehabilitation and Development
7. Da Afghanistan Breshna Sherkat (DABS)
8. Renewable Energy Coordination Committee (RECC)
9. National Environmental Protection Agency (NEPA), Afghanistan
10. United States Assistance International Development (USAID)
11. Institutional Development for Energy in Afghanistan GIZ(IDEA)

ABBREVIATIONS

ANDS	Afghanistan National Development Strategy
Btu	British Thermal Unit
Co ₂	Carbon dioxide
DABS	Da Afghanistan Breshna Sherkat
DPR	Detailed Project Report
ECO	Economic Cooperation Organization
EPD	Energy Policy Department
GO	Government Organization
GW	Giga Watt
ICE	Inter-Ministerial Commission for Energy
ICRE	Inter-Ministerial Commission for Renewable Energy
IPP	Independent Power Producer
IRENA	International Renewable Energy Agency
IRR	Internal Rate of Return
kWh	kilo Watt hour
LCOE	Levelized Cost Of Energy
MAIL	Ministry of Agriculture, Irrigation and Livestock
MEW	Ministry of Energy and Water
MFF	Multi-tranche Financing Facility
MHP	Micro Hydro Power
MoEc	Ministry of Economy
MOF	Ministry of Finance
MPH	Ministry of Public Health
MRRD	Ministry of Rural Rehabilitation and Development
MW	Mega Watt
NAMA	Nationally Appropriate Mitigation Action
NEPA	National Environmental Protection Agency
NESP	National Energy Supply Programme
NGO	Non-Governmental Organizations
PPA	Power Purchase Agreement
PPP	Public-Private-Partnership

PSMP	Power Sector Master Plan
RECC	Renewable Energy Coordination Committee
RED	Renewable Energy Department
REN	Renewable Energy
RET	Renewable Energy Technologies
RREP	Rural Renewable Energy Policy
SAARC	South Asian Association for Regional Cooperation
SE4ALL	Sustainable Energy for All
UNDP	United Nation Development Programme
ZREC	Zonal Renewable Energy Centre

EXECUTIVE SUMMARY

Afghanistan is poised for stability and growth and would require reliable supply of energy to fuel this growth. The country is endowed with renewable energy resources including solar, wind, hydro, bio-mass and geothermal. The Energy Services Law aims at providing power energy through overall natural resources of the country and importing power energy, thereby ensuring the deployment of Renewable Energy (REN) for improving the overall power scenario in Afghanistan.

The Ministry of Energy and Water (MEW), as one of the Key ministries to plan and direct the development of energy sector in Afghanistan, has now prepared the Afghanistan Renewable Energy Policy (AREP) which aims to provide a thrust and direction to the REN sector.

The Policy is aligned to the Power Sector Master Plan (PSMP) and the Afghanistan National Development Strategy (ANDS) to set a framework for deployment and growth of REN and it connects with the Rural Renewable Energy Policy (RREP) to ensure seamless adoption and implementation of the policy guidelines in rural energy sector.

The Afghanistan REN Policy sets a target for deploying 4500 – 5000 MW of REN capacity by 2032, which is equivalent of 95% of the total energy mix of 5000 –6000 MW as per the targets of PSMP. The scope of the Policy covers all REN resources and technologies that can be deployed in a techno-economically and environmentally sustainable manner in Afghanistan. The Policy will be implemented in two terms – TERM 1 (2015 – 2020) will create and support an atmosphere and activities for the development and growth of REN sector particularly in the Public Private Partnership (PPP) mode, and TERM 2 (2021-2032) will deploy REN in full commercialization mode.

A new entity” Renewable Energy Coordination Committee (RECC) will be set up within the MEW, having statutory powers and the authority granted by the Presidential Decree, to oversee the implementation of AREP in TERM 1. The secretariat for the RECC will be hosted by MEW. Under the supervision of the Deputy Minister energy, the Renewable Energy Department will be in charge for RECC secretariat, that will be responsible for coordination among several government departments and agencies and effectively perform the implementation of AREP. Under the RECC technical working groups will be established from the offer-mentioned institution.. The decision for implementation of this policy for second Term will be taken based on analyzation of first Term.

Significant features of the Policy are:

1. The policy identifies high priority sectors with strategic objectives where deployment of REN projects will be taken up in programmatic mode during TERM 1.
2. It supports detailed zone-wise-mapping of REN resources, preparation of REN Atlas for Afghanistan and involve in preparation and development of provincial level maps and master plans.
3. The policy facilitates decentralized governance and coordination structure through the creation of Zonal Renewable Energy Centers (ZREC) within RED.
4. According to this policy, ministry of rural rehabilitation and development (MRRD) has the authority to implement up to 1mw of renewable energy projects. it is worth mentioning that all Renewable Energy Projects with the capacity of 100KW under the regulatory policy with coordination of MEW is implementable in rural areas.
5. It encourages private sector involvement by providing financial incentives and other facilitation in terms of wheeling and banking, “must-run” status, freedom to sale power to third party, land acquisition and leasing, licensing, regulatory oversight.

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6. The policy de-licenses REN projects up to 100 kW to be implemented by private sector, NGOs or CBOs, individuals on behalf of any Ministry, utility or donor.
7. It specifies guidelines for setting tariffs for different categories of REN projects.
8. It lays the foundation for setting up “basket-funds” for REN projects which would evolve into a dedicated REN financing institution in TERM 2 of the Policy implementation.
9. It recognizes the importance of institutional strengthening and possible reorganization, including setting up of new institutions and facilities camps.
10. It mandates the use of standards, quality control, monitoring, knowledge management, supports local manufacturing units, user training and awareness creation.
11. The policy recognizes the need to establish Feed-in-Tariff, Regulated investment Return Net/Smart Metering, Market Premium, Tax Based Incentives, Financial Incentives such as Grants, term L soft term loans, Loans, Rebates and Production Incentives
12. The policy also supports Rules and Regulations, Grid and Mini Grid Regulation, Market Regulation, National Strategic Reserve, Capacity Mechanism, Demand Response incentives, Introduction of REN Portfolio Standards (Quota Schemes), Ring Fence Budget, the mandatory requirement to sell of Green Power, Fuel disclosure, policies, and subsidies as considered and declared by the Renewable Energy Department, Ministry Of Energy and Water.
13. It encourages and envisages active participation of women on supply and demand side of REN projects.
14. It provides a platform to integrate environment and energy efficiency with REN sector.

The Policy is dedicated to realizing the vision of Islamic Republic of Afghanistan –A society of hope and prosperity based on strong, private sector led economy, social equity and environmental sustain ability

1.0 CONTEXT AND BACKGROUND

1.1 Afghanistan is poised for stability and growth and would require reliable supply of energy to fuel this growth. Afghanistan National Development Strategy (ANDS) recognizes energy as one of the pillars for the socio-economic development of the country within which Expanded or New Supply from renewable energy resources is one of the important components. The Afghan Energy Strategy contains an implicit prioritization of energy sub-sector activities. Electricity is given far greater preference or priority than other sectors on the belief that modern economies are built on electricity. Accordingly, the strategic goals of Afghan power sector, succinctly defined in the Power Sector Master Plan (PSMP) are to take the rural household electricity connections from a current 28% to 65% level and urban households to 100% level by 2032. The National Energy Supply Programme (NESP) in line with the PSMP aims to prepare for delivery of sufficient electricity to support economic growth at a rate of about 10% per annum to support the Government's broader goal of reducing poverty by 3% per annum and doing so in a cost effective manner given the fiscal realities of Afghanistan. Renewable energy will play a key role in achieving the above goals.

1.2 Afghanistan has a total generation capacity of 1450 MW out of which 80% is from imports. It has another 50 MW off-grid installed capacity from renewable energy (REN) resources. Afghanistan's low per capita consumption of energy (3.73 million Btu per annum in 2011), of electricity (195 kWh per annum³) and its energy self-sufficiency of 35% can be enhanced through the use of renewable energy. Use of renewable energy will also improve the energy security of the country. Issues pertaining to equitable access to modern energy supplies, improved human development indicators, safety and security of vulnerable population including women and children, poverty reduction, among others can also be adequately addressed by the use of renewable energy.



1.3 Even though the per capita CO₂ emissions of Afghanistan is among the lowest (0.3 metric tons) in the world, the use of renewable energy and its positive relationship on impact of climate change would ensure that the country adopts a low carbon approach to growth while at the same time protecting the local environment and reducing the adverse health impacts of using conventional fuels in domestic and commercial activities.

1.4 The PSMP has suggested network planning and expansion in stages wherein 17 provinces will be taken up in first phase, 13 in the second and 3 (Daykundi, Nuristan and Ghor) where network connections are not economically viable for a multitude of reasons. Renewable energy systems could be the only option for providing energy in these three provinces and can play an important role in other provinces.

1.5 The renewable energy sector continues to grow globally. It provided an estimated 19% of global final energy consumption in 2012, and this figure is growing in coming years.. Of this total share in 2012, modern renewables accounted for approximately 10%, with the remainder coming from traditional biomass. Further, at least 144 countries have renewable energy targets and 138 countries have renewable energy support policies in place.

1.6 Afghanistan is endowed with good renewable energy resources. According to the estimates, it has 222 GW of solar potential, 67 GW of wind and 23 GW of hydro potential. In addition, biomass and geo-thermal resources are also available in the Country.

1.7 The Ministry of Energy and Water (MEW) is the nodal Ministry to plan and direct the development of energy sector in Afghanistan. Promotion and use of renewable energy is an integral component of this mandate. The MRRD coordinates with the MEW in deploying renewable energy for rural development within a specified capacity framework. The first draft of the Rural Renewable Energy Policy (RREP) has been developed by MRRD and will be finalized in coordination with MEW and other relevant stakeholders to guide their efforts in this direction. Da Afghanistan Breshna Sherkat (DABS) is a joint stock government company in the field of power which is responsible



for operation and management of power sector which includes power generation through existed facilities, its transmission, dispatching, distribution and provision throughout the country.

1.8 The Renewable Energy Coordination Committee (RECC) with the support of the Inter-Ministerial Commission for Energy (ICE) and provincial energy working groups assigned the task of overall coordination between MEW and MRRD for activities and efforts pertaining to renewable energy projects development.

1.9 The renewable energy projects in Afghanistan have so far been supported extensively by the donor community. Some of the recent initiatives include 1 MW off-grid solar plant in Bamyan, and 2.2 MW of solar and MHP projects in Takhar and Badakhshan provinces. In addition, donors have also supported technical assistance and capacity building activities. The Technical and operational guidelines for MHP and photovoltaic power systems, and technical handbook for micro hydro design have been developed. An online renewable energy database of projects has been prepared, which up to date over 5000 REN projects consisting of MHP, wind and solar are completed and 500 are under construction.

The total installed capacity of these completed and under construction projects is 57,500 kW. Another 100 projects are under planning stage³.

1.10 The REN sector on account of its potential to support the growth of Afghanistan's economy is continuing to attract donors. Some of the likely initiatives are-

- a) Development of a renewable energy roadmap for the country;
- b) A Rapid Assessment / Gap Analysis, with major components focused on renewable energy and energy efficiency as part of SE4All initiative; and
- c) A market assessment survey for renewable energy projects, which will include elements of understanding Willingness to pay (WTP), market size and potential productive uses of renewable energy across the country.



1.11 The growing interest of private sector in REN in Afghanistan is corroborated by the creation of an industry association.

1.12 While the donor support for REN is important, there is a scope for improved coordination and synergies among various donors to support this sector which eventually has to be self- sustaining. From the current donor-supported status, the growth trajectory of REN sector has to follow the path of Public-Private-Partnership (PPP) driven in the interim, to private sector led fully commercial in the long term. The involvement of private sector through the newly created industry association with the donors in PPP mode could be a beginning of this growth trajectory.

1.13 Against this backdrop, the Afghanistan National Renewable Energy Policy (AREP) aims to provide a thrust and direction to the REN sector to follow the above growth trajectory. The AREP is aligned to the PSMP and the ANDS on one hand to set a framework for deployment and growth of REN; it connects with the RREP on the other to ensure seamless adoption and implementation of the policy guidelines in rural energy sector. It proposes to optimize the impacts of integrating renewable energy based solutions with overall rural infrastructure development e.g., educational and medical facilities, roads and telecommunications, clean water supply and sanitation, etc., to enhance social welfare, security, productivity, trade, and economic well-being. Further, it also facilitates the involvement of the public good and the private sector investment in REN and identifies support mechanisms that are required to build an environment for its growth in Afghanistan.



2.0 VISION

The Vision of AREP is enshrined in the Vision of Afghanistan- A society of hope and prosperity based on strong, private sector led economy, social equity and environmental sustainability – and its overall objective is to optimally deploy and utilize renewable energy resources in all possible manner to realize this Vision. Specific goals of AREP to meet the said objectives are presented below:

2.1 Goals

1. The goal of the policy is to Meet the short-term energy needs while strengthening the sector in the long-term, covering sustainable development objectives and substantive share of REN projects.
2. Increase the deployment of Renewable Energy Technologies (RETs) in Afghanistan to meet the targets of PSMP, i.e. 95% of the total energy mix of 5000-6000 MW in 2032 through grid-connected, mini-grids and stand-alone projects in a manner that REN resources would complement and supplement other forms of energy.
3. Provide fiscal and non-fiscal incentives to private sector investors and equipment manufacturers / suppliers to lower the cost of investment, enhance the competitiveness of RETs and nurture the local industry including equipment manufacturers, suppliers and assemblers.
4. Create mechanisms of involving Government Organization (GOs), Non-Governmental Organizations (NGOs), donors and communities through capacity building, awareness creation, networking and exposure visits to support the growth and sustenance of REN sector in Afghanistan.
5. Foster international cooperation, particularly with countries in the region having similar socio-cultural milieu for cross learning and adoption of good practices.
6. Help building safe environment by reduce air pollution, safeguard human health and the environment, provide power to off-grid rural areas as well as help to mitigate climate change issues.



7. The policy will synthesize basic principles of the market economy, the political objectives of energy security through Incentive policies to be structured to encourage the development of renewable energy technologies and provide market opportunities for renewable energy companies to facilitate local governments, industries energy enterprises and communities to benefit and promote renewable energy

2.2 Scope

1. AREP covers all renewable energy resources and technologies in any capacities from Pico watt to megawatt (except for hydro), that can be deployed in a techno-economically and environmentally sustainable manner in Afghanistan. This includes, but not limited to, solar (photovoltaic and thermal), wind, biomass, small hydro, biogas, municipal waste, geo-thermal, fuel cells, clean storage and hybrids of any of the two or more of the above, including hybrids of REN with conventional fuel based options such as diesel generators and fossil fuel power plants.
2. Hydro projects up to 3 MW installed capacity, consisting of pico, micro, mini and small hydro, (as per the below table) will be treated as REN projects and will fall within the purview of AREP.

Type of Hydro project	Capacity (MW)
Pico	<2.5 kW
Micro	<250 kW
Micro	<2500 kW
Small	<25000 kW

1. AREP covers all modes through which REN projects can be developed. This includes grid- connected, mini-grids, hybrids/stand-alone modes.
2. The REN will be used in following applications, but not limited to:
 - a. Centralized power generation and feeding to the national and private utility's grid.
 - b. Mini-grids for distributed generation and supply of electricity for
 - l. nearby loads in industrial, commercial and residential sector under third party sale agreement



- ii. captive use in industrial, commercial and residential sector
- iii. replacement of and/or hybridize with diesel based power generating and supply projects
- iv. rural electrification
- c. Stand-alone systems and devices for:
 - I. rural community access for their basic electricity requirements like Roof-top solar
 - ii. agricultural and other productive applications in both agricultural and non-agricultural sectors
 - iii. usage in rural health centers, street and area lighting, computers in schools, drinking water supply, community welfare center etc.
 - iv. telecommunication purposes such as mobile phone towers, television etc.
 - v. strategic establishments such as in the military
 - v. thermal energy for cooking, water heating, steam production, process heat, space heating, and other usage.
 - vi. Building energy and green habitats

2.3 Implementation of AREP

The AREP will be implemented in two TERMS to achieve the above goals:

1. AREP TERM 1 (2015- 2020) will create and support an atmosphere and activities for the development and growth of REN sector particularly in the PPP mode. It will facilitate a transition from donor supported to private investment driven REN sector with an objective of deploying REN in full commercialization mode during its TERM 2 (2021-2032).
2. The overall goal is to achieve 95% of the total energy mix of 5000 MW to 6000 MW by 2032 translating to a deployment of 4500 MW to 5000 MW of RETs..
3. In order to achieve the above targets, AREP TERM 1 will identify high priority sectors with strategic objectives where deployment of REN projects will be taken up in a programmatic mode. A few of these high priority sectors are:



- a. Hybridization of existing diesel based mini-grids with REN with a strategic objective of reducing the consumption of diesel and switching to a cleaner option.
- b. Rehabilitation of non-operational/ partly operational REN projects preferably through PPP mode ensuring their socio- economic sustainability.
- c. Provinces which will not be serviced by DABS in near future as per the PSMP.
- d. Distributed generation in economic zones and industrial parks for providing reliable electricity to boost commercial and industrial activities.
- e. Grid-connected projects in Public-Private-Partnership (PPP) mode.
- f. Solar and/or wind pumping with finance facilitation to farmers for increasing the agricultural productivity.
- g. Powering mobile telephone network and other telecommunication infrastructure through REN in remote areas for enhancing safety and security of communities.
- h. Roof-top solar PV projects with or without net metering.
- i. The RE Project for growth of Agriculture sector to supply energy for springhouses, livestock's etc....
- j. Biomass energy projects for the rural communities and livestock's.

The proper AREP implementation will lead to formation of Renewable Energy Law for Afghanistan by 2032, clearly defining the energy share from renewable energy to keep that growing as per Afghanistan National Strategy and other related policies.



3.0 POTENTIAL AND COST OF REN RESOURCES AND TECHNOLOGIES

3.1 The macro level mapping of REN resources in Afghanistan has been done and is presented in the below table.

Type of Energy	Potential	Work Done
Solar	222,000 MW* 300 days of sunlight Average solar insolation of 6.5 kWh/m ² /day	Stand alone: Many systems deployed Mini-grid: pilot mini-grids (upto 1MW) deployed Grid Tied: Draft Grid-tie (Kabul Area) pre-feasibility report Roof-top grid Tentative project with Capacity of 0.5 to 3 KW Generation license
MHP	23,000 MW* hydro potential (including large dams) 600 MW Mini and Micro potential	Pilot projects (including pay-for- power mini-grids) Prefeasibility studies 125 MHP sites survey Factsheets
Wind	67,000 MW* 36,000 Km ² windy land 5 MW per Km ²	16 nos. wind monitoring towers 1 year wind data 100 and 30 kW pilot project Generation license
Biomass	4000 MW* 91 MW MSW 3090 MW agriculture waste 840 MW animal waste	300 Biogas plants Surveys Factsheets W2E business plan Waste water treatment
Geo-Thermal	3 big possible regions 70 spots 4-100 MW	2 studies Business proposal

3.2 In order to facilitate the long-term planning for REN projects, a detailed zone-wise mapping of REN resources would be undertaken and the REN Atlas for Afghanistan will be prepared.

3.3 In case of MHP, it should be ensured that the full potential of any identified site be deployed while designing project sizes and capacities.

3.4 Guidelines for calculating Levelized Cost of Energy (LCOE) for each RET using global cost trends but customized to Afghanistan, would be prepared to provide the basis for bench marking project costs, preparing budgets, estimating funding requirements and for the purposes of tariff setting for various REN projects.

- 3.5 While designing any REN project, the project sustainability should be ensured by including all costs for operation, maintenance, repair and replacements for at least 10 years of the project life. Further, the project design should also include the institutional mechanism for O&M for the entire project life.
- 3.6 Provincial level master plans will be prepared that should have resource maps, indicative LCOE for each deploy able REN in the province, potential applications and load centers, database of NGOs and their initiatives in REN, and availability of local manufacturers and suppliers. This will help in implementing REN projects in a techno-economically viable manner.

4.0 INSTITUTIONAL ARRANGEMENT FOR IMPLEMENTATION OF AREP

- 4.1 The MEW will have primary responsibility for strategizing, planning and coordinating the implementation of AREP. In TERM 1 a coordination committee headed by Deputy Minister of Energy will be established under framework of MEW through Policy department RE which is one of their tasks to analyses, monitor and implementation of this policy. Secretariat of this Committee will be with RED In TERM 2 after analyzing TERM 1 implementation of this policy will be reviewed.
- 4.2 Given the importance of REN and the role it will play in the socio-economic development of Afghanistan, its development needs to be put on a “fast-track” mode.

Renewable Energy Coordination committee which will be established under MEW and work under the Deputy Minister for Energy the mandate of the RECC is to coordinate with all relevant gov/non gov entities for the implementation of this policy. Renewable energy department is responsible for the RECC. The committee has technical working groups which the experts will be the mention entities they will work according to the specific plan that will be issued by the RECC. –

- 1.2 7:2- In second term according to the evaluation of first term for the implementation of the policy decision will be taken.
- 1.3 7:3- keeping in view the importance of the renewable energy social and economic development environmental protection in Afghanistan it is needed to forster the development of the REN sector.



1.4 7.4 - The RECC will have members from the MEW, MRRD, MOF, MOE, MAIL, Public health, communication and technology, women affair, education, NEPA, Urban development, ANSA, Municipality of Kabul, private sector DABS, and non-governmental organization among others.

1.5 7.5 - The RECC will be developed as coordination committee to coordinate and facilitate the commercialization and growth of REN sector during TERM 2.

1.6 7.6 - The Renewable Energy Department (RED) of MEW will be the main technical body responsible for, but not limited to the following:

- a. Assessing REN potential and preparing detailed resource maps.
- b. Preparing provincial level REN master plans.
- c. Developing technical designs, benchmarks and performance standards.
- d. Providing technical assistance and oversight to MRRD, DABS and other GOs in designing and implementation of their REN projects on needs basis.
- e. Providing technical support to local industry and manufacturers on needs basis.
- f. Providing technology specific and other technical inputs to MOF for designing fiscal incentives, specifically for facilitating the investment from the private sector.
- g. Designing and implementing pilot and demonstration projects that support either new technology or innovative concepts such as the Public-Private-People-partnership, women entrepreneur led REN projects, REN projects to support MDGs and Post-2015 Development Agenda, roof-top projects on government buildings. This will be done in coordination and collaboration with other agencies.
- h. Coordinating with donors and other funding organizations to ensure synergy of projects.
- i. Facilitating technical training, awareness generation and capacity building of stakeholders across GOs and NGOs.
- j. Be the nodal department in relation to all REN matters.



- 4.6 In accordance with the location specific and decentralized nature of REN, a decentralized governance and coordination structure will be set up wherein zonal level bodies known as Zonal Renewable Energy Centre (ZREC) will be created to oversee the implementation of REN in their respective regions. The ZRECs will coordinate with RED of MEW in executing all of the above responsibilities. The ZRECs may be set up at technical and academic institutions, with NGOs that have required capabilities or within any other existing institutional structure such as that of DABS and MRRD. There are already five RED zonal units that have been created in five river basins of Afghanistan and in TERM 2 of AREP, new units will be set up.
- 4.7 Considering the presence of large rural population in Afghanistan that will benefit the most from REN projects, MRRD will support the implementation of rural REN projects of upto one (1MW) MW capacity for providing energy services to various rural development related applications including domestic, productive, health, education, water pumping etc. and will coordinate with other Ministries such as MAIL and MPH. MRRD can implement RE projects beyond the 100 kW limit to utilize the maximum potential of the resource with coordination with MEW according to the Electricity service Law..
- 4.8 Utilities (such as DABS) will be responsible for the operation and maintenance of all grid-connected and mini-grid projects of above 100 kW capacity. However, for O&M of rural REN projects below the capacity of 100 kW, utilities will coordinate with MRRD.
- 4.9 Private sector as IPP, communities and local entrepreneur will be encouraged to develop and manage REN projects on Built-Own-Operate (BOO) basis, and will be governed by appropriate regulations.
- 4.10 Recognizing the catalytic role that NGOs play in implementation of rural community oriented and community focused REN projects, it would be important to put a formal coordination mechanism in place to ensure exchange of information and ideas on one hand, and to avoid overlaps of efforts on the other. Such a mechanism would be institutionalized in TERM 1 which would also include incentivization, facilitation and felicitation of NGO led efforts. This mechanism will be upgraded to a registration –cum- approval platform in TERM 2.
- 4.11 The policy will create formal linkages and cooperation arrangements with organization such as IRENA, SAARC Energy Centre, ECO and others.

5.0 REGULATION, INCENTIVIZATION & FACILITATION FOR PRIVATE SECTOR PARTICIPATION

5.1 Guidelines for setting up REN projects

1. The main aim of the AREP TERM 1 is to prepare the atmosphere to usher in the commercialization of REN through private sector participation which will be seen in full force during AREP TERM 2. The REN sector has so far been supported mainly by donor funds, which is not a desired scenario for sustaining the REN sector in Afghanistan. It is therefore essential to attract adequate investments from the private sector as the donor and government resources will not have sufficient funds to support the REN sector. However, balancing the requirement of attracting private investments by ensuring appropriate return on investment and that of ensuring reasonability of user charges for the consumers is the critical challenge for the regulatory process.

Since the donors supports are not sustainable, in TERM 1 atmosphere for private sector should be paved.

2. Therefore, the REN development in TERM 1 will happen under PPP mode wherein a synergy of regulations, incentivization and facilitation will instill the confidence among the private sector to invest in REN projects in Afghanistan. While the entire sector is open to investments from the private sector, in terms of priority, the grid-connected large scale projects are likely to be the first ones to attract private investment, followed by the distributed generation sector and then the off-grid stand-alone sector. This prioritization is on account of the risk perception among the private sector on return of its investment. Accordingly, the AREP TERM 1 will set out following guidelines for attracting private sector investment in REN sector:
 - a. Guidelines for setting up grid-connected REN projects.
 - b. Guidelines for setting up projects for distributed generation with local grid.
 - c. Guidelines for setting up off-grid stand-alone projects.
 - d. Guidelines for setting up roof-top solar projects.

3. The guidelines will include, but not limited to the following, as applicable- eligibility criteria; registration process; application process including DPRs and technical designs; clearances and approvals; land acquisition and usage for private, government and community land; grid-connectivity; creation/ use of other infrastructure and facilities such as roads and water; legal, commercial and community related agreements including Power Purchase Agreements (PPAs); safety certifications and quality control procedures; performance guarantees; post commissioning obligations and activities; exit options, both mid-way and at the end of agreed project lifetime; issuing of license (generation, transmission, distribution, operation and maintenance).

5.2 Financial incentives

Considering the fact that REN projects have so far received full funding from donors and are still not able to self-sustain, provision of subsidies is considered necessary and unavoidable. However the subsidies would be reviewed, rationalized and carefully targeted keeping in view affordability and cost effective delivery of reliable energy services. The upfront capital support in the form of subsidies will be provided to all REN projects in order to make them viable by either improving the returns on investment or by reducing the tariffs for commercial and domestic (both urban and rural) consumers. The amount and pattern of subsidy will vary depending upon the technology, location and the design of the project. For instance, stand-alone projects providing basic energy services to remote communities, projects supported by women, or benefiting women and children may receive the highest allocation of subsidies. Subsidies could be given in the form of Preferential Tariffs, Performance Linked Incentives or Viability Gap Funding. Other incentives given to the developers of REN projects will include:

- a) Interest subsidies and soft loans (low interest rates, moratorium/ grace period on repayment, favorable debt-equity ratio).
- b) Customs duty and sales tax exemption for import/ sale of machinery equipment and spare parts meant for the initial installation or for balancing, modernization, maintenance, replacement, or expansion after commissioning of REN projects.



- c) Income tax exemption for the REN project developer for the first 5 years of its commercial operation.
- d) Land acquisition
- e) Security during project implementation.
- f) Other incentives and rebates that are considered necessary from time to time and on case-by-case basis.

5.3 Tariffs

In accordance with the regulatory guidelines²⁰, procedures and processes, following methodology would be adopted for tariff setting for REN projects

1. For grid-connected projects- Tariffs for grid connected projects will be set on the 'cost- plus' basis. A firm PPA will be signed between MEW, DABS and Private utility and the project developer mentioning the tariff, including the escalations.
2. For project having distributed generation and local grid- for distributed generation projects supplying electricity to third party, tariffs will be decided on mutually negotiated basis between MEW/ utility, the project developer and the consumer. Guiding principle for tariff determination could be 'cost- plus basis'. 'Avoided cost of generation' would be the basis in those regions where conventional generation would probably be significantly more expensive than REN source generation, as fuels have to be transported. A firm PPA will be signed between the project developer and MEW/utility. Explain with example (could be deleted)
3. For REN-diesel hybrid projects- Tariffs will be based on replacement cost of diesel and/or prevailing tariffs whichever is less.
4. For off-grid stand-alone project- Tariffs will be on mutually negated basis with an oversight provided by the ZREC to ensure that vulnerable communities are not burdened with high and unaffordable tariffs for basic and essential electricity services.

5.4 Wheeling and banking

All grid-connected projects meant for third party sale or for captive generation will be allowed to wheel and bank the electricity through the national grid owned and operated by utility company (DABS). A separate wheeling and banking agreement will be drawn up between utility company (DABS) and the project developer. The same principle will apply to other private distribution companies that are likely to come up in near future.



5.5 Evacuation of electricit

The project developer of grid-connected project will be responsible for laying the power evacuation lines from the generation point till the substation or interconnection point of utility company (DABS). Utility company (DABS), on the other hand will give the “must-run” status to all REN projects to ensure that all the electricity generated through REN projects in evacuated and utilized.

5.6 Third party sale

AREP allows project developers to set up REN projects both for captive and for third party sale of electricity. In either case, the electricity so generated, will be wheeled and banked either through the utility company (DABS) grid or through a separately created localized grid. In case of latter, the localized grid must adhere to the national grid codes and safety standards, and should be designed in a grid-compatible mode so that their integration with the national grid is possible in future, if need arises.

5.7 Land acquisition and leasing

Government will facilitate the acquisition of land to project developers for setting up grid- connected and mini-grid REN projects and in some cases, procure and lease them out to the developers on long term basis. The procedure for land leasing will be on the basis of competition. The project developer will be required to get into a separate land lease agreement with the concerned authorities.

5.8 Licensing of REN projects

Licenses will be issued to the project developers as per the Electricity service law²⁰ for generation, transmission and distribution of electricity from all REN projects above 100 kW capacity, as well as for their O&M. No licensing will be required for setting up or O&M for REN projects less than 100 kW capacity. However, for such projects, technical oversight will be provided by the ZREC to ensure safety and quality standards of equipment and services. These licensing guidelines will be applicable to all REN projects that are being implemented on behalf of any Ministry, utility, donor or any other entity.

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5.9 Renewable Purchase Obligations

To set precedence and a good example, private utility (DABS) will be encouraged to accept Renewable Purchase Obligations during TERM 1 of AREP, which would be made mandatory to all industrial and commercial consumers of electricity in TERM 2.

5.10 Regulatory Department

The appropriate regulatory department shall have exclusive jurisdiction on those provisions of this policy which are within its regulatory mandate, especially regarding notification of electricity tariffs for sale for power; power purchase agreements; wheeling, banking, distribution, and transmission loss charges; facilities for transmission of REN electricity; and sharing of purchase of power amongst transmission and distribution licensees. Compliance of guidelines, directives, regulations, rules etc. issued by the regulatory authority from time to time regarding these shall be binding on all.

6.0 FINANCING MECHANISMS FOR REN

- 6.1 In order to support the subsidy requirements and the incentives to the private sector, adequate funds would be required which will be created by pooling-in government budgetary resources and donor funds. These funds will be ring-fenced and managed through mechanism of “basket funds” which will provide the foundation block for setting up a dedicated REN financing institution in future
- 6.2 Global experience has shown the catalytic role played by REN specific financing mechanisms and access to finance, particularly by local entrepreneurs in promoting REN sector. A financial institution dedicated to REN will be set up during TERM 2 that will provide customized financial support to all REN projects to private sector, local enterprises, NGOs, women led REN businesses and others. It will pool in funds from the government resources, as well as from donors and international financial institutions such as the Asian Development Bank, Islamic Development Bank, World Bank etc. The preparation and the work required for setting up this new institution will be taken up in TERM 1.
- 6.3 Considering the fact that REN projects facilitate the adaptation and mitigation measures of climate change, they are eligible for benefitting from several funds dedicated for such purposes. All implementing agencies of REN projects, both in public and private sector, will explore receiving of climate funds to increase the viability of their projects during design and development stage itself.

7.0 CAPACITY ASSESSMENT AND ENHANCEMENT FOR STAKEHOLDERS

- 7.1 The REN sector has grown impressively at the global level and new tools and techniques are routinely being used to plan, design, implement and monitor REN projects. While REN is not new to Afghanistan and several projects are operational and under construction, it is prudent to recognize and acknowledge that the capacities, both systemic and human, of Afghan institutions dealing with REN have to be brought at a level where they can absorb and be benefitted from the international development in



technical, managerial, financial and social aspects. Further, it is also important to recognize that existing institutions may need to be reorganized and new institutions may need to be established for effective implementation of AREP in both its terms.

7.2 A comprehensive capacity enhancement program at the institutional level would be designed and executed during TERM 1. This will include identification of stakeholders and their current and future role and an assessment of their capacity needs aligned to these roles; design and delivery of generic, specific and customized capacity enhancement program, and their monitoring and assessment frameworks. This would also include identification of partner training institutions, both within and outside of Afghanistan, particularly in the region, creating semi-formal and formal platforms for networking and cross-learning and facilitation of exchange visits for both trainee and trainers.

7.3 Networking with other organizations working in the field of REN energy such as ECO, SAARC, IRENA, etc. for transfer of knowledge would be facilitated.

8.0 STANDARDS, BENCHMARKS FOR PERFORMANCE AND QUALITY CONTROL

Renewable energy technologies have inherent characteristics of intermittencies and seasonal variations, and therefore, utmost care has to be taken in their deployment for getting the maximum output through efficient designs and use of quality equipment. A robust quality control mechanism is required to ensure the above. Therefore, the development/ adoption of quality standards, testing, certification and accreditation would be taken up on priority in association with ANSA as well as with other national and international institutions. Guidelines for product performance and reliability would also be developed and institutionalized in consultation with all relevant stakeholders. An award and recognition framework for different categories would be formulated and institutionalized in appropriate departments and institutions i.e. at school level, university level, conferences, industry associations and others. Use of standards would be made mandatory for all REN projects.

9.0 SUPPORT FOR LOCAL MANUFACTURING, ASSEMBLY, REPAIR & MAINTENANCE

A strong local industry for manufacture, assembly, installation and servicing would be required to sustain the REN sector in Afghanistan in future. A two pronged strategy would be adopted to create and support a local REN industry. On one hand, a cadre of entrepreneurs would be created through technical and vocational training given by Vocational Training Centre (VTC) of MEW to support the REN sector. This activity would be undertaken in coordination with of Ministries of Education and Higher Education and would involve integrating REN specific education and skill development as a part of curricula at the level of schools, technical colleges, universities, institutions of engineers and architects, among others. Simultaneously, newly created and existing REN enterprises would be strengthened through a slew of incentives and support mechanisms such as access to start –up finance and working capital, incubation of innovative ideas, enhanced skill based training, favorable tax regime, etc. to make them competitive and self-sustaining.

10.0 MONITORING, EVALUATION, AND KNOWLEDGE MANAGEMENT

During the course of development of REN sector, a wealth of knowledge is created that is relevant in improving the design and delivery of REN projects and program, scale-up strategies, mid-course modifications if required, as well as to set the foundation of accountability and responsibility. Several formal and informal mechanisms such as dialogues, networking, and workshops help in creating and managing this knowledge. Monitoring and evaluation counts as one of the important mechanisms. The framework for monitoring, evaluation and periodic review of AREP as well as for various REN projects will be put in place using international expertise in M&E and related fields. The assessment and reviews would be done internally as well as by third parties, including NGOs and experts.



11.0 USER TRAINING AND AWARENESS CREATION

Empowering the user and other stakeholders with information and knowledge on various aspects of REN including its benefits, characteristics, applications etc. will have a lasting impact on its acceptance and right usage. Sensitization and awareness generation program have proven to be effective in enhancing the uptake of RETs globally. RED of MEW will work closely with donor agencies, NGOs and other institutions to promote such program across the country.

12.0 INVOLVEMENT OF WOMEN ON SUPPLY AND DEMAND SIDE OF REN PROJECTS

Women are not only the beneficiaries of RETs, they have also played an important role in managing businesses and program to sell/ promote RETs across the world. The example of Solar Sister in Africa, Barefoot college and Lighting a Billion Lives in India are some of the success stories of women led REN enterprises. A pilot program on supporting women led REN enterprises would be launched to facilitate involvement of women in REN. In addition, they will also be trained for conducting sensitization and awareness generation program.

13.0 INTEGRATING ENVIRONMENT AND ENERGY EFFICIENCY WITH REN

Renewable energy being an environmentally benign sector, its role in facilitating low carbon growth of a country's economy in Nationally Appropriate Mitigation Actions (NAMA) needs to be recognized and acknowledged at all levels of decision making and planning for energy sector including its positive relationship with climate change issues. This will ensure the integration of REN into mainstream energy sector. Further, REN also needs to be integrated with energy efficiency (EE) at all levels of project cycle (i.e. project conceptualization, designing, and implementation) to maximize its benefits. In order to promote this integration, it would be necessary to encourage adoption of EE practices and measures in REN projects. Some of these practices would be labeling of appliances on EE benchmarks, energy audits of buildings/ establishments and adoption of EE practices prior to installing RETs, rating of buildings/ establishments, passive architecture, among others.

GLOSSARY

Avoided cost

Avoided Cost is essentially the marginal cost for a public utility to produce one more unit of power. It consists of two components: avoided energy costs and avoided capacity costs. When a REN project delivers electricity to a utility, the utility will reduce the equivalent amount of electricity generated at its most expensive operating plant. The costs avoided consist of the cost of fuel needed to produce that electricity and the corresponding portion of the plant's operation and maintenance costs. Together these costs comprise the “energy” component of the utility's avoided cost. The second component of capacity means that the electricity supplied by a REN project also contributes to a utility's system reliability. As demand grows in the utility's service area, the reserve margin decreases and at some point the utility will need to add system capacity to meet demand and cover the reserve margin. REN projects avoid adding the system capacity.

Basket funds and ring-fencing of funds

A type of joint financing mechanism where parties contribute funds to a common pool account which are meant for a specific purpose and are therefore called “ring- fenced”. Typically, the donor money is directly entered in the state budget of the beneficiary country in this mechanism. Unlike traditional project specific funding, the basket funding mechanism is not linked to narrow project boundaries and hence, gives more flexibility to the beneficiary country to use them in a programmatic manner.



Climate change, NAMAs and low carbon growth	The concept of low carbon growth has its roots in UNFCCC, adopted in Rio in 1992. It generally refers to low-emissions development strategies. Nationally Appropriate Mitigation Action (NAMA) refers to a set of policies and actions that countries undertake as part of a commitment to reduce greenhouse gas emissions. Use of RENs and energy efficiency is considered to be aligned to low carbon growth.
Cost plus tariffs	Cost plus is a pricing strategy used to maximize the rate of return. There are several variations of cost-plus pricing, but the most common method is to calculate the cost of the product and then add a percentage of the cost as mark-up. This approach sets prices that cover the cost of production and provide enough profit margin for the firm to reach its target rate of return
Evacuation of power	Electricity generated from REN based power plants needs to be immediately evacuated or transmitted and distributed to the load centre from the generation point using appropriately designed power systems.
Grid-connected	REN projects that are feeding power directly to the national grid without having any storage in between
Incubation of innovative ideas	To provide assistance, both technical and commercial, to start-up companies as well as to individuals with innovative business ideas
Independent Power Producer	An entity which is not a public-utility, but owns a power generating system that is capable of generating and selling electricity to utilities and directly to end users



Minigrid	Independent or distributed generating facilities along with their own localized or island grids to generate and distribute electricity to end users, typically in rural areas and densely populated communities
must-run status	Considering the intermittent nature of REN resources, the power generated from grid-connected RETs has to be evacuated immediately to avoid wastage. The power evacuation grid, typically belonging to the utility, should be available and be able to evacuate RET power instantly to avoid the loss of revenue to an IPP who would be paid on the basis of units of electricity fed and metered to the grid
Net metering	Net metering is a billing mechanism that allows residential and commercial consumers of electricity who generate their own solar powered electricity typically on their roof-top, to feed extra electricity into the utility grid and get paid on the basis on net of import and export of electricity using two-way single meter or two separate meters. The tariffs for import and export may be different
Performance linked incentives	A form of payment, typically subsidies, to RET power generator which is linked to its pre-agreed performance such as a fixed amount given for every unit of electricity fed to the grid, or deferred payment of subsidies linked to the completion, operation and management of a REN project
Power Purchase Agreement	Contract between the project developer (who generates electricity) and the utility or any other user (who intends to purchase electricity) which includes all commercial term of sale including, but not limited to tariffs and its escalations.



Preferential tariffs	Policy mechanism designed to encourage the grid-connected or roof-top REN projects. Utilities are obliged to buy electricity from REN projects at a preferential price determined by the regulator using cost-plus approach in order for REN project developers to obtain a reasonable rate of return on their investments. The Government may compensate the utilities by providing the difference between the high purchase price of REN electricity and their average purchase price of electricity from other sources
Private utility	Private investment driven power company that is in the business of managing the distribution and sale of electricity. It may have its own generating facilities alsoAn entity, both in public and private domain, that design, develops and commissions a REN based project
Renewable Purchase Obligations	A mechanism to encourage the generation and usage of REN based electricity. Any large consumer or trader of electricity is mandated by regulation to purchase a specified percentage of its total electricity mix from REN resources
Soft loan	Loan provided to REN based projects on concessional conditions such as low interest rates, large moratorium period, flexibility in collaterals etc.
Stand-alone	REN based devices and systems that are installed at the premise of the user for his/her captive consumption. It does not include any infrastructure for distribution of electricity. Solar home systems, pico-hydro fall in this category



Techno-economic-environment sustainability	While harnessing REN resources in a techno-economically viable manner, care has to be taken not to adversely affect the environment such as through the act of deforestation
Third party sale	Sale of electricity by a REN project developer to non-utility end user using the transmission and distribution infrastructure of the utility's grid
Viability gap funding	REN projects may have high economic returns, but their financial returns may not be attractive for a prospective investor. Government may pitch in and bear some of the costs to make the project financially viable for a private investor. This mechanism is called VGF or viability gap funding
Wheeling and banking of electricity	An entity which generates REN power but does not own the transmission network to transport the power to the load center of the end-user (third party or for its own captive use), may use the utility's grid to wheel and bank the power by paying pre-agreed charges as per the regulations

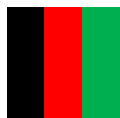
- i Afghanistan National Development Strategy- Energy 1387-1391 (2007/08-2012/13)
- ii Power Sector Master Plan, November 2012
- iii National Energy Supply Programme, January 2013
- iv The Inter-Ministerial Commission for Energy, Quarterly Energy Sector Status Summary Report, Q1 2014
- v International Energy Statistics, <http://www.eia.gov/cfapps/ipdbproject/>
- vi IRENA
- vii <http://data.worldbank.org/indicator/EN.ATM.CO2E.PC/countries/AF?display=graph>
- viii Renewables 2014, Global Status Report, <http://www.ren21.net/Portals/0/documents/Resources/GSR/2014/>
- ix Renewable Energy Database - <http://arbm-mew.gov.af/renewable-energy/>
- xi MoU between MEW, DABS and MoF, dated September 30, 2009

- xii The Presidential Decree formed the Inter-Ministerial Commission for Energy (ICE) on the need for agencies, donors and non-governmental actors involved in the sector. Although the ICE closed during 2012, it is proposed that the ICE Sub-committee on Renewable Energy and Rural Electrification functions will be undertaken by the Rural Energy Co-ordination Committee (RECC), established in late 2012 as a joint initiative of MEW and MRRD, together with international partners, jointly chaired by the Deputy Ministers of MEW and MRRD.
- xiii Courtesy- stakeholder consultations
- xiv Afghan Renewable Energy Sector Presentation by RED Director to ICE on 28th May 2014
- xv Provincial Electrification Concepts have already been made for three provinces. These can be modified, if need be
- xvi “Fast-track” only indicates the priority and emphasis to develop the REN sector. It does not undermine the need or the importance to plan thoroughly
- xvii MEW- RED, Terms of Reference, February 2013
- xviii The scope of coordination with include community consultations, identification and linking of livelihood opportunities, involvement of qualified local entrepreneurs in O&M, facilitation in tariff negotiations, etc.
- xix Aligned to the Private Investment Guidelines by the Ministry of Finance
- xx Draft Law on Regulation of Power Energy Services (English)
- xxi Please also refer to section 5.2 of this Policy
- xxii www.solarsister.org
- xxiii www.barefootcollege.org
- xxiv www.labl.teriin.org



Afghanistan

Miscellaneous Regulations



ISLAMIC REPUBLIC OF AFGHANISTAN



MINISTRY OF ENERGY AND WATER

AFGHANISTAN ENERGY EFFICIENCY POLICY

FINAL DRAFT: OCTOBER 2016

Ministry of Energy and Water

Approved By
Sector Responsible Authorities

Ministry / Agency	Name of Minister/Director	Signature
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

FOREWORD

Afghanistan is building its energy sector to provide the back bone for its socio-economic development. Integrating energy efficiency practices to reduce losses across entire range of energy value chain starting from mining and extraction, transformation, transmission and distribution and end use sectors must become a priority for Afghanistan for long term sustainability of resources and providing access to clean energy for everyone. Energy efficiency in Afghanistan is regarded as an embryonic subject matter presently for policy makers as well as wider population, resulting in various levels of challenges in bringing about necessary changes in social and institutional landscape to carry out policy reforms related to energy efficiency.

This energy efficiency policy is a timely initiative that provides a direction to energy efficiency activities in the country by utilizing the collective strength and interdependencies of several stakeholders and government departments. It endeavours to achieve this by creating an enabling environment for the development of the energy efficiency sector in Afghanistan in short term, and facilitate private investment led energy efficiency market in long term

The salient features of the Afghanistan Energy Efficiency Policy are:

1. It specifies clear goals, objective, strategies and targets to initiate and implement programs and projects applicable to the energy efficiency sector in Afghanistan
2. Within the strategic intent of improving energy efficiency across all sectors, the policy takes a note of importance of public sector demonstrating leadership in adopting energy efficiency practices.
3. It highlights the important role a government has in making energy efficiency practices a mainstream choice for businesses & households through awareness raising, making knowledge accessible, creating regulatory drivers and design of proper financial signals.
4. The Policy mentions the institutional arrangement for its implementation, mechanisms to finance energy efficiency policy and resulting activities as well as the promotion activities which can be used to create awareness and engage stakeholders.
5. It provides guiding principles for executing and managing the energy efficiency activities as a whole, as well as within individual ministries, departments and representatives from private industry
6. The strategic intents and related policy actions have been prioritized for their implementation at short term (TERM 1) and long term (TERM 2) basis, on the basis of its effectiveness and ease to implement
7. A monitoring and evaluation framework has been provided to evaluate effectiveness of institutions engaged in delivering works resulting from this policy, both at program level, as well at policy level.

ACKNOWLEDGEMENTS

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The AEEP has been drafted in a collaborative manner. Various ministries, organizations and their representatives have been consulted and are duly acknowledged here for their support, guidance and valuable inputs throughout the process of development of this national policy.

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ABBREVIATIONS

ACCI	Afghanistan Chamber of Commerce and Industries
AEEC	Afghanistan Energy Efficiency Codes for Building
AEEP	Afghanistan Energy Efficiency Policy
AGBDS	Afghanistan Green Building Design Standards
AISA	Afghanistan Investment Support Agency
ANEP	Afghanistan National Energy Policy
ANSA	Afghan National Standards Authority
BAT	Best Available Technology
CDM	Clean Development Mechanism
CSO	Central Statistics Organization
DABS	Da Afghanistan Breshna Sherkat
DfID	Department for International Development
DoE	Department of Education
EE	Energy Efficiency
ESCO	Energy Service Companies
GoIRA	Government of Islamic Republic of Afghanistan
HIDs	High Intensity Discharge
ICE	Inter-Ministerial Commission for Energy
IT	Information Technology
LEDs	Light Emitting Diodes
MAIL	Ministry of Agriculture, Irrigation and Livestock
MEPS	Minimum Energy Performance Standards
MER	Monitoring, Evaluating and Reporting
MEW	Ministry of Energy and Water
MoF	Ministry of Finance
MoIC	Ministry of Information & Culture
MoRA	Ministry of Hajj and Religious Affairs
MRRD	Ministry of Rural Rehabilitation and Development
MoUD	Ministry of Urban Development
NEPA	National Environmental Policy Act
NLA	Net Lettable Area
OEE	Office of Energy Efficiency
QS	Quality Standards
RED	Renewable Energy Department
REN	Renewable Energy
RET	Renewable Energy Technologies
SMEs	Small and Medium Enterprises
T&D	Transmission & Distribution
TCO	Total cost of Ownership
USAID	United States Agency for International Development

EXECUTIVE SUMMARY

Over the last decade, Afghanistan has made significant reconstruction efforts at all levels of the energy supply chain, in particular, the electricity sector. However, energy access continues to be an imposing challenge for the government. While Afghanistan is building up its domestic generation capacity, it becomes imperative to integrate energy efficiency principles within Afghanistan's energy policy landscape in order to best utilize the scarce energy resources, and reduce costs in the long term.

The Ministry of Energy and Water (MEW), as one of the key ministries to plan and direct the development of energy sector in Afghanistan, has now prepared the Afghanistan Energy Efficiency Policy (AEEP) which aims to provide direction to the energy efficiency activities in the country.

The scope of AEEP covers all sectors on the energy value chain being extraction, transformation, transmission and distribution and end use. The AEEP will be implemented in two terms, TERM1 and TERM 2, to achieve its strategic and policy goals. TERM 1 (2017 – 2020) will work to create enabling environment for the establishment of an energy efficiency industry in Afghanistan. TERM 2 (2021-2032) will be working to enable transition of the energy efficiency industry from a government led activity to a private investment led marketplace.

The Office of Energy Efficiency (OEE), proposed to be created within the Ministry of Environment and Water (MEW), will have primary responsibility for strategizing, planning, budgeting and coordinating the implementation of AEEP. A committee headed by deputy minister of MEW and comprising of relevant stakeholders will be responsible of creating OEE. The OEE will work with a range of public and private sector representative institutions to achieve its objectives and will develop into an independent decision making authority on EE in the long term.

Salient features of the Policy are:

1. The objective of the policy is to adopt an integrated approach to harness all resources on the supply side while applying good demand side management practices in all energy consuming sectors.
2. The policy sets targets for reducing losses in extraction, generation, transmission & distribution and end use and promotes identification and adoption of energy efficiency opportunities across all sectors of the economy through awareness creation and capacity building
3. It seeks leadership from the public sector to adopt energy efficiency practices by setting measurable targets across a range of activities and operations.
4. It advocates for the government to provide resources for business leadership to enable them embrace and lead energy efficiency objectives.
5. The policy encourages households and small to medium enterprises businesses to reduce costs by improving access to energy efficiency projects through technology and financing.
6. It seeks to strengthen consumer awareness in order to empower them make informed choices for energy efficient purchasing.

7. It supports setting up minimum and acceptable standards across a range of options – minimum energy performance scheme for appliances, energy efficiency rating schemes for buildings, minimum renewable energy integration targets for new developments - with the help of legislations.
8. Policy acknowledges the need to create knowledge base and standards to support development of high quality of energy technologies and modern energy efficiency industry
9. It encourages use of renewable energy as generation and demand side management as well as fuel diversification option
10. It uses existing partnership platforms with other countries to exchange energy efficiency ideas, projects, finance and innovation
11. It lays the foundation for setting up “basket-funds” for EE projects which would evolve into a dedicated EE financing institution in TERM 2 of the policy implementation.
12. It recognizes the importance of institutional strengthening and possible reorganization, including setting up of new institution for strategizing, planning, budgeting and coordinating the implementation.

1.0 CONTEXT AND BACKGROUND

1.1 Context

1. Afghanistan is currently experiencing an economic growth rate of sub 2% per annum, and expected to continue moving north¹. The country also continues to experience a consistently healthy population growth of approximately 3% per annum over the last few years². The combined effect of its population and economic growth is putting an upward pressure on annual energy demand, and is expected to continue in the coming years.
2. Even as Afghanistan is rich in energy resources, years of political instability has led to under investment in creation of infrastructure required for extraction, refinement, generation, transmission and distribution of energy services. These assets are critical in delivering a nation's objective of creating an equal opportunity, stable and prosperous society. As an outcome of this historic instability, the nation has been facing chronic challenges in providing energy access to all of its citizens, as well as developing its own energy security.
3. Over the last decade, Afghanistan has made significant reconstruction efforts at all levels of the energy supply chain, in particular, the electricity sector. As a consequence, electricity now reaches 30% population in 2016, compared to only 7% population in 2007, an increase of 23% in almost a decade³. This change has been a direct result of the reforms carried out by the federal government, which has prioritized providing energy supply to every user as one of its national objectives.
4. Even with such impressive results, energy access continues to be an imposing challenge for the government. Afghanistan has one of the lowest per capita electricity consumption in the world and it is mostly attributed to unavailability of both electricity and reliable electricity to a large number of Afghan populations. Moreover, only around a third of the Afghan population has access to electricity of which a majority stays in the urban areas. Kabul alone accounting for 80% of the connected load.
5. Also to note is Afghanistan's energy end use distribution, which is quite unique in global context. While industries account for a majority share in world's energy end use statistics in 2014, this spot is occupied by residential sector (73%) in Afghanistan. It is indicative of an economy, where with favorable global and internal conditions, high rate of growth can be achieved thus a corresponding increase in demand for energy. Energy efficiency, thus becomes a priority focus area for policy makers to reduce pressure on scarce energy resources.
6. The rural communities, which account for about 73% of the total population⁴, are still in the process of getting connected to the grid. This energy access wedge between urban and rural communities is further exacerbated by unavailability of clean fuel in the rural areas. According to the available statistics, more than 97% of the rural population use solid fuels (i.e. firewood, dung cakes, crop residues) for combustion to meet their cooking and space heating needs, usually in inefficient devices⁵. This practice creates adverse outcomes for health of rural communes, in particular, women and children.

¹ <https://www.adb.org/countries/afghanistan/economy>

² <http://www.worldometers.info/world-population/afghanistan-population/>

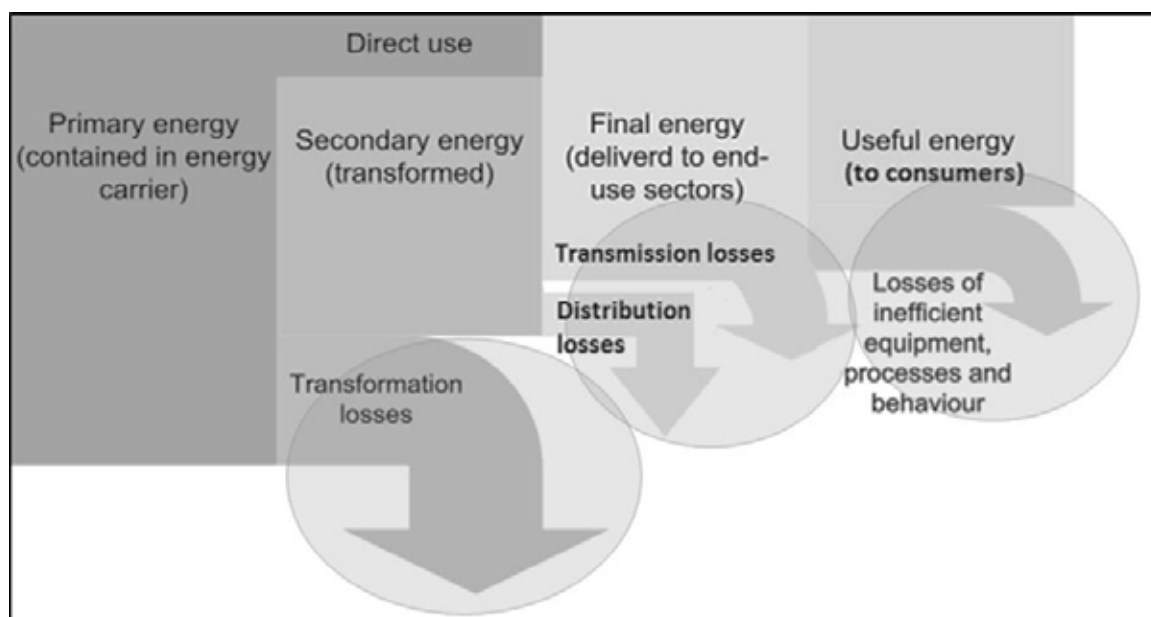
³ http://ethw.org/Electricity_Supply_in_Afghanistan

⁴ <http://data.worldbank.org/indicator/SP.RUR.TOTL.ZS?locations=AF>

⁵ https://www-cif.climateinvestmentfunds.org/sites/default/files/meeting-documents/afghanistan_eoi_0.pdf

7. The energy access challenge also emanates from the situation that Afghanistan is still building up its domestic generation capacity. Currently, it is heavily reliant on electricity imports, which is as high as 60% of the total installed capacity⁶. This brings home another issue of concern for Afghanistan in the form of energy security, which also stretches to other primary energy sources including oil and gas.
8. In 2014, nearly 97% of the country's oil needs were imported⁷. Lack of investments in gas production and transmission infrastructure has restricted development of identified gas reserves. On other hand, large scale construction activity and increasing number of transport vehicles in Afghanistan is resulting in an increase in demand of petroleum products. As an example, 13.7 motor vehicles per 1000 people were added to Afghanistan roads in the years between 2006 and 2011 creating additional demand for barrels of oil in that period⁸.
9. Given the above set of circumstances, investment in increasing the number of power stations, oil and gas extraction, transmission and distribution networks certainly becomes a high priority activity for Afghanistan. However, energy acquisition and distribution being a scarce and costly resource, it becomes equally important to minimize losses at each step of the energy supply chain, starting from production, distribution to end use at consumer level. It therefore becomes imperative to integrate energy efficiency principles within Afghanistan's energy policy landscape.

Energy value chain



Losses occur during energy transformation, transmission distribution and at end consumer use level. The strategic intent of an energy policy is to reduce these losses across entire energy value chain, using technical, procedural and behavioral interventions

10. Energy efficiency is about doing more for less. Each unit of energy which is saved by efficient use translates into a unit of energy not required to be produced. The flow on effects are reduction in carbon emissions, outdoor and indoor pollution and at a larger scale, avoidance of building new power

⁶ <http://red-mew.gov.af/red/index.php/login> assessed August 2016 & Energy Sector Status Summary Report Q2 2016- MoEC/ICE

⁷ <https://www.adb.org/sites/default/files/linked-documents/47282-001-ssa.pdf>

⁸ <https://knoema.com/atlas/Afghanistan/topics/Transportation/Road-transport/Motor-vehicles-per-1000-people>, Motor vehicles include cars, buses, and freight vehicles but do not include two-wheelers. Population refers to midyear population in the year

stations or fuel extraction and refining to cater to additional demand created by inefficient use. Therefore, energy efficiency becomes an important piece in addressing energy access and energy security challenges.

11. Energy efficiency signifies around 40 percent of the GHG reduction potential globally that can be realized⁹. Many nations have put emphasis on energy efficiency measures to stimulate their faltering economies. One of the objectives of Sustainable Energy for All (SE4ALL) - to double the global rate of improvement of energy efficiency – also reflects the global agenda of tapping energy efficiency market. Enhancing energy efficiency was one of the major focal point of the Paris climate agreement made in December 2015.
12. Adoption of energy efficiency measures and practices such as enforcement of building energy codes, mandatory minimum energy performance standards for appliances, taxes incentive and penalties to encourage use of energy efficient appliances, motor vehicles, energy efficient lighting in domestic, commercial, industrial and transport sectors have shown to reduce the intensity of energy demand without compromising on socio-economic growth. For instance, U.S. economic output expanded more than three times since 1970 while demand for energy grew only 50%¹⁰. According to IEA, total worldwide outlay in EE was USD 221 billion in 2015, an increase of 6% from 2014¹¹. The efficiency gains have been greatly led by policy and there are huge potential lying in regions where policy is absent or inadequate.
13. The National Energy Policy of Afghanistan and Afghanistan Renewable Energy Policy advocates energy efficiency to be integrated at all level of project cycle to maximize its benefits. Nationally Appropriate Mitigation Actions (NAMAs), which focuses on reducing emissions and contributing to sustainable development, has also listed EE as one of the main priorities. It recommended establishment of institutional framework, drafting of policy and guidelines, identification of low cost and high return options for implementation of energy efficiency and target of meeting 100 GWh saving.

1.2 Background

Energy efficiency as an area of focus has been a relatively new concept in Afghanistan. Currently, Energy Efficiency (EE) Unit within the Ministry of Energy and Water coordinates and implements energy efficiency works. A few of the significant milestones marking important developments in progression of energy efficiency as a mainstream activity in the country has been discussed below.

1. Background Paper on Energy Efficiency (2012): The energy efficiency background paper (2012) was perhaps the first such study done to identify energy saving potential in Afghanistan. Scope of this paper was limited to demand side electrical energy efficiency. The overall approach towards integrating energy efficiency within Afghanistan's energy landscape was proposed in three distinct terms, including, short term (1-3 years), long term (3-5 years) and continued reforms (5+ years). In the short term, the priority was to undertake energy saving projects which reliable and already available., while in the longer term, institutional reforms would be undertaken to develop an investor friendly marketplace. The paper examined a number of potential technical and policy solutions for improving demand side efficiency in the country, further shortlisted into seven programs to be

⁹ Energy efficiency: A compelling global resource - McKinsey & Company

¹⁰ *The History of Energy Efficiency*, Alliance Commission on National Energy Efficiency Policy, January 2013

¹¹ <http://www.livemint.com/Industry/ReZqqB9J6GcRtVJ7yGjV9O/Progress-made-in-increasing-energy-efficiency-IEA-report.html>

implemented as priority, and included the following: Awareness campaign, Urban re-lamping program to replace incandescent based lighting with CFL, dissemination of solar water heater, Load management, large electric motor efficiency programs, improving building envelop performance and development of Afghan energy services industry.

Suggestions for longer term reforms included setting electricity pricing and tariffs to encourage actions to save energy, capacity building of institutions and industry, nationwide improvement in power quality, norms and standards for household appliances, data collection processes for monitoring and evaluation of projects, and financing mechanisms, incentives, legislations and regulations,

2. **Energy Audits:** Energy audit surveys were conducted at 12 of the government run facilities across Kabul (8), Nangarhar (3), and Herat (1) in the year of 2011. These audits included collection of energy consumption data from the buildings, recommend measures to reduce energy consumption and provide financial analysis of the measures based on energy savings. These projects have been conducted as “demonstration” projects in the country. The main objective of the demonstration projects was to set up a system through which people and utilities can see tangible results from efficient use of electricity and define the degree of possible potentials savings for future intervention. Some of the typical recommendations which were cross cutting for the 11 facilities included:

- Replacement of Incandescent bulbs with CFLs
- Replacement of CFLs with LEDs
- Replacement of Fluorescent lights with lower power rated fluorescent lights
- Halogen/Mercury Vapor lamp with LEDs
- Use of energy efficient Variable Refrigerant Flow Air-conditioning units
- Replacement of Higher Capacity Air-conditioners with lower capacity Air-conditioners
- Replacement of electric water heaters/boilers with solar water heaters/boilers
- Electromagnetic chokes with electronic chokes
- Training and capacity building of building maintenance staff

3. **Readiness Survey:** In 2016, a review of the existing energy efficiency policy landscape was done in Afghanistan, with a view to identify potential gaps in effective promotion of energy efficiency and present next steps to create an energy efficiency policy for focused development of this area. The exercise involved one to one survey and consultations with respondents from government, household, commercial and industry. The output of this work identified lack of awareness and high cost of energy efficient products as main barriers in adoption of energy efficiency practices. Motivating factors as cited by the respondent to be considered in a future policy included personal responsibility and financial saving as the key drivers for change. Support was sought from the government in education and awareness, tighter regulations, access to qualified advice and availability of grants to support projects.
4. **Stakeholder Consultation:** It was also observed that despite recent efforts, development of energy efficiency sector in the country is yet to commence on a noticeable scale. Outcomes from stakeholder consultations identified energy efficiency an embryonic subject matter for policy makers as well as wider population, resulting in various levels of challenges in bringing about necessary changes in social and institutional landscape to push through the energy efficiency reforms.

Some of the challenges that have constrained this change include lack of institutional capacity to implement energy efficiency activities, inadequate systems and processes to capture data which

prohibits measuring and evaluation of energy efficiency interventions, development of energy management tools such as intensity indicators or accounting of country's energy balance. Other important gaps were identified in form of lack of budgetary support; well-defined roles and responsibilities for ministries and departments and poor awareness level among general public & institutions.

5. **Review of six EE Policies:** Through a desktop research of energy efficiency policies from six countries (Australia, China, Germany, India, Pakistan, Kazakhstan), it was observed that some of the features of a well working framework include promotion and adoption of energy efficiency across sectors through various institutions and measures. Establishment of energy efficiency agency was acknowledged in almost all the policies as a necessary instrument to foster the implementation of EE policies.

Regulations like energy labeling and standards have proven effective in lowering energy consumption of specific appliances and equipment and to speed up the diffusion of energy-efficient equipment in the market. Economic incentives aimed at encouraging investments in energy efficient equipment, buildings and processes by reducing the upfront cost, either directly (financial incentives like subsidies, low interest loans) or indirectly (fiscal incentives like tax reduction) have been introduced in almost all EE policies.

Due to constraints on government budgets, policies recommended involvement of the private sector in supporting investments in energy efficiency, through energy service companies (ESCOs) and energy utilities. Energy-savings obligations are an innovative measure in which energy companies have a legal obligation to undertake energy-efficiency activities with their customers. However, a strong institutional setup was required to achieve the participation of private investors in energy efficiency market.

6. Taking the above into account, a concept paper on Afghanistan energy efficiency sector was prepared. This paper recommended development of a national energy efficiency policy which would include political and regulatory measures; financial support mechanism; awareness creation and technical education for capacity building; creation of market conditions and low-risk business environment to overcome the barriers and create favorable regulatory and institutional environment for uptake of EE in Afghanistan.
7. The Afghanistan Energy Efficiency Policy (AEEP) 2016 is an outcome of a consultative process which includes government and private sector. The policy is aimed at providing direction to the energy efficiency activities in the country. It envisions achieving this through utilizing the collective strength and interdependencies of several stakeholders and government departments by creating an enabling environment for the development of the energy efficiency sector in Afghanistan. The drafting of the AEEP is authorized by the Presidential Decree.

2.0 ENERGY SAVING POTENTIAL

1. A list of possible energy efficiency activities applicable to Afghanistan's context and their respective energy saving potential is provided in this section. This list is based on desktop research of publications from several countries including India, France, Thailand, Tajikistan and a 2014 report on World Energy Investment Outlook from the International Energy Association (IEA).
2. Listing of energy efficiency opportunities is primarily concentrated on areas of the economy using electricity as the energy source; however, observations have also been made for energy efficiency opportunities in other sectors which may not use electricity, for example, agriculture, on high level estimates.
3. The list is intended to be used as a guide to further investigate and prioritize implementation of energy saving activities specific to Afghanistan for each of the involved sectors. As the energy saving opportunities and associated savings are indicative and based on desktop research, the actual values may vary once the activities have been implemented.

2.1 End use/Demand side energy consumption

4. In reference to the electricity end use in Afghanistan, it is important to recognize that after years of instability, the country is currently undergoing significant reconstruction exercise. Among other important programs, efforts to provide access to electricity to every section of population in Afghanistan are currently underway.
5. Currently, electricity access is mostly available to urban consumers. For example, the Kabul metropolitan area alone accounts for about 80% of the connected load in the country. This also highlights the urban versus rural divide the country faces in addressing the energy access challenge.
6. Most of the residential energy goes towards heating and cooling a house, followed by appliances, and lighting. Even as the above data may not be exactly applicable to Afghanistan, it does give a rough indication of the areas where energy is usually consumed.
7. The energy efficiency opportunities which are typically present in household sector are listed in the table below. These opportunities have been categorized as per the energy end use of the household sector. The energy efficiency potential improvement has been suggested relative to the baseline technology, whereby, the baseline technology represents the existing inefficient measure.

Energy Efficiency Opportunities in household sector

Category	Technology/Measure	Efficiency Improvement Potential
Lighting Baseline Technology	Incandescent, Halogen based, T8 Fluorescent	Baseline
Lighting Alternatives	Upgrade to CFL Technology	Up to 25%
	Upgrade to T5 Fluorescent tubes	Up to 20%
	Upgrade to LED technology	up to 40%

Category	Technology/Measure	Efficiency Improvement Potential
	Sky lighting	up to 100%
	Sensor and timer controls	Add 5% - 20%
Space Cooling Baseline Technology	Air conditioner	Baseline
Space cooling Alternatives	Air source heat pump	up to 50%
	Advanced air heat pump	up to 70%
Space Cooling Baseline Technology	Ceiling Fans	Baseline
Space cooling Alternatives	High efficiency ceiling fans	up to 20%
Space Heating Baseline Technology	Electric radiators	Baseline
Space Heating Alternative Technology	Electric heat pump	up to 50%
	Biomass fired heater	Fuel Switch
Insulation Baseline Technology	No insulation	Baseline
Insulation Alternative Technology	Loft Insulation	up to 25%
	Floor insulation	up to 15%
	Double glazing windows	up to 15%
	Solid wall insulation	up to 20%
Whitegood Appliances	Least efficient appliance	Baseline
	Efficient appliance	up to 50%
	BAT appliance	up to 70%

8. Public building is the next largest sector with 11% of total demand side electricity consumption. Many of its end uses of electricity are likely to be very similar to the household energy consumption, although on a larger scale. Therefore, the energy efficiency opportunities available for this sector is likely to be very similar to the ones identified for residential sector in the above table. Energy measures which are specific to the public building sector are provided below and are in addition to the measures suggested in Table.

Energy Efficiency Opportunities in Public building sector (in addition to the household sector)

Category	Technology/Measure	Efficiency Improvement Potential
Street Lighting Baseline Technology	Mercury Vapor, T8 Fluorescent	Baseline
Street Lighting Alternatives	Upgrade to CFL Technology	Up to 25%
	Upgrade to LED technology	up to 40%
	Stand-alone solar and battery based street light systems	Fuel Switch

Category	Technology/Measure	Efficiency Improvement Potential
	Sensor and timer controls	Add 5% - 20%
Street Lighting Baseline Technology	Metal Halide, High Pressure Sodium (HID lamps)	Baseline
Street Lighting Alternatives	New generation HID lamps	up to 20%
	Sensor and timer controls	Add 5% - 20%
New design	Lowering pole height to 8 meters will enable using LED lights	Up to 50%
Space Conditioning Baseline Technology	Fixed air volume HVAC	Baseline
Space Conditioning Alternative Technology	Variable air volume HVAC	up to 50%
	Building Management System	up to 25%
	Variable refrigerant volume space conditioning	up to 30%
	Variable frequency drives on air handling units	up to 30%
Space Heating Baseline Technology	Old Boilers – Coal, oil or inefficient models	Baseline
	Condensing Boilers	up to 20%

9. Commercial sector is the third largest end electricity consumer with about 11% of the total. The opportunities identified for the residential and public building sector would cover a majority of potential energy efficiency opportunities.
10. Industries are a fast growing sector in Afghanistan. Industries being diverse and complicated systems tend to have energy efficiency opportunities which are very specific to each industry type. However, there are several energy efficiency opportunities which cut across a range of industry facilities, within several processes of an industry. A selection of these opportunities commonly found in each of the processes with energy saving opportunities closer to 8% is provided in the table below.

Energy Efficiency Opportunities in Industry (Cross sectoral)

Industry Process	Process Step	Efficiency Improvement measures	Efficiency Improvement Potential
Boilers / Steam systems	Steam Piping	Improve steam traps and maintain steam traps	8%
		Repair leaks	3%
		Insulation measures	7%
	Boilers	Boiler maintenance	10%
		Vapor recompression	10%
		Flash and Return condensate heat recovery	5% - 10%
'Furnaces / Process Heater	Furnace	Efficient design burners (e.g. low NOx)	12%

Industry Process	Process Step	Efficiency Improvement measures	Efficiency Improvement Potential
		Flue gas heat recovery	13%
		Reducing wall heat and radiation losses	5% - 10%
		Improved process controls (e.g. air-to-fuel ratio)	6.0%
Cooling and refrigeration	Refrigeration	Systems optimization	8.0%
		Improved process measuring and control	5.0%
		Improved insulation	5.0%
Motor-driven equipment	Pumps	Isolate flow paths to non-essential equipment	10.0%
		Use of pressure switches	5.0%
		Predictive maintenance	9.0%
		Trim or change impeller to match output	15.0%
		Remove sediment/scale buildup	7.0%
		Install variable speed drive	15.0%
		More efficient pump	15.0%
	Fan	Isolate flow paths non-essential or non-operating equipment	8.0%
		Correct poor airflow conditions at fan inlets and outlets	5.0%
		Install variable speed drive	20.0%
		Replace oversized fans with more efficient type	11.0%
	Compressed Air Systems	Fix leaks, adjust compressor controls, establish ongoing plan	15.0%
		Shut-off idle equipment, engineered nozzles	8.0%
		Eliminate inappropriate compressed air uses	13.0%
		Eliminate artificial demand with pressure optimization/control	7.0%
		Install sequencer	8.0%
		Variable speed drive	15.0%
		Size replacement compressor to meet demand	13.0%

Industry Process	Process Step	Efficiency Improvement measures	Efficiency Improvement Potential
Overall system	Overall system	Preventative maintenance	5% - 15%

11. Other energy end use sectors which have not been accounted in the electricity end use profile include transportation and agriculture. Suggested energy efficiency opportunities for the transportation sectors have been discussed below.
12. Energy efficiency in transportation sector can be achieved broadly through three ways. These include improvement in energy efficiency of motor vehicles, improvement by shifting the modes of travel or goods transport and improvement by travel demand management.
13. The later two are largely achieved through strategic level interventions, such as deployment of mass transit systems, use of a mix of transport modes to move people and freight, transport planning integrated with land use planning and measures like congestion tax to alter user behavior to name a few. These are typically result of a long term planning process and can be carried out at the stages of developing blueprints for land use and transport planning for a city or province.
14. In Afghanistan's context, improving energy efficiency of motor vehicle may be an opportunity which can be achieved in the short term. A list of such opportunities is provided in the following table. This list is focused on achieving energy efficiency through technical improvements which may be possible within new vehicles. Some opportunities, such as low resistance tire and automatic start and stop function can be a retrofit to older vehicles.
15. As data for type of fuels and end use of energy within the transportation sector is not available, an assumption was made that petrol and diesel are the most used forms of transport fuel, and a majority of this fuel is consumed within the road transport sector, including freight and passenger vehicle. Railways, flight, defense vehicle and water based transport has been excluded from the list of suggestion for the energy efficiency activities. These can be added at a later stage as the knowledge and understanding of the aforementioned sector increases with improved data collection.

Energy Efficiency Opportunities in Transport sector (Passenger vehicle)

Process category	Efficiency Measure	Efficiency Improvement Potential
Petrol and diesel IC engines	Direct injection	15.0%
	Variable valve actuation and lift	13.0%
	Tyres: low rolling resistance	4.0%
	Light weighting (Aluminium)	4.0%
	Start and stop	3.0%
Petrol Hybrid Engines	full hybrid - electric drive	33.1%
(Measures additional to the petrol IC engines)	Direct injection	7.0%

Process category	Efficiency Measure	Efficiency Improvement Potential
Diesel Hybrid Engines	full hybrid - electric drive	31%
(Measures additional to the diesel IC engines)	Advanced combustion technologies	4.0%

Energy Efficiency Opportunities in Transport sector (Freight Trucks)

Transport Means	Process category	Efficiency Measure	Efficiency Improvement Potential
Heavy Freight Trucks (HFT)	Intelligent transport systems (ITS) and Information/communication technologies (ITC)	Driver Support Systems	5%
	Vehicle	Single wide tyres	5.0%
	Drive train	Automated manual transmission	5.0%
	ITS / ICT	Vehicle platooning	4.0%
	Engine	Pneumatic booster – air hybrid	4.0%
	Vehicle	Light-weight materials	3.5%
	Engine	Bottoming cycles/waste heat recovery (e.g. organic Rankine)	3.5%
	Vehicle	Low rolling resistance tyres	2.0%
Medium Freight Trucks (MFT)	Engine	Start/stop automatic	8.0%
	ITS / ICT	Driver support systems	6.0%
	Engine	Smart alternator, battery sensor, electric accessory drive	5.0%
	Drive train	Automated manual transmission	5.0%
	Vehicle	Light-weight materials	4.0%

Note: some of the recommendations from HFTs are applicable to LFTs as well and hence not been included to avoid repetition.

16. Within the agriculture sector, diesel and electricity use is assumed as major sources of energy consumption. Observing the nature of agriculture in similarly placed economies, it is likely that the energy end use in this sector is dominated by pumping equipment, motor driven farm machinery, and utility vehicles such as the farm tractors.

17. As like the transport sector, a list of suggestions for energy efficiency activities for agricultural sector is provided below. These suggestions will expand and improve at a later iteration of the policy as knowledge and understanding of the agriculture sector increases with improved data collection.

Energy Efficiency Opportunities in Agriculture sector

Category	Technology/Measure	Efficiency Improvement Potential
Pumping Baseline Technology	Old inefficient pumps	Reference
Pumping Alternatives	Upgrade to energy efficient pumps	Up to 35%
	Change motors to energy efficient versions	up to 5%
	Stand-alone solar PV based pumping systems	Fuel Switch

18. Indirect methods of reducing upstream energy use by reducing consumption of resources on farm have not been included. An example of this would be reducing use of chemical fertilizer in the fields to collectively reduce the demand on imports/manufacturing, thereby reducing upstream energy consumption within the economy.

2.2 Electricity transformation/generation side

19. Opportunities for energy efficiency in the electricity generation/transformation segment are typically challenging for the existing power plants as they are technically limited due a complex inter-related design, operation and maintenance issues, including technology choice, loading constraints and fuel availability. Moreover, about 60% of Afghanistan's electricity demand is catered by imports, thus limiting the opportunities to make changes in the power generator fleet.
20. However, as the energy generation sector matures overtime, and at some stage into the future, data on current efficiency levels are available, legislative or market based incentives can be provided to generation asset operators to bring the power generation fleet closer towards best practice efficiency levels. Studies have demonstrated that even small increments in energy conversion efficiency of the generation technology can yield large number of savings over its life. As an example, the following table illustrates savings in fuel and pollution reductions by only a 0.1% improvement in generation efficiency¹².

Effect of marginal efficiency improvement in generation assets

Specifics	Unit	Fuel type			
		Hard Coal	Lignite	Oil	Gas CC

¹² Eurelectric, 2003, "Efficiency in Electricity Generation", Source: <http://www.eurelectric.org/Download/Download.aspx?DocumentID=13549>, Accessed 2/09/2016

Rated Capacity	MW _{elec}	800	900	500	300
Existing efficiency	%	42%	40%	44%	57%
Improved efficiency	%	42.1%	40.1%	44.1%	57.1%
Savings in fuel consumption	Tonnes/annum	3,382	19,400	200	331
Reduction in CO ₂ emissions	Tonnes/annum	8,938	16,800	800	790

Note: Saving were also achieved in emissions for other hazardous pollutants, including NO_x, sulfur, ashes and dust.

21. In the above scenario and at current stage of developments, improving energy efficiency in generation side is usually more effective as a strategic asset acquisition and management paradigm. In this case, strategic planning is done around end of life replacement of existing generation assets. At the time of designing and procurement of new energy generation assets, an informed choice of best available technology (BAT) at the time becomes a critical decision issue.
22. Even as the upfront cost of procuring the BAT may appear to be on higher side as compared to the vintage models, a life cycle cost analysis should be done before making a decision. An approximation of potential improvement in energy efficiency of electricity generation assets from using BAT at the time of replacing an end of life asset is provided as follows¹³.

Potential efficiency opportunity by replacing assets with BAT at end of life

Category	Technology	Vintage Efficiency 2007	BAT Efficiency 2030	Efficiency Improvement Potential
Coal	Pulverized Coal Combustion	47%	54%	7%
Gas	Combined Cycle Gas Turbine	58%	65%	7%

23. As climate change agreements come into force around the world, and transition to a clean energy generation continues to become a priority, renewable energy and storage system are increasingly becoming core considerations in creation of new power generation assets. As an example, In the year 2015, renewable sources (i.e., biomass, geothermal, hydropower, solar, wind) accounted for almost two-thirds (63.85 percent) of the 16,485 MW of new electrical generation placed in service in the United States¹⁴.
24. In this case, energy efficiency in renewable based generation becomes an important topic of consideration. However, energy efficiency in renewable energy technologies tend to have a range of drivers for efficiency, and for dominant technologies such as wind farms or solar PV, fuel costs or CO₂

¹³ Joint Research Centre of the European Commission, 2012, "Analysis of energy saving potentials in energy generation: Final results: Source:

<https://setis.ec.europa.eu/sites/default/files/reports/Analysis-of-energy-saving-potentials-in-energy-generation.pdf> , Accessed 2/09/2016

¹⁴ <http://www.renewableenergyworld.com/articles/2016/02/renewables-provides-two-thirds-of-new-us-generating-capacity-in-2015-3-500-times-more-than-coal.html>

pollution is not an item of concern, this area is excluded from the scope of further investigation on energy efficiency.

2.3 Electricity transmission/distribution side

25. As per the available data, the transmission and distribution line losses in Afghanistan's electricity sector are in the order of ~ 23%¹⁵. The world average is in the order of 9.5% and generally recognized efficiency standards are usually between 6 % - 8%.
26. Therefore, the potentials for reducing electricity transmissions and distribution losses could be estimated to 15%. The following activities are usually undertaken to reduce losses in the T&D system.

Potential efficiency opportunity in T & D

Category	Technology/Measure	Efficiency Improvement Potential ¹⁶
Transmission	Re-conductoring	30-70%
	Transition to High Voltage Direct Current Transmission for long distance lines	10-20%
	Controlling Power Flow through Flexible Alternating Current Transmission System (FACTS)	50%
Distribution	Load Management	8-20%

¹⁵ Tahirzada, Z. 2005, Status of Energy Efficiency in Afghanistan, Presentation for Energy Efficiency Conference, Kathmandu, Nepal. Source: energyefficiency.gov.np/uploads/1_11_zabiullah__1449805762.pdf

¹⁶ Opportunities for Energy Efficiency Improvements in the U.S. Electricity Transmission and Distribution System (April 2015) prepared by OAK RIDGE NATIONAL LABORATORY

3.0 SCOPE, VISION AND GOALS

3.1 Scope

1. The scope of AEEP covers all sectors on the energy value chain being extraction, transformation, transmission and distribution and end use.
2. It covers all sectors of the economy to promote energy efficiency being households, commercial, government, industrial, transportation, agriculture and mining sectors of Afghanistan
3. It provides overarching goals, strategic responses and policy tools to incentivize reducing energy consumption across multiple sectors in Afghanistan.
4. It also specifies a list of potential actions for generation and supply side (transmission and distribution) energy efficiency which can be investigated by relevant agencies
5. It covers all forms of fuels used in Afghanistan's economy including electricity, coal, wood, petroleum products and gives recommendation on making a shift to cleaner fuel/clean technologies
6. It offers a framework for balancing the interests of consumer, while at the same time, gives a rational basis for deciding government interventions and priorities
7. It guides the planning of key ministries and departments in the context of energy efficiency. These are - MEW, ICE, DABS, ANSA, CSO, MRRD, MoUD, MAIL, NEPA & others

3.2 Vision

The Vision of AEEP is enshrined in the Vision of Afghanistan - *A society of hope and prosperity based on strong, private sector led economy, social equity and environmental sustainability*. The vision statements of AEEP has been listed below

1. Energy Security: Reduce Afghanistan's dependence on imported energy,
2. Energy Productivity: Optimal utilization of available energy resources by minimizing wastage,
3. Energy Access: Converting wasted energy to usable energy to bring more populations within reach of energy services,
4. Sustainable Growth Pathway: Foster a development pathway with a mix of low energy intensity (or high energy efficiency) and renewable energy

Improving energy efficiency of economy is fundamental to addressing the challenges of energy access, security of energy supplies, improving economic productivity and creating economic transformation, innovation and growth aligned with sustainability principles. The objectives of AEEP, in the above context, are to ensure efficient utilization of the energy resources in all possible manners and to adopt an integrated approach to harness all resources on the supply side while applying good demand side management practices in all energy consuming sectors in order to realize the vision. AEEP will provide tools and guidance for development, implementation, monitoring and continuous improvement of energy efficiency sector in Afghanistan.

3.3 Overarching Goals

- 1. Improve energy efficiency across all sectors of economy, government, businesses and households, by setting targets for reducing losses in extraction, generation, transmission & distribution and end use.**
- 2. Promote identification and adoption of energy efficiency opportunities across all sectors of the economy through awareness creation and capacity building.**
- 3. Enable implementation and financing of energy efficiency measures across all end use sectors using both regulatory and market principles.**
- 4. Ensure energy products and services offered in Afghanistan meet desired quality standards as it transitions towards an energy efficiency based economy**
- 5. Use energy efficiency to address cross cutting issues including climate change, clean energy, energy access and energy security and health and productivity outcomes, in particular to rural areas.**
- 6. Foster international cooperation, particularly with countries in the region having similar socio-cultural milieu for cross learning, promotion of energy efficiency as a product and service industry and driving innovation for jobs and growth.**

The framework for Afghanistan Energy Efficiency Policy is presented below. Specific overarching goals, strategies and resulting policy tools of AEEP to meet the said objectives are presented in detail in the next section.

FRAMEWORK FOR AFGHANISTAN ENERGY EFFICIENCY POLICY						
VISION	<i>Energy Security: Reduce Afghanistan's dependence on imported energy</i> <i>Energy Productivity: Optimal utilization of available energy resources by minimizing wastage</i> <i>Energy Access: Converting wasted energy to usable energy</i> <i>Sustainable Growth Pathway: Foster a development pathway with a mix of low energy intensity and renewable energy</i>					
OBJECTIVES	<i>To ensure efficient utilization of the energy resources in all possible manners</i> <i>To adopt an integrated approach to harness all resources on the supply side while applying good demand side management practices</i> <i>To provide tools and guidance for development, implementation, monitoring and continuous improvement of energy efficiency sector</i>					
GOALS	1. Improve energy efficiency across all sectors	2. Promote identification and adoption	3. Enable implementation and financing	4. Ensure quality standards	5. Use EE to address cross cutting issues	6. Foster international cooperation
STRATEGIES & ACTIONS	1. Greening of building sector - Enforce AEEC in all new buildings - Introduce green building rating systems - Energy efficient lighting in public & private buildings - Retrofitting of old buildings 2. Public lighting - Use LEDs or low energy HID in public lighting - Solar powered lights in areas of good solar access 3. Appliances & equipment - Energy performance standards - Energy efficiency labelling 4. Transport sector - Vehicle labelling - Alternative fuel vehicles 5. Generation, T&D of Electricity - Monitoring and reporting of power plant operating efficiency performance - Power plants to meet the efficiency standards - Aim to reduce T&D losses to 10% by introducing global best practices 6. Mining, Oil & Gas - Retrofitting with efficient motors, pumps, compressor, turbines and heat recovery systems - New vehicle fleet to meet fuel efficiency standards - Automated driverless systems in new fleet of vehicles 7. Businesses, Enterprises & Commercial Establishments - Subsidize distribution of technologies - Provide smart meters and trusted information - Design energy tariff schemes - Work with public sector and private sector financial institutions to provide loans - Subsidize access to energy auditors and green building practitioners - Provide low interest loans, subsidies - Start voluntary energy and carbon disclosure schemes - Provide financial and fiscal incentives for organisations - Create knowledge sharing platforms - Build management capability - Initiate green awards 8. Consumer Awareness - Information campaigns - Regional information centre - Guidance documents - Public campaign through television programs and newspaper advertisements - Energy Efficiency Information Website - Publicize the results of implemented EE projects - Introduce total cost of ownership (TCO) as evaluation criteria 9. Laws and Regulations - Regulation for creating EE industry in Afghanistan - Set up minimum and acceptable standards - Create financial & fiscal measures - Introduce EE certificate, cap and trade scheme 10. Energy service companies - Government backed guarantees for ESCOs to improve access to finance - Creation of dedicated government backed financing body - Standardisation of contract procedures and M&V procedures - Accreditation of ESCOS to ensure quality assurance 11. Knowledge base and standards - Create standards for product specifications - Create standards for energy audit - Create standards for testing & measurement - Introduce EE as subject in school & university curriculum - Develop manuals & guidelines - Build capacities through workshops, demonstration etc. 12. Clean energy in rural areas - Subsidize distribution of improved cook stoves - Incentivize use of RE devices - Support R & D of rural specific technologies 13. Renewable energy - Promote RE in centralized/decentralized/distributed mode - Incentivize use of RE devices for end use applications - Promote use of bio fuels as transport fuel - Develop capacities to understand interlinkages of RE & EE 14. International Cooperation - Facilitate seminars, conclaves, conferences - Utilize existing network events to promote trade & investment - Create mechanisms for international partnerships					

4.0 STRATEGIES AND POLICY ACTIONS

The overarching goals are supported with the way of strategies which provide a high level pathway to achieve these goals. The strategies have been designed to improve EE across sectors and address the barriers to the uptake of energy efficiency measures and technologies. The strategies are further supported with policy tools which provide action level details required for realization of strategy. The strategies and actions have been listed below:

4.1 Greening of building sector

Buildings account for about 93% of all electrical energy in Afghanistan and a significant share of greenhouse gas emissions. The building sector covers a varied set of end use activities, which have different energy use effects. As the country develops, energy demand from the building sector will continue to increase. Thus, energy efficiency in building sector is especially significant owing to rapid new construction with opportunities to utilize efficient materials and best practices.

The policy proposes to set performance targets on new and old public & private buildings. The goals are set on a TERM 1 timeframe, and will require creation of legal and institutional framework to deliver on these changes. The specific actions are as follows:

- **Enforce Afghanistan Energy Efficiency Codes for Building (AEEC) in all new buildings:** Building Code sets requirements for the energy performance of buildings. New buildings designed and constructed on recommended measures of AEEC will save significant amounts of money over a building's life. Afghanistan energy efficiency codes for buildings (AEEC) must be aggressively enforced for the new constructions to follow best practices. The policy sets a target of
 - 100% of all new construction above 2000m² of NLA, both for private and public sector, will be required to be rated under AEEC.
- **Introduce green building rating systems:** Green rating system provides a scale to measure the sustainability standard of building's design, construction and operation. Through each criteria and sub criteria, rating system evaluates the performances of the building and award rating. Buyers favor energy efficient buildings which guarantee reduced life cycle costs.
 - Introduce an operational building rating system suitable for all classes of buildings within Afghanistan.
 - 100% of all buildings in use above 1000m² of NLA, both for private and public sector, will be required to be rated under green building rating system.
- **Energy efficient lighting in public and private buildings:** All public buildings can realize significant cost savings and reduced energy use by choosing energy efficient lighting. Making the switch to energy efficient lighting is a good way to get started on becoming more energy-efficient, since it typically has such a short payback period. The policy has put a target of
 - 100% of incandescent, halogen and old generation fluorescent based lighting to be phased out and replaced with LEDs or other best available technology in homes and other buildings.
- **Retrofitting of old buildings:** Since many households, private offices, factories and public building have been constructed in earlier times and typically contain inefficient appliances, building envelop as well

as technologies, it is beneficial for the owners of these buildings to retrofit them with newer and more efficient appliances and technologies, and where feasible, building envelop and insulation. While government owned buildings tend to be easier and more practical to enforce to undertake a retrofit project, it is suggested that commercial, residential and industrial building owners shall also be encouraged to undertake energy efficiency improvements in their buildings by way of financial incentives. Policy proposes a target for retrofit buildings as follows:

- 30% of NLA of government buildings, including factories built on or before 2016 must have had energy efficiency upgrades
- 30% of NLA of private buildings, including factories built on or before 2016 must have voluntarily undergone energy efficiency upgrades

4.2 Public lighting

The potential for energy savings from making public lighting more energy efficient can be substantial and relatively simpler to achieve. Public lighting may account for as high as 30% - 50% of the overall energy expenditure of a municipality, depending on asset base. Adoption & promotion of best available technologies like LEDs/HIDs or solar powered lights for public lighting could also help, apart from reduction in electricity, break down barriers for adoption of energy efficient lighting in other sectors. The policy suggests following targets:

- Energy efficiency of public lighting assets further improved from 2016 levels with use of best available technologies such as the LEDs or low energy HIDs.
- 50% of the public lighting assets in areas with good solar access to be powered with solar energy

4.3 Appliances & equipment

Energy consumed by residential appliances and industrial and commercial equipment is a major source of greenhouse gas emissions globally. The Strategy includes a range of measures aimed at increasing the energy efficiency of appliances used in the residential, commercial and industrial sectors. Following action items have been proposed under this strategy:

- Energy performance standards are the most widely used measures globally to reduce energy use and greenhouse gas emissions from appliances and equipment. Minimum Energy Performance Standards (MEPS) provide consumer protection in a higher energy price context by ensuring that inefficient appliances are not available in the market. The policy sets the following target:
 - 100% of all new appliances and equipment manufactured or imported in Afghanistan to meet minimum energy performance and quality standards
- Energy efficiency labelling assists consumers by providing information, allowing them to make coherent choices having regard to likely life cycle costs. It acts as an incentive for manufacturers to set apart from their competitors and promote introduction of new and efficient versions. The following target has been set:
 - 100% of all new appliances and equipment manufactured or imported in Afghanistan to meet energy efficiency labelling

4.4 Transport sector

Most of the oil in Afghanistan is imported, which exposes the country to unstable international oil prices. Deployment of advanced technologies and alternative fuel vehicles can reduce use of imported oil resources in transport sector. Measures to improve energy efficiency in transport contribute not only to a decrease in fuel consumption, but also to the reduction in CO₂ emissions. The policy intends to introduce following action items for this strategy:

- Vehicle labelling helps customers to understand and compare vehicle choices on the basis of fuel economy and CO₂ emission level displayed on vehicles. This enables consumers to view the features of other vehicles that they might not have otherwise considered. The policy puts the following target:
 - 100% of all new vehicles manufactured or imported in Afghanistan to meet green labeling requirement based on kgCO₂/km performance.
 - The efficiency of light and heavy vehicles entering the fleet has further improved from 2016 levels.
- Alternative fuel vehicles: Options for alternative fuel vehicles - from electric cars to natural gas-powered buses and trucks that run on biodiesel - are increasingly becoming available. Increasing the fleet of alternative fuel vehicles in the Afghanistan economy will help reduce oil imports and also reduce pollution. The following target have been set under this action
 - 10% of all new light and heavy vehicles entering the fleet must be based on EV and alternative fuel technology

4.5 Generation, transmission and distribution of electricity

Electricity and gas networks play a key role in the achievement of sustainable development. It is therefore equally important, like the demand side sectors, to incorporate energy efficiency in network design and operations of the existing and new power generation fleet in Afghanistan. The policy recommends following targets to drive the operations of generator feet and T&D network towards more energy efficient outcomes, based on the existing scenario.

- 100% of power plants to monitor and report on their operating efficiency performance.
- 100% of power plants to meet the efficiency standards observed in average high efficiency performing power generation assets.
- The transmission and distribution losses in government run energy T&D assets to get in step with global best practices from 2016 levels. Currently it is around 28% with an aim to reduce to 10% in 2032.

4.6 Mining, oil & gas extraction

Mining and extraction industries tend to be the most energy use intensive sectors within an economy. They also tend to be the most complex to manage as they come with a range of technologies which are applied based on specific needs of a mining or extraction process, geology and technique. However, a number of technologies used within the processing stages can be made more efficient with help of low-cost measures, optimization of production processes, and reliability of electric power supply. Taking the above into account, the policy suggests the following:

- 100% of all process operations and equipment built before 2016 retrofitted with efficient motors, pumps, compressor, turbines and heat recovery systems.
- 100% of new purchased or leased vehicle fleet to meet fuel efficiency standards
- 10% of new purchased or leased fleet vehicles to have automated driverless systems for optimized fuel efficiency

4.7 Supporting Businesses, Enterprises & Commercial Establishments

Participation of private sector is critical in ensuring success of new markets and programs such as the energy efficiency, and in cases like those similar to current status of Afghanistan, government leadership is deemed critical in starting and catalyzing a new market. A mix of incentives, knowledge and price signals are often used to guide development of the energy efficiency industry. As the market mature with help of consistent and good quality information, reliable projects and verifiable savings, the government's role as a regulator and enforcer takes centre stage. The following policy measures are suggested to be used in Afghanistan to initiate and promote energy efficiency choices in private industry.

- Subsidize distribution of technologies with high energy savings, energy security outcomes, for example – LED lights, insulation products, solar hot water systems, star rated air-conditioners, space heaters and solar PV systems
- Provide smart meters and trusted information to reduce energy use at consumer level
- Design energy tariff schemes which influence consumer behaviors to switch to more energy efficient practices.
- Work with public sector and private sector financial institutions to provide loans for energy upgrades or solar PV system installation as part of home and business loans
- Subsidize access to energy auditors and green building practitioners at zero or low cost to uncover opportunities
- Provide low interest loans, subsidies to implement energy efficiency, alternative fuels and renewable generation opportunities.
- Start voluntary energy and carbon disclosure schemes for organizations which are in top 50 energy consuming organizations in Afghanistan.
- Provide financial and fiscal incentives for organisations to encourage retrofitting of old buildings to improve energy efficiency and construction of new buildings to be rated under Afghanistan Green Building Design Standards
- Create knowledge sharing platforms for SMEs, transport, agriculture and other sectors to raise awareness and vision
- Build management capability, including in SMEs, through training and certification courses to identify and exploit opportunities to ensure energy efficiency good practice is reflected in mainstream business planning.
- Initiate green awards to recognize and celebrate efforts, and encourage industry engagement

4.8 Consumer awareness

Empowering consumers with information and knowledge on various aspects of energy efficiency practices including tools, procedures, and benefits is likely to have a long term impact on them accepting and supporting an energy efficiency campaign. Resulting changes in behavior of end user of energy in form of energy conservation, lifestyle, awareness, low-cost actions, and small investments can lead to 5% to 10% in energy savings at a household or workplace level. Following measures will be used to educate public on the subject and choices of energy efficiency:

- Information campaigns at places of national and international importance including religious institutions can be implemented with an objective of demonstrating integration of energy efficiency and its related benefits to create awareness of energy efficiency practices & technologies and also to implement energy efficiency at such locations
- Regional information centre located at non-government organizations and consumer/ industry associations can serve as focal points for disseminating information on energy efficiency as well as renewable energy to various target groups - from the general public to small and medium-sized enterprises and policy makers
- Guidance documents providing information and guidance to help consumers identify energy efficiency opportunities in their processes & equipment and also provide relevant details to implement basic energy efficiency measures can be disseminated among general public, SMEs, Government & commercial institutions.
- Public campaign through television programs and newspaper advertisements to reach out to home owners, the public sector and commercial enterprises propagating energy efficiency benefits and encouraging energy saving behavior. The objectives are to induce a change in the users' behavior by creating awareness of energy use and interest in its reduction
- Energy Efficiency Information Website can be established and maintained through office of energy efficiency (OEE) which will have comprehensive information on incentives and policies that support energy efficiency in Afghanistan, case studies of successful implementation, information on manufacturer of energy efficient equipment and guidance documents on energy efficient technologies & practices.
- Publicize the results of implemented EE projects through mass media like television, newspaper to create awareness among general public. This can be achieved by integrating communication plan within the project planning stage, where the project proponent will be lead for creating awareness about their own project.
- Introduce total cost of ownership (TCO) as evaluation criteria in government procurement processes, and encourage private sector to adopt it as well. The TCO factors in operational costs as well as capital costs when investing in assets – the longer term energy savings may be worth a slightly higher upfront cost.

4.9 Laws and Regulations

Success of an energy efficiency program is highly dependent on the legal and regulatory drivers which are present in the country. They provide the first incentives for individuals and organizations to act as well as respond to energy efficiency expectations in terms of penalties, fines and other regulatory or reporting requirements. It is typically followed by creation of a market for products and services which help individuals

or organizations meet their compliance needs, as well as save costs on energy use. The following steps are suggested to take Afghanistan to the next step on the energy efficiency program.

- Draft and finalize a regulation which provides a legal framework to initiate and support creation of an energy efficiency industry in Afghanistan.
- Set up minimum and acceptable standards across a range of options – minimum energy performance scheme for appliances, energy efficiency rating schemes for buildings, minimum renewable energy integration targets for new developments - with the help of legislations.
- Create fiscal and financial measures in form of tax breaks, penalties, low interest loans, lease to provide access to finance for households, government and commercial sectors.
- Prepare ground for introducing market based energy efficiency certificate cap and trade scheme into TERM 2 by setting up institutional framework for data acquisition, monitoring and reporting, user friendly format for energy bills, system to ease financial transactions or incentives and penalties

4.10 Energy service companies - ESCO

ESCO or Energy Service Company is a term used to describe a commercial company providing a wide range of energy related services including design and implementation of energy efficiency projects, sourcing of best tariff plans for customers in a privatized energy market. It acts as a project developer for implementing energy conservation measures and shoulder the technical and performance risks associated with a project. The company's return is directly linked to the actual energy cost savings. While ESCOs are not a policy instrument per se, but they are similar to policy tools and an important medium to capture energy efficiency potentials and overcome a number of market barriers. Various factors such as enforcement of building codes, consumer awareness, mandatory energy audits and reporting has enabled the development of a successful ESCO industry. The following action items, based on literature review of enabling factors in other similarly placed economies, have been proposed for development of ESCOs:

- Government backed guarantees for ESCOs to improve access to finance for the energy efficiency projects. The guarantees can help ESCO secure funds from domestic financial institutions, or multilateral financing agencies. Other financial support mechanisms may include partial risk guarantees, loan loss reserve funds, special purpose funds or interest credits.
- Creation of dedicated government backed financing body for creating basket funds pooling resources from various channels and used to finance projects dedicated to energy efficiency. As the ESCO industry matures and the commercial banks are able and willing to engage ESCOs, public loans or funds should be phased out to avoid wastage of government subsidies on projects which can be financed by private sector.
- Standardisation of contract procedures and measurement and verification procedures to alleviate the concerns of end-users and the financing community regarding reliability of ESCOs. Standardisation also improves time and cost effectiveness, and promotes competition and transparency (such as in Germany). Standard contracts can increase the trust of customers, especially in the public sector, and thereby their willingness to engage with ESCO.
- Accreditation of ESCOs to ensure quality assurance and building trust in the minds of the consumer regarding their reliability and competence. This system is currently in place in the countries with a large

number of ESCOs (e.g. accreditation system by the US ESCO association, NAESCO or the Chinese ESCO association).

4.11 Knowledge base and standards

Lack of good quality trusted information; standardized source of advice and availability of quality products in the market is one of the key barriers to energy efficiency take up. To overcome this barrier, it is recommended that the following steps are undertaken as starting point to create and establish a trusted body of knowledge which will help in initiating and energy efficiency industry. These knowledge bases can be periodically reviewed and improved upon as the understanding of energy efficiency grows with experience.

- Create standards for product specifications based on IEC standards but localized to Afghanistan needs.
- Create standards for energy audit and renewable energy based on ISO standards but localized to Afghanistan needs.
- Create test standards and measurement protocols for appliances and equipment aligned with international standards, to assist performance comparisons and benchmarking for products.
- Create knowledge base and skills for the new energy efficiency industry by introduce school and university level curriculum and apprenticeships and exchange programs.
- Develop manuals, guidelines for adopting advanced technologies and proven energy efficiency practices across various sectors
- Build capacity of manufacturers, importers and customs to interpret, understand and make decisions on the basis of available standards through the means of workshops, publications and best practice demonstration.

4.12 Efficient energy for rural communities

In the rural economy, domestic household sector is the most prominent energy consumer, followed by the agricultural sector. Lack of access to cleaner fuels in rural areas has led to a process of combusting solid fuels in inefficient devices to meet space heating and cooking needs. Improved cook stoves instead of traditional biomass cook stoves can ensure efficiency in the use of traditional fuels and also reduce smoke emission and health hazards. Following actions are being proposed:

- Subsidize distribution of energy efficient biomass cooking stoves and heaters in rural communities where distributing modern clean fuels like LPG is unfeasible.
- Incentivize use of renewable energy devices through means of low interest loans and subsidies for various end use productive loads such solar PV agricultural pumping and drying systems, Solar PV refrigeration, lighting and fan systems for shops in rural areas.
- Source international funds to invest in research and development of rural specific technologies such as renewable energy based minigrid systems for electricity and fuel, including, solar PV, micro hydro, biogas based technologies.

4.13 Renewable energy

Energy efficiency and renewable energy are inextricably linked in pursuit of a future with sustainable growth with clean energy. Lower energy demand from measures to accelerate energy efficiency contributes to increasing the share of renewable energy in generation mix, assuming that renewable energy use will continue to grow. The combination of energy efficiency and renewable energy deployment creates a synergy for increasing both the renewable energy share and annual improvements in energy intensity, which collectively reduces the growth in total primary energy supply (TPES), a great outcome for any country which is highly dependent of imports of energy. For the above reasons, the policy recommends the following.

- Recognize and promote use of renewable energy such as Solar PV, Solar thermal, Wind turbines, Hydro, Bio energy (RE) technologies in centralized, distributed and decentralized generation mode as per the Renewable Energy Policy
- Incentivize use of renewable energy devices for various end use applications such as lighting and fan systems, agricultural pumping systems, refrigeration systems.
- Promote use of biofuels as alternative to reduce consumption of traditional fossil based transport fuels, thereby reducing their demand.
- Develop capacity of households, government and industry to make decisions by creating knowledge products on demonstrating interlinkages of RE and EE

4.14 International Co-operation

International cooperation refers to a group of actions and/or resources exchanged between different countries according to their own interests and strategies. Engaging existing partnership for cooperation through trade & investment, technology cooperation and capacity building would ensure development of energy efficiency sector in Afghanistan. Specific actions under this strategy are:

- Lead or facilitate seminars, conclaves, conferences and trade exhibitions of energy efficiency knowledge, products and services
- Utilize existing networking events to promote trade and investment opportunity in Afghanistan energy efficiency sector. Examples include services, training and capacity building and manufacturing.
- Create mechanisms for international partnerships and collaborative opportunities among domestic stakeholder groups for collective learning and development and transfer of knowledge and technology through the means of international chairs, colloquiums and workshops.

5.0 IMPLEMENTATION STRATEGY

5.1 Overview

1. The AEEP will be implemented in two terms, TERM1 and TERM 2, to achieve its strategic and policy goals.
2. TERM 1 (2017 – 2020) will work to create enabling environment for the establishment of an energy efficiency industry in Afghanistan. This will be achieved by creating institutions, systems and processes, and establishing partnerships and collaborations across a range of government and private industry stakeholders to effectively implement the AEEP. The energy efficiency industry in TERM 1 will be government led.
3. TERM 2 (2021-2032) will be working to enable transition of the energy efficiency industry from a government led activity to a private investment led marketplace. This will be achieved by gradually removing barriers by creating strong legislative framework, skill base, standards, information and fungible marketplace for private investors.

5.2 Institutional Systems

1. An apex regulatory body, the Office of Energy Efficiency (OEE), is proposed to be created within the Ministry of Environment and Water (MEW). The OEE will have primary responsibility for strategizing, planning, budgeting and coordinating the implementation of AEEP.
2. A committee headed by deputy minister of MEW and comprising of relevant stakeholders will have the responsibility of creating OEE. It will comprise of individuals having appropriate background and training suited for the job and should demonstrate leadership and professionalism in their day to day activities.
3. The objectives of the proposed OEE include, but are not limited to the following, and are expected to develop further as the knowledge and understanding of energy efficiency sector builds up in Afghanistan.
 - a) Formulating and facilitating national programs and action plans that are well suited to the targeted economic sectors for implementation of energy efficiency policy guidelines.
 - b) Establishing terms of reference for coordination between relevant government and private stakeholders and ministries and serve as the information house on energy efficiency.
 - c) Work with stakeholders to developing system and processes for monitoring effective implementation of energy efficiency policies.
 - d) Engaging, supporting, working and influencing a wide range of stakeholders, including public and private organizations with energy efficiency responsibilities with means of information, financing, and capacity building.
 - e) Conceiving training modules and national level certification scheme for energy managers and energy auditors.

- f) Facilitating technical training, awareness generation and capacity building of stakeholders across both government and non-government organizations.
 - g) Promotion of energy efficiency among general public about national programs and action plans, energy efficiency measures and their effects.
 - h) Source funding opportunities working with international aid agencies and development financing institutions.
4. Presently, there are a range of institutions working in different capacities in the energy efficiency sector, and in most cases, pursuing the aforementioned objectives. Their efforts are largely fragmented and OEE will consolidate these efforts by providing leadership, resources and direction to the efforts.
 5. The OEE will work with a range of public and private sector representative institutions to achieve its objectives. It will allocate responsibilities to the partner institutions based on their established strengths in area of energy efficiency, informed by consultative planning and decision making process.
 6. These institutions will report to the OEE on an annual basis on policy targets and progress as agreed between the stakeholders. It is also recommended that these institutions congregate annually in some form of organizational leadership team meetings, to facilitate building of understanding, confidence, transparency and hence a team culture between them. This is important for overall development of an effective organizational culture, conducive to large scale change.
 7. A list of potential government and private industry institutions which are envisaged to work with the OEE is provided in the following table. The institutions have been listed per their existing core deliverables, and their value addition capacity to assist OEE in delivering critical pieces of works for successful implementation of energy efficiency policy.

Institutional Coordination

S.no	Institution	Required leadership in delivering EE policy
1.	OEE (proposed)	Coordinate activities of relevant government departments to deliver on the agenda of energy efficiency policy
2.	ACCI	- Promoting energy efficiency objectives in private sector - Organising demonstration projects in private sector
3.	AISA	Promoting and attracting investments in EE sector
4.	ANSA	Development of minimum energy performance standards for appliances and equipment
5.	Banking Institutions	Work with OEE to introduce financing tools and options for a range of EE activities

8. The OEE will be supported by way of grants from central government and multilateral funding agencies in short term to cover administrative expenses and initiate programs and activities. In the

6.	CSO	Establishment of an effective system for acquisition, tracking and reporting of energy based data from various economic sectors
7.	DABS	Support implementation of EE measures in distribution and supply side of electricity
8.	Department of Education	Establishment of Energy Efficiency Skill Development Scheme and updating of university level curriculum to include courses on energy efficiency
9.	Donor community	Support implementation different action items in the EE Policy
10.	ICE	Data analysis of energy use data for energy efficiency benchmarking, tracking and reporting
11.	MAIL	Support OEE in implementing energy efficiency measures in agriculture pump sets
12.	MEW	Support the establishment of independent entity for energy efficiency sector in Afghanistan and promote EE in energy projects
13.	Ministry of Finance	Organise and manage funds for EE sector
14.	Ministry of Information and Culture	Promote energy efficiency campaigns and awareness programmes through public media and other means
15.	Ministry of Religious Affairs	Introduce Mosques as pioneers for EE by participating in projects and programs related to energy reduction
16.	MRRD	Support incorporation of energy efficiency measures in their rural energy projects and energy efficiency awareness through CDCs
17.	MoUD	Enforcement of Afghanistan building codes; promoting energy efficiency in government and household buildings
18.	Municipalities	Introduce EE in all services, planning and decision making
19.	NEPA	Enforce air quality standards in order to promote cleaner fuels/clean technologies for all end- use sectors including transport

long term, it is recommended that the energy efficiency office is allowed to raise revenue through a range of options including tariffs, taxes, penalties or other financial tools.

5.3 Financing Mechanism

1. The OEE is proposed to be empowered with a financial wing, which will have the function of sourcing and consolidating funds from both internally from government resources and externally from donor or development institution financing. For these purposes, the funds will be managed through mechanism of basket funds which will provide the foundation block for setting up a dedicated energy efficiency financing institution in longer term, which could even be merged with the renewable energy financing body. Donor funds could be tied to specific program within the “basket funds” to give some flexibility and accommodate the preferences of donors.
2. International funds can be sourced in essentially in three forms: Low interest debt (Soft loans), Equity or Grant money. In Afghanistan’s context, soft loan and grant money are most suitable form of international funding to raise revenue. Funding can be sourced from a variety of international financial institutions such as the Asian Development Bank, Islamic Development Bank, World Bank, Global Environmental Facility or Bilateral agencies such as USAID, DFID, GTZ or the BMZ.
3. Internally, the OEE will need to use existing government machinery to raise funds through fiscal mechanisms such as pollution/green taxes, custom duties, tariffs on inefficient equipment. This activity will be important in setting up the incentive and disincentive networks within the economy to influence consumer behaviour towards energy efficiency practices.
4. The funds raised by the OEE will be used by the means of various financial instruments, which will assist in creation of a government led energy efficiency industry in TERM 1, while transitioning into a market led industry in TERM 2. The government led initiative in TERM 1 will be created with the help of the following financial instruments:
 - a. Direct Subsidies, either completely or partly funded to introduce new technologies to the users such as the LED lights, energy efficient cooking stoves, and heating/cooling technologies. As the markets become more mature and self-sustaining, the subsidy levels decrease over time or they are replaced with market-based instruments.
 - b. Grants or co-financing can be provided to both government and non-government bodies, private organizations and entrepreneurs to perform activities related to:
 - Promotional campaigns for more efficient uses of energy,
 - Education and training programs for professionals performing tasks related to energy efficiency improvement,
 - Financial aid for the preparation of energy audits and related project documentation including investment studies,
 - Financial aid for energy efficiency improvement projects.
 - c. Low interest loans (Soft loans), where grants or co-financing is not available, especially for SMEs or large industries to undertake investment studies and energy efficiency improvement projects.
 - d. Competitive co-financing can be provided for technology demonstration and deployment of new and innovative technology which are not yet a commercially attractive investment compared to available and proven alternatives. The goal is to demonstrate the project’s features and scalability to make it an attractive investment choice for private financiers.

- e. Green lease can be provided to resolve challenge faced by tenant and owner of a property in terms of investing in improving energy efficiency of a property. Energy efficiency loans can be issued to the 'building' instead of tenant or the owner. The loan is guaranteed by the local or state government and loan repayments are collected by the government in form scheduled property taxes and paid to the investment body, in this case OEE.
 - f. Tax breaks can be provided through reducing import duties/VAT on energy efficient equipment which will encourage inflow of efficient equipment in the market.
- 5. Additionally, as energy efficiency projects facilitate the adaptation and mitigation measures of climate change, they are eligible for benefitting from several funds dedicated for such purposes. One such example is the Green Climate Fund (GCF). Even as income from a GCF approved project is not likely to be a key investment driver, it is capable of acting as a catalyst in increasing return on investment, thus providing projects more credibility and facilitating the securing of funds from financial institutions.
 - 6. There are other climate related funds also available. For this purpose, all implementing agencies of energy efficiency projects, both in public and private sector, will explore receiving of climate funds to increase the viability of their projects during design and development stage itself.
 - 7. In TERM 2, the OEE can emphasize of developing electricity or gas markets backed by regulations, as seen in developed countries like Australia or Germany. The key to success of this market is strong regulations, data collection, reporting and advanced IT based information exchange networks, which is the area of focus of TERM 1 of this policy.
 - 8. In a market based scheme, an energy efficiency regulation body imposes targets on electricity distribution companies, large energy consumers, or electricity retailers to buy certain amount of energy efficiency certificates from marketplace. Failing to do so attracts penalty charges from government, which is high enough to discourage such action.
 - 9. These energy efficiency certificates are created by designated consumer groups such as households, commercial or industrial users saving energy by undertaking energy efficiency projects. Each of the certificates typically represents a savings of 1kwh, or 1 unit of energy. The energy efficiency opportunity is typically identified and implemented by an energy services company (ESCO), who also handles the certificate creation and sale process on behalf of consumers.

6.0 MONITORING & EVALUATION FRAMEWORK

1. Monitoring and evaluation framework for energy efficiency policy is proposed to be developed on the both program and policy levels. It is intended that the framework at policy level would measure statistical changes resulting from energy efficiency improvements applied through the policy. A program level framework is intended to measure the effectiveness of institutions which will be working with the OEE to deliver high level program and strategies to implement policies.
2. Collection, maintenance and improvement of energy statistics is a complex and reiterative task, but it needs to be started immediately. It is recommended that steps are taken to initiate data collection for the following list of energy efficiency indicators as a minimum to monitor statistical changes resulting from energy efficiency improvements applied through the policy. The list will be reviewed at the end of TERM 1 with a view to further improve and focus the process as knowledge, understanding and experience of stakeholders grow with implementation of policy.

List of indicators for policy level measurement and evaluation framework

Measurable	Indicators	Definition	Formula	Type of data required to be collected
1. Total reduction in energy intensity at the national level	Change in Primary energy intensity (ktoe/USD)	Total primary energy intensity is the ratio between the gross inland consumption of energy resources and Gross Domestic Product (GDP) calculated for a calendar year	$\frac{TPE}{GDP}$	• TPE: Total Primary Energy Supply before & after • GDP: Gross Domestic Product before & after
	Change in Final Energy Intensity (ktoe/USD)	Total final energy intensity is the ratio between the gross inland consumption of final energy and Gross Domestic Product (GDP) calculated for a calendar year	$\frac{TFE}{GDP}$	• TFE: Total Final Energy Supply before & after • GDP: Gross Domestic Product before & after
2. Energy performance of Public buildings	Non-electricity energy use intensity of public buildings adjusted for climatic conditions	Total non-electricity energy consumed by public buildings in a year divided by total number of employees in full time equivalent in that year multiplied by ratio of	$\frac{NEC(i)}{EM} \times \frac{MDD}{ADD}$	• NEC(i): Non-electricity energy consumption of Institutions in analyzed year

Measurable	Indicators	Definition	Formula	Type of data required to be collected
	(toe/ employee in full time equivalent) OR (toe/Net Lettable Area in m ²)	mean and actual heating degree days		• MDD & ADD: Mean and actual heating degree days • EM: Number of FTE employees in analyzed year or Net lettable area
	Electricity consumption intensity of institutional sector (kWh/ employee in full time equivalent) AND (kWh/Net Lettable Area in m ²)	Total electric energy consumed by public buildings in a year divided by total number of employees in full time equivalent in that year	$\frac{EC(i)}{EM}$	• EC (i): Electricity energy consumption of institutions in analyzed year • EM: Number of operating institutions in analyzed year or Net lettable area
3. Energy performance of Residential buildings	Non-electricity energy use intensity of household buildings adjusted for climatic conditions (toe/dwelling)	Total non-electricity energy consumed by household buildings in a year divided by total number of permanently occupied dwellings in that year multiplied by ratio of mean and actual heating degree days	$\frac{NEC(h)}{D} \times \frac{MDD}{ADD}$	• NEC (h): Non-electricity energy consumption of households in analyzed year • MDD & ADD: Mean and actual heating degree days • D: Number of permanently occupied dwellings in analyzed year
	Electricity consumption	Total electric energy consumed by household buildings in a year divided by total number	$\frac{EC(h)}{D}$	• EC (h): Electricity energy consumption

Measurable	Indicators	Definition	Formula	Type of data required to be collected
	intensity of households (kWh/ dwelling)	of permanently occupied dwellings in that year		of households in analyzed year • D: Number of permanently occupied dwellings in analyzed year
4. Energy performance of Industrial units	Energy consumption of industrial subsectors per unit of production (toe/unit of production)	Total energy consumed by industrial sub-sector in analyzed year divided by industrial production index of same industry sub-sector (selected) in the same year	$\frac{EC(ind)}{IPI}$	• EC (ind): Energy consumption of industrial sub-sector in analysed year • IPI: Industrial production index of industry sub-sector (selected) in analysed year
5. Energy savings in transport sector	Energy consumption intensity of road vehicles (toe/car equivalent)	Ratio of energy consumption of road vehicles (cars, trucks and light vehicles, motorcycles, buses) in an analyzed year and stock of road vehicles in car equivalent in that same year	$\frac{ERV}{SRV}$	• ERV: Energy consumption of road vehicles (cars, trucks and light vehicles, motorcycles, buses) in analysed year • SRV: Stock of road vehicles in car equivalent in analysed year 1 truck or light vehicle = 4 cars equivalent 1 bus = 15 car equivalent 1 motorcycle = 0.15 car equivalent

3. As regards program level indicators, the following list has been compiled based on the anticipated programs which various institutions may undertake to implement energy efficiency policy. It is recommended that these indicators are embedded in the annual planning and reporting framework of relevant institutions. The indicators will assist OEE evaluate progress and effectiveness of its programs and allocate resources accordingly. The list will be reviewed at the end of TERM 1 with a view to further improve and focus the process as knowledge, understanding and experience of stakeholders grow with implementation of AEEP.

List of indicators for program level measurement and evaluation framework

Policy Goals	Indicators	Lead Data Collecting Institution
Improve energy efficiency across all sectors of economy, government, businesses and households, by setting targets for reducing losses in extraction, generation, transmission & distribution and end use	• % of pre-2016 government, private and industries buildings undergone energy audit	MoUD
	• % of pre-2016 government, private and industries buildings undergone energy efficiency upgrade	MoUD
	• % of new buildings > 2000m ² rated under AEEC	MoUD
	• % of buildings with halogen and incandescent bulbs phased out	MoUD, Municipalities
	• % municipalities with 100% LED or high efficiency HID streetlight	Municipalities
	• % of public lighting assets powered with solar lights	Municipalities
	• % of industry and consumer stakeholders aware of Energy labels including energy star, minimum energy performance standard (MEPS) and quality standard (QS)	CSO, ICE
	• Number of appliance classes (e.g. Whitegoods, Lighting, HVAC) included under energy star MEPS and QS	ANSA
	• % of manufactured and imported appliances under approved classes rated under energy star, MEPS and QS	ANSA
	• % of new vehicles manufactured and imported vehicles rated for green vehicle labelling standard across all industry sectors	MoTCA
	• % of new light and heavy (separately) vehicles based EV, regenerative braking and other	MoTCA

Policy Goals	Indicators	Lead Data Collecting Institution
	• <i>alternative technologies entering fleet under all industry sectors</i>	tbd ¹⁷
	• <i>% of average efficiency improvement in all classes of vehicles from 2016 baseline under all industry sectors</i>	tbd
	• <i>% gap in T&D losses as compared to world best practice</i>	DABS
	• <i>% of power plants operating within 5% of world best practice operating efficiency</i>	MEW
	• <i>% of mining and extraction process operations and equipment built before 2016 retrofitted with energy saving upgrades</i>	Ministry of Mines & petroleum
	• <i>Number of subsidized energy audits commissioned</i>	tbd
	• <i>Number of financial and fiscal incentive schemes active for undertaking energy efficiency retrofits, AGBDS ratings, solar PV installations and other schemes for business and households</i>	MoF
	• <i>Number of top 50 energy consumers undertaking voluntary carbon and energy disclosure</i>	CSO
	• <i>Number of industry seminars, capacity building trainings, informative media, publication and green awards funded or organized</i>	tbd
	• <i>% of households and commercial enterprises penetrated through subsidized distribution of energy saving technologies</i>	DABS
Promote identification and adoption of energy efficiency opportunities across all sectors of the economy through awareness creation and capacity building	• <i>% of population which are aware and which are using energy labelling, educational and empowerment campaigns, information through websites and different media to make energy saving choices.</i>	tbd
	• <i>% of total procurement departments using total cost of ownership in evaluation process for purchasing energy related products/service</i>	tbd
Enable implementation and financing of energy efficiency	• <i>Drafting and finalization of legal framework for energy efficiency</i>	tbd

¹⁷ To be decided

Policy Goals	Indicators	Lead Data Collecting Institution
measures across all end use sectors using both regulatory and market principles	Amount of funding sourced from internal and external resources to fund energy efficiency policy	MoF
	Number of consultations done with various stakeholder groups to form a position on taxing	tbd
Ensure energy products and services offered in Afghanistan meet desired quality standards as it transitions towards an energy efficiency based economy	Number of standards created for energy audits, solar PV design and other technologies in line with international standards	ANSA
	Number of test standards and measurement protocols for appliances aligned with international standards	ANSA
	- Number of capacity building technical training manuals, workshops, courses, international exchange programs developed for a range of stakeholders and audiences across all sectors. (Including but not limited to schools, manufacturers, importers, technical staff, management)	ICE
Use energy efficiency to address cross cutting issues including climate change, clean energy, energy access, energy security and health and productivity outcomes, in particular to rural areas	% of rural households provided with subsidized energy efficient biomass stoves and heating system	MRRD
	% of rural cottage industries and farmers provided with subsidized solar PV based productive loads	MRRD
	% of rural cottage industries and farmers provided with low interest loans for EE	MRRD
	Number of R&D or operational projects set in village for renewable energy based minigrid	MRRD
Foster international cooperation, particularly with countries in the region having similar socio-cultural milieu for cross learning, promotion of energy efficiency as a product and service industry and driving	Number of seminars, conclaves, conferences and trade exhibitions organized	tbd
	Number of research, market and regulatory presentations from Afghanistan in international and regional events	tbd

Policy Goals	Indicators	Lead Data Collecting Institution
innovation for jobs and growth	• <i>Number of innovative and new technologies introduced in Afghanistan as a result of its exposure to international chairs, colloquiums and workshops</i>	tbd

GLOSSARY

Primary Energy	An energy form found in nature that has not been subjected to any conversion or transformation process. It can be non-renewable or renewable such as crude oil, coal, natural gas, solar energy, wind energy, biomass etc.
Secondary Energy	It describes all sources of energy that result from the conversion of primary energy sources and generally termed energy carriers
Final Energy	It accounts for secondary energy distributed to end use consumers from the generating plant and comprises products such as charcoal, coke, natural gas, gasoline, and electricity, among others.
Useful Energy	It corresponds to the energy realistically made available to the user in terms of the services delivered through end-user equipment and expressed in terms of mechanical power, lighting, heat generation, and travel mileage.
Energy Value Chain	The energy value chain is a sequence of production activities which begins with exploration and production of the primary energy for the subsequent processing, transportation, distribution and use. The more developed the value chain, the greater the benefits can be achieved through the improvements in energy efficiency.
Per capita electricity consumption	It refers to average electricity consumption per person within a population and estimated by dividing total electricity consumption by country's total population.
GDP	It is the monetary value of all the finished goods and services produced within a country's borders in a specific time period. Put simply, GDP is a broad measurement of a nation's overall economic activity
Net Lettable Area	The total area of all floors within the internal finished surfaces of permanent walls excluding areas such as stairs, toilets, lift shafts and motor rooms, escalators, lobbies, public space and areas set aside for the provision of facilities or services.
Energy Service Company (ESCOs)	It is a commercial company providing a broad range of energy solutions including designs and implementation of energy savings projects. It acts as a project developer for implementing energy conservation measures and shoulder the technical and performance risks associated with a project. The company's return is directly linked to the actual energy cost savings.

BANGLADESH



Bangladesh

Primary Legislation, Key Policies and Guidelines

রেজিস্টার্ড নং ডি এ-১

বাংলাদেশ



গেজেট

অতিরিক্ত সংখ্যা
কর্তৃপক্ষ কর্তৃক প্রকাশিত

রবিবার, ফেব্রুয়ারি ৩, ২০১৯

Government of the People's Republic of Bangladesh
Ministry of Power, Energy and Mineral Resources

NOTIFICATION

Dated : 30 January 2019

S.R.O. No. 28-Law/2019.—In exercise of the power conferred by section 61 of the Electricity Act, 2018, the Government is pleased to publish the following Authentic English Text of the Act, and it takes effect from the date on which the Act comes into force under sub-section (2) of section 1 of this Act :

Electricity Act, 2018
Act No. VII of 2018

[30 Magh, 1424/12 February, 2018]

An Act to repeal and re-enact the Electricity Act, 1910 with modification for developing and reforming the sectors of power generation, transmission, supply and distribution and for better service delivery to consumers and meeting the increasing demand for electricity

WHEREAS it is expedient and necessary to repeal and re-enact the Electricity Act, 1910 with modification for developing and reforming the sectors of power generation, transmission, supply and distribution and for better service delivery to consumers and meeting the increasing demand for electricity;

(১১৮৯)
মূল্য : টাকা ১৬.০০

THEREFORE, it is hereby enacted as follows :—

Chapter – I

Preliminary

1. **Short title and commencement.**—(1) This Act may be called the Electricity Act, 2018.

(2) It shall come into force at once.

2. **Definitions.**—In this Act, unless there is anything repugnant in the subject or context—

- (1) **“building”** means any house, outhouse, hut, wall foundation, and also includes any structure made by bricks, corrugated iron sheets, metals, tiles, wood, bamboo, clay, leaves, grass, straw or any other material;
- (2) **“sub-station”** means such part of power generation, transmission and distribution system, where high voltage is converted into low voltage and low voltage is converted into high voltage or where any other vital action related to electricity takes place;
- (3) **“generation plant”** means any power generation plant and any building, plant and relevant sub-station which is used for power generation, and also includes any such establishment;
- (4) **“aerial line”** means any power transmission and distribution line which is set up in the air and upon the pole or post or tower;
- (5) **“Commission”** means the Bangladesh Energy Regulatory Commission established under the Bangladesh Energy Regulatory Commission Act, 2003 (Act No. XIII of 2003);
- (6) **“Commission Act”** means the Bangladesh Energy Regulatory Commission Act, 2003 (Act No. XIII of 2003);
- (7) **“consumer”** means such person who owns or possess the dwelling-house, establishment or place where the distribution licensee has provided electricity connection;
- (8) **“prescribed”** means prescribed by rules;
- (9) **“civil works”** means any construction work related to power generation, transmission and distribution, installation or reinstallation of machinery or equipment and any civil work related thereto;

- (10) **"Code of Criminal Procedure"** means the Code of Criminal Procedure, 1898 (Act No. V of 1898);
- (11) **"dwelling-house"** means by building or part thereof made for living, and also includes any such garden, courtyard, patio and adjacent room which are included or generally used along with the dwelling-house;
- (12) **"electricity theft"** means illegal consumption or use of electricity taking connection thereof;
- (13) **"power supply line"** or **"electricity line"** means any cable, conductor or any other medium which is used for transportation, transmission, supply or distribution of electricity, and any part of such cable, conductor or medium or insulator, accessory cable or any object that is relevant to transportation, transmission or distribution of electricity;
- (14) **"rules"** means rules made under this Act;
- (15) **"person"** includes any firm, partnership business, corporation, company, society, association or group of persons, whether incorporated or not;
- (16) **"meter"** means any electricity measurement device, such as analogue meter, digital meter, pre-payment meter (offline and online meter), etc. by means of which the quantity of electricity consumed by a consumer is measured and monitored;
- (17) **"road"** means any street, waterway, metrorail, flyover, overpass, foot overbridge, underpass, alley, square, alley in between dwelling-houses, any road or open space, with or without openings at both the ends that are being used by, or are in possession of, the public, and also includes the road meant for plying vehicles or footway on the bridge or bank being used by the people;
- (18) **"licensee"** means any person to whom a license is issued under the Commission Act for power generation, transmission, distribution or supply;
- (19) **"supply area"** means the geographic area for which the licensee has been permitted to supply electricity; and
- (20) **"service line"** means any power supply line laid by the licensee for the purpose of supplying electricity to consumers.

3. Act to override other laws.—Notwithstanding anything contained in any other law for the time being in force, the provisions of this Act shall prevail.

Chapter II

Power Sector Development and Independent System Operator

4. **Power sector development.**—The Government shall make necessary arrangements for the development and reformation of power generation, transmission, supply and distribution systems, introduction of advanced technology and sale and purchase of power and relevant work.

5. **Establishment of independent system operator.**—(1) The Government shall, by notification in the Official Gazette, establish an independent system operator in accordance with the existing laws and regulations for operation of the power sector in a coordinated manner.

(2) The independent system operator shall, in such manner as may be prescribed, monitor the flow of power transmission, make schedule and, on equity basis, allocate load in accordance with the merit order dispatch and on demand of the distribution agency or company.

Chapter III

Civil Works, etc.

6. **Civil works.**—(1) If any licensee is permitted to lay power supply lines within the area of supply or, subject to the terms of his license, beyond the area of supply, the licensee may, as soon as may be, do necessary civil works, with intimation to the concerned person or the local authority, as the case may be, for supplying electricity to that area.

(2) In case of doing civil works on, below, along or across road or any part thereof, railway, canal or waterway or underground, the licensee shall have to give written notice to the person concerned or the local authority.

(3) On receiving notice under sub-section (2), the person or local authority, if aggrieved, may prefer an appeal to the Government, and the licensee may do civil works after the disposal of such appeal.

(4) Notwithstanding anything contained in sub-section (2), the licensee may, under emergency requirements, lay power supply lines without issuing notice.

(5) If any power supply line or civil works creates any obstacle to proper execution of legitimate authority of any person, the licensee may shift the site for power supply line or civil works.

7. **Modification of electricity line or plant.**—Notwithstanding anything contained in any other law for the time being in force, no electricity line or plant under the control of a licensee shall be modified without written consent of the licensee.

8. Laying of power supply lines adjacent to underground drains, pipes or existing power supply lines or civil works.—The activities of laying power supply lines or doing civil works adjacent to underground drains, pipes or existing power supply lines or civil works shall be rendered in such manner as may be prescribed.

9. Reconstruction of damaged roads, railways, underground drains, sewers, tunnels.—If any road, railway, underground drain, sewer or tunnel is damaged in consequence of civil works, the part excavated shall have to be filled up by soil, the part damaged shall have to be repaired and the garbage shall have to be removed immediately after such works.

10. Notice to telecommunication and internet service providers.—If any licensee intends to carry out any new civil works or repair or modification thereof on any service line or power supply line running through any part of telephone or internet lines, he shall issue notice in writing to the concerned telecommunication or the internet service provider agency regarding such works :

Provided that in case of emergency requirements, the licensee may, without issuing notice, do new civil works or modification thereof on power supply lines and in that case, after causing such modification, shall inform the concerned telecommunication or internet service provider agency about such modification in writing.

11. Setting up aerial lines.—Subject to the prior approval of the Government, the licensee may set up aerial lines alongside or across any road, railway, canal or waterway.

12. Compensation.—(1) If any damage, harm or inconvenience is caused while doing civil works under this Act, the licensee shall, in such manner as may be prescribed by rules, pay compensation to the person affected or the owner of the land affected for acquiring land for construction of electricity towers.

(2) If any dispute arises from the amount payable as compensation under sub-section (1), the provisions of the Commission Act shall apply to settle such dispute.

13. Right of way.—For the purpose of laying power supply lines or doing civil works under this Act, the licensee shall reserve the right of way over the land and the space above or underground thereof :

Provided that the licensee shall inform the land owner in writing before laying of power supply lines and doing civil works within a reasonable time.

14. Acquisition of land.—(1) If acquisition of land is required for establishment of power generation plant or sub-station, it shall be deemed to have been necessary for public interest and the existing laws and regulations on acquisition of land shall have to be followed.

(2) If any private company holding license requires any land for constructing any connection line with power station, sub-station or grid sub-station the licensee may purchase or acquire such land from the concerned land owner in accordance with the existing laws and regulations regarding land acquisition.

Chapter IV

Power Supply, Meter Installation, etc.

15. Electricity connection.—On an application made by the owner of a dwelling-house, establishment or place or legal occupant thereof or any person specified by the Government, and subject to payment of necessary fees, the distribution licensee shall, in prescribed manner,—

- (a) give electricity connection, supply electricity and provide management services at the dwelling-house, establishment or place mentioned in the application; and
- (b) install power supply lines and other equipment for carrying out the purpose of sub-clause (a).

16. Obligation of the licensee to maintain same quality in power supply.—The licensee shall, unless otherwise specified in the terms of the license, supply electricity of the same quality to all the consumers of its supply area :

Provided that the licensee may, on an application made by any consumer making payment of prescribed fee for electricity of a different quality through a separate supply line, supply electricity of such quality to that consumer.

17. Meter installation, maintenance, etc.—(1) The licensee shall install a meter at the consumer end in order to measure the quantity of electricity supplied to that consumer.

(2) The matters regarding meter supply, meter installation, meter checking, meter reading and any other matter related thereto shall be prescribed by rules.

(3) The consumer shall be responsible for the proper maintenance of the meter and shall not tamper with the meter or cause any harm to it.

(4) If any consumer does not maintain the meter properly, the distribution licensee may, in accordance with the prescribed manner, disconnect the power supply of the consumer and take legal action against him.

(5) In case of measuring the quantity of electricity supplied over a specific period of time, the information preserved in the meter and the meter register shall be deemed to reflect correct record of the quantity of electricity consumed and this record shall be treated as evidence, unless otherwise proved.

18. Disconnecting electricity line.—(1) If any consumer fails to pay electricity bills or if any person consumes electricity illegally, the licensee shall, following prescribed procedure, disconnect the electricity line of that consumer or person.

(2) If electricity line of any consumer is disconnected under sub-section (1), no court shall pass an order to the licensee to reconnect electricity line of that consumer.

(3) If there is any unpaid electricity bill due to negligence of an employee engaged in preparation and collection of bills, the liability of that unpaid bill shall rest upon that employee.

19. Power to access and authority to remove fittings and other electrical equipment.—(1) Any licensee or any person authorized by him may, within a reasonable time, enter the dwelling-house or establishment or place having power supply connection, in order to examine the power supply line or fittings and other electrical equipment with intimation to the owner or occupant of that dwelling-house, establishment or place.

(2) If it deems fit to the licensee or any person authorized by him that it is necessary to remove a power supply line or any fittings or electrical equipment, he may remove such power supply line or fittings or electrical equipment.

(3) If any person does not allow the access under sub-section (1) or obstructs the removal of power supply line or fittings or electrical equipment under sub-section (2), the power supply line may be disconnected.

20. Reconnection of power supply line.—If any power supply line of any consumer is disconnected under section 18 or 19, the licensee may, subject to the fulfillment of specific conditions, reconnect such power supply lines.

21. Use of power saving equipments.—The licensee may, from time to time, suggest the consumer to use power saving equipment and appliances.

22. Advance payment of bill.—A consumer may make advance payment of bill in such manner as may be prescribed.

23. To stop power supply temporarily.—(1) If any consumer wishes to stop power supply temporarily for a specific period of time, he shall inform the distribution licensee regarding the matter in writing.

(2) On being informed under sub-section (1), the distribution licensee may stop power supply to that consumer.

(3) If the power supply of a consumer is stopped under sub-section (2), the consumer concerned shall have to pay all other charges except the price of electricity.

24. Power supply line or other equipment to be exempted from attachment.—The power supply lines, meters, fittings, civil works or equipment of licensee installed inside or over the premises of a person for supplying electricity shall not be liable to attachment on account of his bankruptcy or judgment against him in a civil suit.

25. Use of meter in inter-utility power transfer.—The Government may give directions to the licensee to install a meter at any phase or place of power generation, transmission and distribution system for conducting proper accounting and auditing of power generation, supply and distribution systems.

26. Power supply beyond the area of supply.—Notwithstanding anything contained in any other provisions of this Act, the Government may, by written order and subject to the fulfillment of necessary conditions and provisions give permission to any licensee for supplying power to any person living outside the licensee's area of supply and do civil works for that purpose.

Chapter V

Protection and Safety Measures

27. Protection of railways, highways, airports, waterways, canals, docks, wharves and jetties and pipes.—No licensee shall harm or obstruct or interfere with railways, highways, airports, waterways, canals, docks, wharves and jetties and pipes, during power generation, transmission, supply or distribution; and shall, in co-ordination with the concerned authority, take measures for protection and safety of the same.

28. Protection of telegraph, telephone, internet or electromagnetic signal emitting lines.—The licensee shall take all logical precautions during construction of power supply lines and doing civil works so as not to have any harmful effect on the communication system of telegraph, telephone or electromagnetic signal emitting lines by way of induction or any other means.

29. Notice of accidents and investigation.—(1) If any accident occurs or any risk arises due to power generation, transmission, supply or distribution or due to power supply line or any other work, the person affected or the person having knowledge of it, as the case may be, may give notice in writing to the Authority of such incidence or damage.

Explanation : For carrying out the purposes of this Act, "Authority" means the Chief Electricity Inspector or any Authority specified by the Government, from time to time.

(2) The Authority shall, on receipt of notice under sub-section (1), conduct investigation in such manner as may be prescribed.

30. Prohibition on earthing and the Government's interference.—(1) No person shall, with dishonest intention, connect any part of the power generation, transmission and distribution line with earth.

(2) If it appears to the Government that the provision of sub-section (1) has been violated, the Government may give directions to the licensee or person concerned to remedy, and prohibit the use of power supply line or civil works until the order is executed or for the time mentioned in the order, or may take any other action.

Chapter VI

Chief Electricity Inspector and Electricity Inspector

31. Chief Electricity Inspector and Electricity Inspector.—(1) The Government may, by notification in the official Gazette, appoint a Chief Electricity Inspector and such other Electricity Inspectors as may be deemed necessary.

(2) The appointment, duties, powers and conditions of service of the Chief Electricity Inspector and Electricity Inspectors shall be prescribed by rules.

Chapter VII

Offences and Punishments

32. Punishment for electricity theft.—(1) If any person steals electricity for use in a dwelling-house or any place, he shall be punished with imprisonment for a term which may extend to 3 (three) years, or with fine twice the price of electricity stolen or 50 (fifty) thousand Taka, or with both.

(2) If any person steals electricity for the purpose of industrial or commercial use, he shall be punished with imprisonment for a term which may extend to 3 (three) years, or with fine twice the price of electricity stolen or 5 (five) lac Taka, or with both.

33. Punishment for installing artificial means.—(1) If any person illegally installs or uses any machine, device or artificial means at the electricity connection of a licensee, it shall be an offence, and for that offence he shall be punished with imprisonment for a term which may extend to 3 (three) years, or with fine which may extend to 5 (five) lac Taka, or with both.

(2) If it is proved that illegal tapping into, or consumption or use of, the electricity connection of a licensee has taken place by installing a machine, device or artificial means in a dwelling-house, then the occupant of that premises shall, unless otherwise proved, be deemed to have committed an offence under sub-section (1).

34. Punishment for wasting electricity.—If any person, with dishonest intention, wastes electricity or diverts the power supply line or cuts off or harms any power supply line with an intent to put a stop to electricity supply, it shall be an offence and, for that offence, he shall be punished with imprisonment for a term which may extend to 3 (three) years, but not less than 1 (one) year, or with fine which may extend to 5 (five) lac Taka, or with both.

35. Punishment for theft, removal or damage of electrical equipment.—If any person, with dishonest intention, steals, removes, damages or willfully harms any electrical equipment of a power plant or sub-station or structure or power supply line materials such as-pole, parts of tower, conductor, transformer, electric cable, etc., it shall be an offence and, for that offence, he shall be punished with imprisonment for a term which may extend to 5 (five) years, but not less than 2 (two) years and with fine which may extend to 5 (five) lac taka, but not less than 50 (fifty) thousand Taka.

36. Punishment for retaining possession of stolen property.—If any person retains possession of the stolen equipment or power supply line material mentioned in section 35, despite having reasonable causes for believing such equipment and materials to be stolen, it shall be an offence, and for that offence he shall be punished with imprisonment for a term which may extend to 2 (two) years, or with fine which may extend to 50 (fifty) thousand Taka, or with both.

37. Punishment for illegal or defective power supply.—If any licensee—

- (a) subject to the provision of section 26, supplies electricity or installs any electricity line or does civil works beyond the area of supply;
- (b) breaks any provision of this Act or rules, or without any valid reason, puts a stop to power supply; or
- (c) lays defective power supply lines, it shall be an offence, and for that offence the licensee or the person or persons involved in the commission of the offence shall be punished with imprisonment for a term which may extend to 1 (one) year, or with fine which may extend to 1 (one) lac Taka, or with both.

38. Punishment for connecting meter, obstructing civil works and unauthorized use of electricity.—If any person—

- (a) without written permission of the licensee, connects any meter with the power supply line or disconnects the same there from or installs any device with an intent to connect the power supply line with any other establishment;
- (b) without written permission of the licensee, provides any other person with lateral connection from the meter;

- (c) damages meter or willfully or fraudulently changes meter index or obstructs proper registering of meter; or
- (d) uses the electricity supplied to him by a licensee, under a lower method of charging instead of the higher method of charging, or obstructs power supply by use of any equipment.

it shall be an offence, and for that offence he shall be punished with imprisonment for a term which may extend to 3 (three) years, or with fine which may extend to 5 (five) lac Taka, or with both.

39. Punishment for damaging electricity related establishment.—(1) If any person subversively breaks or causes damage to power station, power sub-station, power supply line, pole or other types of equipment or with an intent to impede power supply, hurls an object at, or puts an object on, power supply line or machinery, it shall be an offence, and for that offence he shall be punished with imprisonment for a term which may extend to 10 (ten) years, but not less than 7 (seven) years, or with fine which may extend to 10 (ten) crore Taka, or with both.

(2) If any person, without the permission of the licensee, uses, neglectfully breaks or causes damage to power station, power sub-station, power supply line, pole or other types of equipment or, with an intent to impede power supply, hurls an object at, or puts an object on, power supply line or machinery, he shall be punished with imprisonment for a term which may extend to 1 (one) year, or with fine which may extend to 50 (fifty) thousand Taka, or with both.

40. Punishment for other offences.—If any person violates any provision of this Act or rules in which no punishment is provided specifically, he shall be punished with imprisonment for a term which may extend to 6 (six) months, or with fine which may extend to 10 (ten) thousand Taka, or with both.

41. Punishment for abetment of offence.—If any person, directly or indirectly abets, conspires or instigates the commission of an offence under this Act, and if such offence takes place in pursuance of that abetment, conspiracy or instigation, the abettor, conspirator or instigator shall be punished with the penalties provided for in this Act for the offence committed in consequence of such abetment, conspiracy or instigation.

42. Confiscation of objects related to offence.—Any machine, object or material used in the commission of any offence under this Act shall be confiscated in favour of the Government.

43. Punishment for offences committed by electricity employees.—If any person employed by a public or private agency, company or organization engaged in power generation, transmission or distribution, commits any offence

specified in this Act or, directly or indirectly, engages himself with the commission of such offence, or abets, conspires or instigates the commission thereof, he shall be punished with the penalties specified for that offence under this Act.

Explanation: For carrying out the purposes of this section, if any person employed by a public or private agency, company or organization engaged in power generation, transmission or distribution, in spite of being informed of the commission of any offence under this Act, does not take any step to prevent the commission of such offence within reasonable time, prevention of which is his duty, or does not inform his higher authority, he shall be deemed to have abetted to commit such offence.

44. Punishment for repetition of the same offence.—If any person further commits the same offence after being punished, he shall be punished with double of the punishment provided for the offence.

45. Punishment not to reduce other liabilities.—The fine imposed under this Act shall be in addition to compensation, and it shall not reduce the liability of the convicted person to pay such compensation.

46. Search.—(1) In case of any offence committed under this Act, any employee not below the rank of Assistant Engineer, Assistant General Manager or of an equivalent rank being authorized by the licensee shall have power to do any of the following acts, namely:—

- (a) if he has reason to believe that an unauthorized use or electricity is occurring in any place or premises, he may enter into, break the doors to enter into, and search the place of premises; and
- (b) he may seize or remove all types of equipment, cables or any other machinery used in such unauthorized use of electricity, and may examine or confiscate any book of accounts or documents relevant thereto.

(2) The search under sub-section (1) shall be conducted at the presence of the owner of the place where it takes place or representative thereof and a list of items seized shall be prepared which shall have to be signed by that owner and at least two neutral persons.

(3) In case of search and seizure, the provisions of the Code of Criminal Procedure shall have to be followed in so far as possible.

47. Filing a case.—Notwithstanding anything contained in any other law for the time being in force, no court shall take cognizance of any complaint lodged under this Act by any person other than the Assistant Engineer, Assistant General Manager or of equivalent rank authorized by the licensee.

48. Procedure to be followed for filing certain cases.—(1) Without prejudice to any other provisions of this Act, the licensee shall, on being informed of electricity theft committed by any person or consumer, immediately disconnect his power supply, and lodge a complaint in writing in the court having jurisdiction within 7(seven) working days after such disconnection:

Provided that if the accused consumer or person pays an amount thrice the price of electricity stolen and, as the case may be, the price of licensee's meter, power supply disconnection and reconnection fees and all other relevant fees, if any, and if it appears to the licensee to be justified he may abstain from filing a case and may reconnect the power supply within 48 (forty eight) hours of such payment:

Provided further that this provision shall only be applicable if the accused consumer or person commits the offence for the first time.

(2) No person consuming electricity illegally may file a case in any civil or criminal court regarding actions taken against him under this Act.

49. Trial, etc.—(1) The provisions of the Code of Criminal Procedure shall apply in case of trial of offences committed under this Act.

(2) Notwithstanding anything contained in the Code of Criminal Procedure—

- (a) the offences committed under this Act shall be tried by the Judicial Magistrate of the First Class or, as the case may be, the Metropolitan Magistrate;
- (b) a Judicial Magistrate of the First Class or a Metropolitan Magistrate may impose fine of any amount specified in this Act on the person convicted for committing offence under this Act.

50. Offences to be cognizable, bailable and compoundable, etc.—Notwithstanding anything contained in the Code of Criminal Procedure, the offences committed under sections 33, 35, 38 and 39 of this Act shall be cognizable, non-bailable and non-compoundable, and the offences committed under sections 32, 34, 36, 37 and 40 of this Act shall be cognizable, bailable and compoundable.

51. Application of the Mobile Court Act, 2009.—Notwithstanding anything contained in any other law for the time being in force, for carrying out the purposes of the mobile Court Act, 2009 (Act No. LIX of 2009), the Mobile Court may impose punishment for the offences committed under this Act, subject to inclusion thereof into the Schedule of that Act.

52. Offences committed by a company.—(1) If any offence under this Act is committed by any company, the owner, Director, Executive Officer, Manager, Secretary or any other staff of the company having direct involvement in such offence shall be deemed to have committed the offence, unless he proves that the offence was committed beyond his knowledge or that he exercised all due diligence to prevent the commission of such offence.

(2) If the company referred to in sub-section (1) is a legal entity, the company, besides the persons mentioned in sub-section (1), may separately be accused and convicted in such proceeding, but it shall only be punished with fine under the concerned provisions.

Explanation : For carrying out the purposes of this section, “company” means any company, whether incorporated or registered, any agency, organization partnership business, society, or any organization or agency formed with a group of persons, and also includes any company under partial or full ownership of any public organization, autonomous body or the Government.

Chapter VIII **Miscellaneous**

53. Settlement of dispute.—The Commission Act shall apply to settle any dispute arising from power supply or use.

54. Recovery of arrears.—Notwithstanding anything contained in any other law, document or contract for the time being in force, if there remains any arrear of charges for supply of electricity under this Act or any other sum from a consumer, it shall be recoverable as public demand according to the provisions of the Public Demands Recovery Act, 1913 (Bengal Act, No. III of 1913).

55. Taking assistance of disciplined force.—For carrying out the purposes of this Act, if any licensee or any person authorized by him seeks assistance from a disciplined force, the concerned force shall provide such assistance.

56. Special power.—If any emergency arises in any establishment related to power generation, transmission and distribution, the Government may declare emergency in that establishment for the sake of keeping the power supply services at consumer ends uninterrupted and may take necessary steps as per rules.

57. Declaration of essential service.—Notwithstanding anything contained in any other law for the time being in force, the service of the employees engaged in power generation, transmission and distribution may be declared as essential service according to the Essential Services (Maintenance) Act, 1952 (Act No. LIII of 1952).

58. Power of Government to remove difficulty.—If any difficulty arises in giving effect to any provision of this Act, the Government may, by notification in the official Gazette, take necessary steps for removing such difficulty.

59. Power to make rules.—The Government may, by notification in the official Gazette, make rules for carrying out the purposes of this Act :

Provided that, until such rules are made, the Government may, if necessary, by general or special order, undertake and execute any programme, subject to consistency of such orders with this Act.

60. Repeal and savings.—(1) After the commencement of this Act, the Electricity Act, 1910 (Act No. IX of 1910), hereinafter referred to as the said Act, shall stand repealed.

(2) Notwithstanding such repeal—

- (a) any act done or measures taken, rules made, notification, order or notice issued under the said Act, shall be deemed to have been done, taken made or issued under the relevant provisions of this Act;
- (b) any procedure going on or pending under the said Act shall, in so far as possible, be disposed of under this Act; and
- (c) any case or proceeding pending before any court under the said Act shall be disposed of in such manner as if the said Act had not been repealed.

61. Publication of English text.—(1) After the commencement of this Act, the Government shall, by notification in the official Gazette, publish an Authentic English text of this Act.

(2) In the event of conflict between the Bangla and the English text, the Bangla text shall prevail.

By order of the President

Mohammad Alauddin
Joint Secretary
Power Division.

মোঃ তারিকুল ইসলাম খান, উপপরিচালক, বাংলাদেশ সরকারী মুদ্রালায়, তেজগাঁও, ঢাকা কর্তৃক মুদ্রিত।
মোঃ আব্দুল মালেক, উপপরিচালক, বাংলাদেশ ফরম ও প্রকাশনা অফিস, তেজগাঁও,
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রেজিস্টার্ড নং ডি এ-১

বাংলাদেশ



গেজেট

অতিরিক্ত সংখ্যা

কর্তৃপক্ষ কর্তৃক প্রকাশিত

বৃহস্পতিবার, জুলাই ২৪, ২০০৩

Government of the People's Republic of Bangladesh
Ministry of Power, Energy and Mineral Resources
Energy and Mineral Resources Division

Dated the 24th July, 2003

S.R.O.No- 228/Law/2003— The Government, in exercise of the powers conferred by section 65 of the Bangladesh Energy Regulatory Commission Act, 2003, is pleased to publish the following English translation of the Act, to be called the Authentic English Text of the Act, and it shall be effective from the date on which the Act comes into force under sub-section (2) of section 1 of the Act.

Act No 13 of 2003

An Act to make provisions for the establishment of an independent and impartial regulatory commission for the energy sector

WHEREAS it is expedient to make provisions for the establishment of an independent and impartial regulatory commission to create an atmosphere conducive to private investment in the generation of electricity, and transmission, transportation and marketing of gas resources and petroleum products, to ensure transparency in the management, operation and tariff determination in these sectors; to protect consumers' interest and to promote the creation of a competitive market;

It is hereby enacted as follows —

CHAPTER - 1 Preliminary

1. Short title and commencement—

(1) This Act shall be called the Bangladesh Energy Regulatory Commission Act, 2003.

(2) It shall come into force on such date as the Government may, by Gazette notification, appoint.

2. Definitions—

In this Act, unless there is anything repugnant in the subject or context-

- (a) "undertaking" means any entity relating to generation of electricity, transmission, transportation, storage, distribution or any installation for supply of energy or part of it;
- (b) "energy" means the electricity, gas and petroleum product;
- (c) "energy audit" means verification, monitoring and analysis of machinery, appliances and the processes of utilization of energy entity and determination of its efficiency;
- (d) "employee" means staff and officers of the Commission;
- (e) "Commission" means the "Bangladesh Energy Regulatory Commission" established under this Act;
- (f) "gas" means natural gas, natural liquid gas (NLG), liquefied natural gas (LNG), compressed natural gas (CNG), synthetic natural gas, or such mixture of natural hydrocarbon, which transforms into gaseous elements at ambient pressure and heat;
- (g) "gas system operation" means storage, transmission or supply of gas;
- (h) "Chairman" means Chairman of the Commission and it shall also include the Member who may act as Chairman;
- (i) "tariff" means the schedule of rates for energy supply and special services connected therewith;
- (j) "DESA Act" means the Dhaka Power Supply Authority Act, 1990 (Act 36 of 1990);
- (k) "Code of Civil Procedure" means Code of Civil Procedure, 1908 (Act V of 1908);
- (l) "prescribed" means prescribed by rules or regulations;
- (m) "Rural Electrification Act" means the Rural Electrification Board Ordinance, 1977 (Ord. No. LI of 1977);
- (n) "Inspector" means a designated employee or officer or any other person appointed by the Commission for the purpose of inspection;

- (o) "pipeline" means pipelines approved for gas supply including compressors, communication instrument, meters, pressure controllers, pumps, valves and other appliances required to operate those pipelines;
- (p) "Petroleum Act" means Bangladesh Petroleum Act 1974 (Act LXIX of 1974);
- (q) "petroleum products" means processed or unprocessed liquid or mixture of solid hydrocarbon and petroleum byproducts such as lubricant and petroleum solvent but shall not include natural gas;
- (r) "petroleum operations" means production, development, exploration, processing, refining or marketing of petroleum;
- (s) "regulation " means regulations framed under this Act.
- (t) "natural gas" means hydrocarbon found in natural state, hydrocarbon mix or liquid, vaporous or gas found in combination with followings, which may or may not contain one or more non-organic substances, such as:-
 - hydrogen sulfide;
 - (i) nitrogen;
 - (ii) helium;
 - (iii) carbon dioxide;
- (u) "Electricity Act" means the Electricity Act, 1910 (Act IX of 1910);
- (v) "electricity industry" means persons or assets, associated with the generation, transmission, distribution or supply of electricity; power system activities and matters supplementary and connected therewith;
- (w) "rules" means rules framed under this Act;
- (x) "individual" means and includes company, association or group of persons whether statutory or not;
- (y) "consumer" means a person who receives electricity or gas supplied by licensee in the premises or installation, owned or possessed, under relevant laws, rules, regulations, bylaws or any document which has the force of law;
- (z) "Ministry" means the Ministry of Power, Energy and Mineral Resources;
- (aa) "Presidential Order" means the Bangladesh Water and Power Development Boards Order, 1972 (P.O. No.59 of 72);
- (bb) "licensee" means an individual who has received a licence under this Act for generation of electricity, transmission, marketing, distribution, storage and supply of energy;
- (cc) "licence" means any licence issued under this Act;
- (dd) "Member" means any Member of the Commission and it shall include the Chairman;

(ee) "Government Authority" means the Power Development Board established by the Presidential Order, the Rural Electrification Board established under the Rural Electrification Act, the Dhaka Power Supply Authority established under the DESA Act, and any other organization fully owned by the Government;

(ff) "local authority" means the local government authority constituted under a statute for the fulfillment of the purpose of article 59 of the Constitution.

3. Overriding effect of the Act—

Notwithstanding anything contained in any other law for the time being in force, the provisions of this Act shall prevail.

CHAPTER – 2

Establishment of the Commission

4. Establishment of the Commission—

(1) A Commission to be called the Bangladesh Energy Regulatory Commission shall be established as soon as this Act comes into force.

(2) The Commission shall be a statutory body and it shall have perpetual succession and a common seal with power to acquire and hold moveable and immoveable properties, to transfer such property subject to the provisions of this Act and may, by the said name, sue and be sued.

5. Office of the Commission, etc.—

(1) The head office of the Commission shall be situated in Dhaka.

(2) The Commission may, in case of necessity, set up its branch office at any place within Bangladesh.

6. Constitution of the Commission, etc.—

(1) The Commission shall consist of a Chairman and four Members.

(2) The Chairman and the Members shall be appointed by the President on the basis of the proposal of the Ministry and they shall be full-time officers of the Commission.

(3) The Chairman and two Members shall have to be appointed as soon as the Act comes into force and after one year from such appointment the rest two members shall have to be appointed.

(4) The Chairman shall be the Chief Executive of the Commission.

7. Qualifications and disqualifications of Members, etc.—

(1) Chairman and Members may be appointed from amongst the persons having engineering or relevant degree on electricity, natural gas, petroleum products, mineral resources, law, economics, accounting and management with required practical knowledge and experience to be prescribed by rules:

Provided that not more than one Member shall be appointed from engineering, law, economics, accounting or management;

(2) A person shall not be qualified for appointment as a Member or Chairman if he is--

- (a) not a citizen of Bangladesh;
- (b) declared a loan defaulter by a bank or any financial institution;
- (c) declared insolvent by a competent Court;
- (d) has been convicted for a criminal offence involving moral turpitude, sentenced to imprisonment for a term not less than two years or more and a period of five years has elapsed since his release; and
- (e) employed in Government service.

(3) Persons having business interest in any matter within the scope of the Commission shall not be eligible for appointment to the post of Member or Chairman.

(4) On being appointed as Chairman or Member, he cannot engage himself in a business in energy sector either in his own name or in the name of any other person.

Explanation: Financial Institution as mentioned in paragraph (b) means any financial institution as defined in the Financial Institutions Act, 1993 (Act No. 27 of 1993).

8. Tenure of office, resignation, etc. of the Chairman and Members—

(1) The Chairman and Members shall hold office for a period of 3 (three) years from the date of assumption of office and shall be eligible for reappointment for another term only:

(2) The Chairman or a Member even before the completion of the tenure as prescribed under sub-section (1) may resign from the post by giving one month's notice in writing under his hand addressed to the President.

(3) If the post of the Chairman falls vacant or if he fails to discharge his duties due to absence, illness, or for any other reason, a Member appointed for that purpose by the President shall act as the Chairman, until the Chairman resumes his duties or newly appointed Chairman joins in the vacant post.

9. Actions and proceedings not to be void due to the vacancy in the position of Member—

Vacancy in the post of Members shall not render any action or proceeding of the Commission illegal and no question can be raised as to its legality.

10. Status, pay and allowances, etc. of the Members—

Status, pay and allowances, seniority and other terms of Chairman and Members shall be determined by the prescribed rules:

Provided that until such rules are framed, status, pay and allowances and other terms of service of Chairman and Members shall be determined by the Government:

Further provided that status, pay and allowances and other terms of service of Chairman or any Member shall not be varied after his appointment in a manner that may be disadvantageous for him.

11. Removal of Member—

(1) Subject to the provision of sub-section (2), the President may remove any Member of the Commission if he:

- (a) is physically or mentally incapable of performing duty or refuses to perform duties;
- (b) fails or refuses to perform duties for more than 3 months without valid reason;
- (c) becomes ineligible under section 7 (2) (3) and (4) to continue as a Member;

(d) engages himself in such activities which are detrimental to the Commission ;

(e) conducts himself in such a way or misuses his position which is detrimental to the objective of this Act or hampers public interest.

(2) If a Member is found ineligible to hold his post for reasons mentioned in sub-section (1), the President shall form an enquiry committee consisting of one Judge of the Supreme Court to look into the reasons and the time limit for submission of the report by the said committee shall also be mentioned in that order.

(3) The enquiry committee formed under sub-section (2) to investigate against a Commissioner, shall submit its report to the Government stating therein specific information and reasons as to whether the allegations have been proved and whether the Commissioner ought to be removed, and the Government, as far as possible, shall take action according to the recommendations of the said report.

(4) Government shall not remove any Commissioner under this section without giving him reasonable opportunity to defend himself in respect of the proposed removal.

(5) If an enquiry committee is formed under sub-section (2), Government, on consideration of the relevant circumstances, may order the Commissioner not to perform his duties and the Commissioner shall obey it.

(6) The enquiry committee shall be deemed to be appointed under the Commission of Enquiry Act, 1956 (VI of 1956) and subject to the provisions of this Act, the provisions of the said Act shall be applicable for the enquiry committee.

(7) Any person removed under this section shall not be reappointed as a Member or in any other position of the Commission, the Government, or Government organization.

12. Commission's meeting—

(1) Subject to other provisions of this section, the Commission, may determine the procedures of its meetings by the regulations.

(2) The meetings of the Commission will be held on such time and at such place determined by the Chairman.

(4) The presence of three Members including the Chairman shall form the quorum of the meeting.

(5) The decision of the meeting of the Commission shall be taken by a majority of votes of the Members present and in case of equality, the President shall have the second or casting vote.

(6) Any Member may request the Chairman in writing to convene a meeting stating therein specific agenda and copy of such request letter shall have to be sent to other Members.

13. Appointment of Secretary, officers and staff, etc. of the Commission—

(1) The Commission, for the purpose of carrying out its functions effectively, can appoint required number of officers and employees including its Secretary.

(2) The procedure of appointment and terms of service of officials and employees of the Commission shall be determined by regulation.

(3) Until the regulation is made, the Government may appoint a Secretary on deputation for the Commission.

14. Committee—

The Commission may, in case of necessity of assistance to perform duties, constitute required number of committees comprising of one or more than one of its Members, officers and employees or any other person and the terms of reference and proceedings of such committees shall be determined by the Commission.

15. Appointment of employee to the Commission on deputation—

(1) The Commission may appoint on deputation any officer or employee of the Government, or any statutory body, subject to consent of his controlling authority.

(2) Persons appointed under sub-section (1), shall remain employed under same rules relating to discipline and control as are applicable to the employees of the Commission, but in case of imposition of penalty, the matter shall be sent together with relevant facts to the controlling authority of the said person for taking necessary action.

16. Employment outside Commission—

- (1) A Member of the Commission, without the written permission of Government and any employee, without the written permission of the Commission shall not engage himself or continue in any profitable pursuit outside the Commission.
- (2) Any Member or employee of the Commission shall not engage himself in or carry on any activity, which may, in the opinion of the Government or Commission, create or have an adverse effect in the discharge of his duties.

CHAPTER – 3 **Financial matters of the Commission**

17. Funds of the Commission—

- (1) There shall be a fund to be called “Bangladesh Energy Regulatory Commission Fund” and money, as mentioned below shall be deposited in the fund, such as:-
 - (a) grant from the Government or statutory body;
 - (b) loans borrowed by the Commission;
 - (c) fees and charges deposited under this Act; and
 - (d) money received from any other source.
- (2) The amount of the Fund shall be maintained in the name of the Commission in any scheduled Bank determined by the Commission, and procedure for withdrawal of money from the Bank is to be specified by regulation.
- (3) The pay and allowances etc. of Members and employees shall be paid and all other expenditures of the Commission shall be borne out of this Fund.
- (4) Any money remaining after meeting all expenses shall be deposited to the consolidated fund.

Explanation:- Scheduled Bank means Scheduled Bank as defined in Article 2 (J) of Bangladesh Bank Order, 1972 (P. O. 127 of 1972).

The Commission may, in order to perform its functions, under this Act, receive necessary loan and repay the same, but prior approval of the Government shall be necessary to receive any foreign loan.

19. Annual budget statement—

Every year, the Commission shall for the next financial year, submit to the Government annual budget statement within the time specified by the Government and in such statement the estimated amount to be required from the Government for that financial year shall be mentioned, and before commencement of that financial year, the Government shall on the basis of that statement allocate the necessary budget.

20. Accounting and Audit—

(1) The Commission shall maintain proper accounts of all money received and spent by it, and subject to the general circular by the Government in this behalf, the Commission may determine the process for such maintenance of accounts by regulation, however, such account must accurately and properly reflect the financial position of the Commission.

(2) The Commission within 60 (sixty) days of the expiry of every financial year, shall prepare its annual-accounts and financial statement subject to any general circular of the Government, and getting them audited by a Chartered Accountant firm registered under Bangladesh Chartered Accountants of Order, 1973 (P. O. No. 2/1973) and make arrangement for sending such statements to the Ministry within next 60 (sixty) days for the purpose of laying those before the Parliament and the Ministry shall, as soon as possible, cause the statements along with the report be laid before the Parliament.

(3) Apart from the audit as mentioned in sub-section (2), the Commission, as a statutory public authority within the meaning of the Comptroller and Auditor- General (Additional Functions) Acts, 1974 (XXIV of 1974) shall be under the jurisdiction of the Comptroller & Auditor General.

21. Report—

The Commission shall, within 90 days of expiry of every financial year, send to the Ministry a report in respect of the functions performed by the Commission during the previous financial year, and the Ministry shall, as soon as possible, cause it to be laid before the Parliament.

CHAPTER – 4

Functions, Powers and Proceedings of the Commission

22. Functions of the Commission—

Subject to the provisions of this Act, functions of Commission shall be as follows:-

- (a) to determine efficiency and standard of the machinery and appliances of the institutions using energy and to ensure through energy audit the verification, monitoring, analysis of the energy and the economy use and enhancement of the efficiency of the use of energy;
- (b) to ensure efficient use, quality services, determine tariff and safety enhancement of electricity generation and transmission, marketing, supply, storage and distribution of energy;
- (c) to issue, cancel, amend and determine conditions of licences, exemption of licences and to determine the conditions to be followed by such exempted persons;
- (d) to approve schemes on the basis of overall program of the licensee and to take decision in this regard taking into consideration the load forecast and financial status;
- (e) to collect, review, maintain and publish statistics of energy;
- (f) to frame codes and standards and make enforcement of those compulsory with a view to ensuring quality of service;
- (g) to develop uniform methods of accounting for all licensees;
- (h) to encourage to create a congenial atmosphere to promote competition amongst the licensees;
- (i) to extend co-operation and advice to the Government, if necessary, regarding electricity generation, transmission, marketing, supply distribution and storage of energy;
- (j) to resolve disputes between the licensees, and between licensees and consumers, and refer those to arbitration if considered necessary;

- (k) to ensure appropriate remedy for consumer disputes, dishonest business practices or monopoly;
- (l) to ensure control of environmental standard of energy under existing laws; and
- (m) to perform any incidental functions if considered appropriate by the Commission for the fulfillment of the objectives of this Act.

23. Investigation power—

(1) Commission shall have all those powers for the purposes of an investigation or proceedings, which are exercised by a Civil Court at the time of trial under the Code of Civil Procedure, such as: –

- (a) to summon a witness and ensure his presence and examination of the witness on oath;
- (b) to detect and present any important document which may be submitted as a document or evidence;
- (c) to collect evidence through an affidavit;
- (d) to call for public record from any court or office;
- (e) to adjourn hearing;
- (f) to ensure presence and absence of the parties; and
- (g) to review the Commission's decisions, directives or orders.

(2) The Commission may pass any interim order relating to any proceeding or hearing conducted before it.

(3) If the Commission is satisfied to the effect that for achieving objectives of this Act or for the sake of discharging duties under this Act, examination of any book, accounts or deed, is necessary relating to power generation, and purchase, production, transmission, distribution supply or use of energy, or activities of such undertaking, or matters otherwise connected, but the same is lying under the custody or control of any person, in that case, Commission may direct the said person to present the book, account or deed to any officer of the Commission for that purpose and may order examination and direct the said person to supply the information within his control to discharge duties under this Act.

(4) If the Commission, during an investigation, or any proceeding under this Act, has reasons to believe to the effect that any book or account involving interest of the unit or person under investigation, presentation of which shall be necessary for investigation, but the same is being destroyed, partially destroyed, altered, tampered or concealed or likely to be done so, in that case, the Commission, by an order in writing, empower its officer to enter, investigate and confiscate, as if he is exercising powers of an Inspector appointed under the Companies Act, 1994 (Act No.18 of 1994).

(5) Notwithstanding anything contained in any other law for the time being in force, the Commission, by a general or special order, may ask for information on the following matters from any person or licensee for the sake of discharging its duties under this Act, such as:-

(a) matter related to power generation, and transmission, distribution, purchase, supply and use of energy;

(b) any other matter prescribed by regulation.

(6) The Commission may, if necessary discuss related issues with such person or persons who may be affected by the decision of the Commission.

(7) Notwithstanding the provisions of the Electricity Act, the Commission, by an order in writing, may delegate to a licensee who is engaged in power generation, transmission, distribution or supply of energy, such powers as are vested under Telegraph Authority for construction and installation of Telegraph line under the Telegraph Act, 1885 (XIII of 1885) subject to the fulfillment of conditions mentioned in the order.

(8) Notwithstanding anything contained in any other law for the time being in force, the Commission may, by an order in writing, with the conditions mentioned therein, delegate such authority to a licensee engaged in transmission, storage, distribution or supply of gas as are provided to that effect under the Natural Gas Safety Rules, 1991.

CHAPTER -5

Relationship between the Government and the Commission

24. Powers of the Government for the Energy Sector—

(1) The Government shall have the power of giving policy directives for the development and overall planning in energy sector.

(2) The Government, if necessary, shall issue any policy directive in consultation with the Commission.

(3) The Government shall make policies providing therein the scope for overall planning and coordination for the sake of development of energy sector giving priority to the need of energy for different socio-economic classes, and areas, and to achieve desired level of economic growth, and for conservation of energy as future sources of power.

25. Emergency power to control energy use—

Government may prohibit the use of energy and make rules relating to distribution for the definite marginal users, to meet the unexpected shortfall, or the emergency condition in respect of availability of energy, but the Government in making such rule, shall ensure that the licencees and others will not be affected.

26. Settlement of Disputes—

In case of difference of opinion or dispute arising out of matters mentioned in the Act, the Government shall discuss the matter with the Commission, and if it appears necessary, Government shall resolve the difference of opinion, or the dispute with the assistance of experienced professionals.

CHAPTER – 6

Licence

27. Licence—

(1) No person shall engage himself in the following business unless he is empowered by a licence or exempted from having it under this Act or any other Act, such as:-

- (a) power generation;
- (b) energy transmission;
- (c) energy distribution and marketing;
- (d) energy supply; and
- (e) energy storage.

(2) All persons empowered under Electricity Act, Presidential Order, Rural Electrification Act, DESA Act, Bangladesh Petroleum Act, or rules made thereunder for the power generation, and transmission, storage, supply and distribution of energy shall be treated as licencees under this Act and provisions of this Act shall be applicable to them.

(3) The private companies, with whom agreements have been executed between the companies and the Government or any of its agencies, immediately before this Act comes into force shall be treated as licencees for the generation of power and for the supply, transmission, distribution, storage and supply of energy along with the bulk energy under this Act, and notwithstanding anything contrary is contained in this section, the concerned conditions of the agreement shall be applicable to those cases.

(4) If a question or difference of opinion exists whether a person is engaged in power generation, and transmission, storage, distribution and supply under sub-section (1), the Commission's decision on the issue shall be final.

(5) The Commission may order any person who is not a licencee or not empowered by any other way, to disconnect or stop the operation of machineries relating to power generation, transmission, storage, marketing, supply or distribution of energy.

28. Issuance of licence by the Commission—

Licence may be issued to any person for the following purposes in a procedure prescribed by the Commission, such as:-

- (a) for power generation;
- (b) for energy transmission;
- (c) for distribution and marketing of energy;
- (d) for supply of energy; and
- (e) for storage of energy.

29. Exemption from the requirement of licence —

(1) Commission may, make regulations for giving exemption from the requirement of licence subject to the fulfillment of the specified conditions:

Provided that any person who is exempted by the Commission shall have to observe those conditions which a licencee shall have to observe under the licence, or this Act, or the regulation, unless contrary is mentioned in the order of exemption.

(2) Exemption under this section may be given to a person for a specified period.

(3) Commission may revoke the exemption at any time recording reasons in writing.

30. Renewal, revision and cancellation of licence—

Licence can be renewed, cancelled and revised by a process prescribed by regulation.

(1) Every licensee shall make arrangement for the efficient, co-ordinated, cost-effective production, transmission and supply of energy.

(2) Every licensee shall maintain international standard and working method at the time of discharging his duties relating to energy operation, maintenance and safety.

32. Restrictions to the licensee—

(1) No licence without having prior permission in writing from the Commission shall acquire any undertaking by purchase or any other means:

Provided that before making an application for such consent licensee shall serve 30 (thirty) day's notice to the Commission and if the licence is for distribution and supply, in that case, to each of the concerned local authorities.

(2) No licensee, without the prior permission from the Commission shall sell, mortgage, lease, exchange or transfer by any other means his undertaking or any part of it.

(3) Unless clearly prohibited by the condition of licence or by the general or special order of the Commission, any licensee can enter into contract for purchasing energy.

33. Annual accounts of licensee—

Every licensee shall prepare annual audit report of the undertaking and each of the business unit, in the form prescribed by the Commission, before the date specified by the Commission for this purpose and the same or an extract of a specific portion of it shall have to be published in a manner prescribed by the Commission.

CHAPTER – 7

Tariff

34. Tariff—

(1) Notwithstanding anything contained in any other law for the time being in force, the price of power generation in wholesale, bulk and retail, and the supply of energy at the level of end-user, shall be determined in accordance with the policy and methodology made by the Commission in consultation with the Government;

Provided that this shall not be applicable in those cases, the tariff of which were determined by the agreement executed between the private company and the Government or by any of its agency before this Act comes into force.

(2) At the time of making the policy, the Commission shall take into consideration the following matters, such as:

- (a) Electricity Act, Presidential Order, Rural Electrification Act and DESA Act;
- (b) to harmonize the tariff with the cost of production, transmission, marketing, distribution, supply and storage of energy;
- (c) efficiency, least cost, excellent service, excellent investment;
- (d) consumers' interest;
- (e) power generation, and transmission, distribution and supply of energy on commercial basis;
- (f) development of national power system ; and
- (g) other matters considered necessary by the Commission for the fulfillment of the objectives of this Act.

(3) Commission by regulation shall make methodology for determination of tariff.

(4) Commission shall determine tariff after giving hearing to licencees and others who have interest in it.

(5) Tariff determined by the Commission shall not be revised more than once in a fiscal year, unless there is change in the prices of energy including any other changes.

(6) A licencee may submit to the Commission proposal for revision of tariff along with detailed information and the Commission after hearing the intending parties may publish notification containing its decision within 90 days of receiving the proposal along with all information for tariff revision.

(7) Licencee shall publish a notice, at least in two widely circulated national daily newspapers, showing therein the tariff, and the tariff shall be effective within 7 (seven) days of such publication.

Commission's power to issue order and implement its decision

35. Interim or Final Order—

If the Commission is satisfied that, any licensee is violating or likely to violate any relevant condition, the Commission shall, in order to ensure compliance with such condition, issue interim or final order.

36. Emergency Provision—

In consideration of objectives of this Act and the necessity of providing uninterrupted supply of energy to the consumers, subject to the approval of the Government, the Commission, shall be authorized to order any licensee for vesting any undertaking of the licensee, its properties, along with its interests, rights, duties of management and control, to any other person or authority till the completion of investigation and issuance of interim or final order for the preservation of the object as required under this Act and in the interest of safe and uninterrupted supply of energy to the consumers, no question can be raised against such order, but before giving such order, Commission shall provide opportunity to the licensee for hearing in accordance with the provisions of this Act.

37. Implementation of Interim and Final Order—

(1) Without affecting any provision of this Act, all orders and instructions, be it interim or final, shall be implemented in such a way, as if the same is a decree of a Civil Court.

(2) Commission, at the time of passing interim or final order, may order the violator to pay compensation to a person who suffered loss for his work.

CHAPTER – 9 **Flow of Information**

38. Information regarding quality of work—

Commission may collect necessary information in a process prescribed by regulation.

39. Restrictions on publishing information—

(1) Subject to the provision of this Act, and without the consent of the concerned person, Commission shall not divulge any secret information collected under this Act regarding any special business or person during the conduct of the business.

(2) Restriction under sub-section (1) shall not be applicable to information in the following cases, such as:-

- (a) information relating to smooth functioning and determination of tariff by the Commission;
- (b) information relating to assistance in the functions of the Government under this Act;
- (c) information relating to the assistance in the functioning of the Comptroller and Auditor- General under this Act;
- (d) information relating to an investigation about any criminal offence or any criminal proceedings;
- (e) information supplied to any person authorized under Bankruptcy Act, 1997 (Act No. 10 of 1997) for discharging his obligations; and
- (f) information directly related to any civil proceedings that has been filed under this Act or any other Act.

CHAPTER - 10**Arbitration - Settlement and Appeal****40. Arbitration - Settlement by the Commission—**

(1) Notwithstanding anything contained in the Arbitration Act, 2001 (Act No. 1 of 2001) or any other Act, any dispute arising between the licencees, or licencees and consumers, shall be referred to the Commission for its settlement:

Provided that a contract, executed between the Government or any of its agency and a private company, in respect of energy, immediate before this Act comes into force, the conditions of the said contract shall be applicable for the settlement of the disputes.

(2) Commission as an arbitrator may, suemoto, take steps and award adjudication of a dispute or appoint arbitrator for settlement of dispute.

(3) Methods and procedures for the said settlement shall be specified by regulations.

(4) Arbitrator appointed by the Commission shall submit its award to the Commission and Commission may pass an appropriate order, as follows, on the basis of it:-

- (a) approval and implementation of the award;
- (b) cancellation or amendment of the award; or
- (c) sending of the award for review of the arbitrator.

(5) Award or order given by the Commission shall be deemed to be the final.

(6) Award or order given by the Commission shall be implemented in such a way as if it is a decree of a Civil Court.

(7) At any time during the continuation of the proceedings under this part or any time before its commencement, Commission may make any such interim order which may be considered as appropriate by it.

41. Appeal against the decision of Inspector—

Notwithstanding anything contained in the Electricity Act or Petroleum Act or rules made thereunder, appeal may be filed to the Commission against any decision of the Electricity or Petroleum Inspector.

CHAPTER -11 Offence and Penalty

42. Penalty—

If any person violates provisions of this Act, rules, or regulations, he shall be liable to be sentenced with imprisonment for a term not exceeding 3(three) years or with fine not less than Taka 5,000 (five thousand) or with both, and in case of continuation of the offence he shall be fined with an amount not exceeding Taka 3000 (three thousand) for each day of continuation.

43. Penalty and fine for violation of Order—

If any licensee or a person, without a valid reason, refuses or fails to abide by any order or directive given by the Commission under this Act, then-

- (a) the Commission may impose upon such person administrative fines prescribed by regulation and such fines shall be liable to be realized as Government dues; or
- (b) it will be treated as an offence and for such offence the said person shall be liable to be sentenced with imprisonment for a term not exceeding 3 (three) months or with fine not less than Taka 2000 (two thousand) or with both; and in case of continuation of the offence he shall be liable to be fined with an amount not exceeding Taka 500 (five hundred) for each day.

44. Penalty for stealing energy—

- (1) If any consumer steals electricity or goods of electricity of any licensee, or abets the stealing or involves himself in such acts, he shall be punished under the Electricity Act, 1910 (Act No. IX of 1910).
- (2) If any consumer steals gas or petroleum products or abets stealing or involves himself in such acts, he shall be liable to be sentenced to imprisonment for a maximum term of 3 (three) years rigorous imprisonment or with fine of Taka 5000 (five thousand) or with both.
- (3) Stealing under sub-section (2) shall mean one or more of the following matters, separately or jointly:
 - (a) if gas or petroleum product is used from anybody without proper approval or instructions of the licensee or in violation of the approved purpose of use, plan or program;
 - (b) if gas or petroleum product is allowed for use without approved meter within the purview of this Act or rules made under this Act;
 - (c) if a consumer violates the method, or manner of use of gas or petroleum products as specified by directives or methodology or under rules and regulations under this Act or by puncturing or making any change in a pipeline or through bypassing or tampering meter of a consumer; and
 - (d) if wastage or misuse, unauthorized use or use beyond the contract or inconsistent use of gas or petroleum product is done or causes any thing to be done or abets in doing the same.

45. Penalty for obstruction of the construction during the installation or repair of electric line or gas pipeline, etc.—

If anybody obstructs any licensee or his authorized representative in the works of installation or repair of electricity line or gas pipeline or the construction or repair of associated equipment, installations, he shall be liable to be sentenced with imprisonment for a maximum term of 3 (three) years rigorous imprisonment or with fine not less than Taka 1,000 (one thousand) or with both.

46. Offence by a Company—

If an offence is committed by a Company under the Act, the Proprietor, Director, Manager, Secretary or any other officer of the Company who was responsible for the operation of the business at the time of commission of such offence, shall be deemed to be an offender unless he can prove that, the said offence was committed beyond his knowledge or he tried his level best to prevent the commission of the offence.

Explanation - In this section -

- (a) "Company" means any statutory public authority, trade organization, association or organization; and
- (b) in the case of business organization "Director" means any partner or member of the Board of Directors.

47. Cognizance of offence for trial—

No Court shall take cognizance of an offence under this Act for trial, except a written complaint by an officer who has been authorized by a general or special order in writing by the Commission.

48. Not to hamper proceeding under any other Act—

Proceedings or measures taken under this Act, rules or regulations shall be in addition to the measures taken under any other Act and shall not restrict such a measure.

49. Jurisdiction of cognizing Court—

Only a Magistrate of the 1st Class or a Metropolitan Magistrate can take cognizance of an offence under this Act on the basis of written report of an officer authorized by the Commission.

(2) If the said Court takes cognizance of an offence, it may exercise all powers in accordance with the Code of Criminal Procedure including service of summons or issue of warrant to make the case ready for trial.

50. Jurisdiction of trial Court—

Notwithstanding anything contained in the Code of Criminal Procedure, no Court lower than the Court of Sessions shall try an offence under this Act.

51. Filing of complaint and procedure of investigation—

(1) Commission may authorize an Inspector or any other officer for investigation of an offence under this Act.

(2) Inspector or the said officer, herein after called investigating officer, may start proceeding under this Act, on the basis of written complaint of any person or on any other information.

(3) An Investigating Officer of an offence, shall submit a primary report to an officer appointed for this purpose by the Commission and the said officer, after considering the relevant incident and the circumstances, shall give a decision within 7 (seven) days whether formal investigation or other recourse in accordance with the provisions of the Act or regulation shall be taken or any action at all be taken, and accordingly next step will be taken.

(4) An Investigating Officer in connection with an investigation of an offence may exercise the powers like an officer in charge of a police station under the Code of Criminal Procedure.

(5) After completion of the investigation, the Investigating Officer shall submit original copy of the investigation report and documents in support of it or attested copies of those to the Magistrate of the 1st class or Metropolitan Magistrate having jurisdiction and a copy of the same shall be kept in his office.

(6) Notwithstanding the provisions of sub-section (3) due to the necessity of the concerned offence and circumstances, the Investigating Officer under this sub-section can seize documents, things and equipments relating to the offence, even before receiving formal decision of investigation, provided he is satisfied that because of delay the said deed, things or equipment may be removed or destroyed and may arrest the person involved in the offence, if he thinks that the accused may abscond.

52. Application of Code of Criminal Procedure—

(1) Subject to this Act, rules and regulations made under it, Code of Criminal Procedure shall be applicable for the investigation, trial, appeal and all other incidental matters.

(2) A case started in the Court under this Act on the basis of the report of the Investigating Officer shall be treated as a case started on the basis the police report under the Code of Criminal Procedure.

53. Assistance to the Public Prosecutor by the Officer of the Commission—

In conducting a case under this Act, before the Court of Sessions, Public Prosecutor or concerned Additional or Assistant Public Prosecutor may be assisted by an officer so appointed by the Commission and the said officer being present in the Court may make submission.

CHAPTER -12

Receipt of Complaint of Consumer and disposal

54. Receipt of complaint of the consumers and their disposal—

(1) Every licensee shall make arrangements for necessary numbers of complaint centers to receive complaints or inconvenience of the consumers regarding energy, service or matters connected therewith and shall publish notices from time to time with information regarding the location of centers of communication.

(2) Any consumer may submit his inconvenience or complaint to the said center over telephone or in writing.

(3) All complaints received from the consumer and the information regarding their settlement shall have to be recorded in writing in a register at that center.

(4) After receipt of any information or complaint regarding the inconvenience from the consumer, licensee shall settle it within 7 (seven) days and shall follow the code of practice made by the Commission in this regard.

(5) If the licensee, inspite of being informed by the consumer regarding his inconvenience or complain, fails to settle in due time and in due process, the said consumer may submit the matter in writing to the Commission for taking action.

(6) Commission shall pass necessary order not exceeding 7 (seven) days from the date of receipt of such application.

CHAPTER-13

Miscellaneous

55. Finality of the Commission's order—

The order or any decision given by the Commission under this Act, or rules or regulation made under it, shall be deemed to be the final.

56. Collection of fee, fine and charges—

Money payable as fee, fine or charge under this Act shall be liable to be realized as the public demand under the Public Demands Recovery Act, 1913 (Ben. Act III of 1913).

57. Expenditure of fine, penalty and charges—

Commission or Court that imposes fines or charges under this Act may make order for spending entire amount of the said collected money or any part of it, as the cost of the proceedings.

58. Power to make rules—

Government may, subject to the consultation with the Commission, make rules for the fulfillment of the objectives of this Act, and the same shall be published in the official Gazette.

59. Power to make regulations—

(1) Commission may, for the fulfillment of the objectives of this Act, , make regulation by publishing it in the official gazette.

(2) Without affecting the totality of the said power, regulations may be made, on any or all of the following heads:

- (a) convening of meeting of the Commission along with determination of venue, time of holding meeting, and other matters;
- (b) exercise of administrative powers and performance of functions of the Commission;
- (c) pay, allowances and conditions of services of the officers and employees of the Commission.

- (e) making of different codes and standards ;
- (f) powers, functions, duties and responsibilities of licensee;
- (g) purchase procedures and rules to be followed by the licensee;
- (h) methods of determination of revenue, tariff of the licensee;
- (i) Procedure for renewal, amendment and cancellation of licence
- (j) determination of procedure relating to maintenance of accounts and forms of the Commission;
- (k) procedure, conditions and other matters in respect of issuance of licence for the production, transmission, distribution, storage and supply of energy;
- (l) procedure determining supply of information by the licensee; and
- (m) policy for giving preference to the supply of energy produced at least cost.

(3) The Commission shall, for the regulation to be made under this section, make pre-publication of all the regulations soliciting objection or advice through it, and shall make regulation after consideration of the objection or advice received.

60. Delegation of powers—

Commission may, by order in writing, and subject to the conditions mentioned in the order, delegate all the powers of it to any Member, officer or to any other person.

61. Public servant—

Chairman, Members, officers and employees of the Commission shall be deemed to be public servants within the meaning of the term public servant as used in section 21 of the Penal Code, 1860 (Act XLV of 1860).

62. Indemnity in case of work done in good faith—

No case, either civil or criminal, or any other legal proceeding, shall lie against Chairman, Member, officer, employee or a person authorized by the Commission in respect of any deed done in good faith as a result of which any person either has suffered loss or likely to suffer loss.

63. Proceedings to be regarded as judicial proceedings—

All proceedings of the Commission shall be deemed as judicial proceedings within the meaning of Section 193 and 228 of the Penal Code, 1860 (XLV of 1860) and section 195 of Code of Criminal Procedure.

64. Appointment of Special or Metropolitan Magistrate—

The Government, may appoint Special or Metropolitan Magistrate, at the request of licensee, under section 14, section 18(3) and section 190(1) (a) to (c) of the Code of Criminal Procedure, 1898 (Act V of 1998) for quick disposal of cases relating to disconnection of gas or electricity connection of defaulting consumer.

65. Publication of Authentic English Text—

After this Act comes into force, the Government shall publish English translation of this Act in the official Gazette, which shall be called as the Authentic English Text:

Provided that in case of conflict between the Authentic English Text and the original Act in Bengali, the original Act shall prevail.

CHAPTER – 14

Transitional Provision

66. Provisions for issuance of licence during transitional period—

(1) Notwithstanding any thing contained in this Act, the Government shall have the powers for issuing provisional licence subject to the condition consistent with the provisions of this Act, for the production, transmission,

storage, distribution and supply of energy for a period not exceeding twelve months from the date on which the Act comes into force, such as: -

- (a) each of the temporary licence issued by the Government shall be submitted to the Commission, which the Commission shall consider as an application for licence under this Act;
- (b) validity of each temporary licence shall be ceased on the date as to be determined by the Commission in the application mentioned in clause (a).

(2) Provisional licencees under the Government shall have the same power, right, and authority as those licencees under the Commission.

(3) Any provisional licencee under this section can apply same powers of a licencee under the Commission.

By order of the President

Kh. Shahidul Islam

Secretary-in-charge.

শেখ মোঃ মোবারক হোসেন (উপ-সচিব), উপ-নিয়ন্ত্রক, বাংলাদেশ সরকারী মুদ্রণালয়, ঢাকা কর্তৃক মুদ্রিত।
মোঃ আমিন জুবেরী আলম, উপ-নিয়ন্ত্রক, বাংলাদেশ ফরম ও প্রকাশনা অফিস,
তেজগাঁও, ঢাকা কর্তৃক প্রকাশিত।

রেজিস্টার্ড নং ডি এ-১

বাংলাদেশ



গেজেট

অতিরিক্ত সংখ্যা
কর্তৃপক্ষ কর্তৃক প্রকাশিত

মঙ্গলবার, নভেম্বর ৮, ২০১৬

Government of the People's Republic of Bangladesh
Ministry of Power, Energy & Mineral Resources

NOTIFICATION

Dated the 03 November, 2016

S.R.O. No. 332-Law/2016.—In exercise of the powers conferred by section 13 of the Quick Enhancement of Electricity and Energy Supply (Special Provisions) Act, 2010 (Act No. LIV of 2010), the Government is pleased to publish the following English text of the Act to be called the Authentic English Text of the Act:

**Quick Enhancement of Electricity and Energy Supply
(Special Provisions) Act, 2010**

Act No. LIV of 2010

An Act to make special provisions for facilitating effective and urgent measures to enhance the generation, transmission, transportation and marketing of electricity and energy with a view to ensuring uninterrupted supply of electricity and energy keeping pace with the demands of agricultural, industrial, commercial and domestic activities, and for quick implementation of the plan to import electricity and energy from abroad, if necessary, and for implementation of the decisions on urgent extraction and utilization of minerals related to energy.

(১৫৯৯৫)

মূল্য : টাকা ৮.০০

WHEREAS there prevails acute shortage of electricity and energy in the country; and

WHEREAS the plan to enhance electricity generation is not being implemented quickly due to shortage of energy supply; and

WHEREAS agricultural, industrial, commercial and domestic activities are being hindered largely due to shortage of electricity and energy, and expected investment in these sectors is not being made; and

WHEREAS overall economic development including high economic growth, achieving Millennium Development Goals, technological development, poverty alleviation programmes, meeting agricultural production target is being hindered due to insufficient supply of electricity, and discomfort is prevailing in the public life, and

WHEREAS it is time consuming to mitigate the shortage and insufficiency of electricity and energy in pursuance of the procedures under the existing laws; and

WHEREAS it is very essential to mitigate the shortage and insufficiency of electricity and energy; and

WHEREAS it is expedient and necessary to make special provisions for facilitating effective and urgent measures to enhance the generation, transmission, transportation and marketing of electricity and energy with a view to ensuring uninterrupted supply of electricity and energy keeping pace with the demand of agricultural, industrial, commercial and domestic activities, and for quick implementation of the plan to import electricity and energy from abroad, if necessary, and for implementation of the decisions of urgent extraction and utilization of minerals related to energy;

THEREFORE it is hereby enacted as follows:—

1. **Short title and duration.**—(1) This Act may be called the Quick Enhancement of Electricity and Energy Supply (Special Provisions) Act, 2010.
- (2) This Act shall remain in force for the next ¹[8 (eight) years] from the date of its commencement unless it is repealed or its duration is extended earlier.
2. **Definitions.**—(1) In this Act, unless there is anything repugnant in the subject or context,—
 - (a) “rules” means rules made under this Act;
 - (b) “energy” means—
 - (i) natural gas, natural liquid gas (NLG), liquidated natural gas (LNG), compressed natural gas (CNG), synthetic natural gas (SNG), or mixture, etc. of natural hydrocarbon which can be transformed into gaseous substance under normal pressure or temperature;
 - (ii) coal;
 - (iii) petrol, diesel, kerosene, furnace oil and other petroleum derivative products; and
 - (iv) renewable energy.

(2) The words and expressions used but not defined in this Act, shall have the same meaning as defined in the Bangladesh Gas Act, 2010 (Act No. XL of 2010), Bangladesh Energy Regulatory Commission Act, 2003 (Act No. XIII of 2003), Mine and Mineral Resources (Control and Development) Act, 1992 (Act No. XXXIX of 1992), and Electricity Act, 1910 (Act No. IX of 1910).

¹The words “8 (eight) years” were substituted by section 2 of the Quick Enhancement of Electricity and Energy Supply (Special Provisions) (Amendment) Act, 2015.

3. Act to override all other laws.—Notwithstanding anything contained in the Public Procurement Act, 2006 (Act No. XXIV of 2006) or any other law for the time being in force, the provisions of this Act shall prevail.

4. Undertaking plans and accepting proposals.—The Government and all enterprises owned or controlled by the Government may undertake any plan under this Act for quick enhancement of the generation, transmission, transportation and marketing of electricity or energy, or may accept any proposal for undertaking any plan regarding import of electricity or energy from abroad and transmission, transportation and marketing thereof and quick implementation of the same.

5. Proposal Processing Committee and its terms of reference.—(1) In order to implement any plan or proposal undertaken for carrying out the purposes of this Act, the Government shall, keeping consistency with the technical or other matters of such plan, constitute a processing committee consisting of such number of experts having experience in the said technical and other matters as may be required, and the committee shall reserve power to take decisions from initial stage of the plan up to the stage of making proposal and presenting it to the Cabinet Committee on Economic Affairs or the Cabinet Committee on Government Purchase, as the case may be.

(2) For the purpose of implementing the plan, the Processing Committee shall communicate, consult and bargain with any organization concerned to the plan and, in consideration of the competency, experience and financial capability of such organization, prepare a proposal containing such recommendations as may serve the best of public interests.

6. Publicity of the plan or proposal.—(1) In respect of each purchase and investment plan or proposal, the Implementing Authority may, by publishing advertisement in the following manner, call for participating in the plan or proposal, such as :—

- (a) by publishing an advertisement in the newspaper with limited time offer;

- (b) by publishing an advertisement in the Web site of the Central Procurement Technical Unit of the Implementation, Monitoring and Evaluation Division of the Ministry of Planning;
- (c) by publishing advertisements in its own Web site;
- (d) by communicating with the concerned organization through letters or emails or any other means.

(2) Notwithstanding anything contained in sub-section (1), the Processing Committee mentioned in section 5 shall consult and bargain with a single or limited number of organizations about any purchase, investment plan or proposal and, with approval of the Minister, Ministry of Power, Energy & Mineral Resources, select an organization for the said work and take steps to forward the same to the Cabinet Committee on Economic Affairs or the Cabinet Committee on Government Purchase in accordance with the procedure mentioned in section 7.

7. Submitting plan to the Cabinet Committee on Economic Affairs or the Cabinet Committee on Government Purchase.—(1) The proposal prepared by the Processing Committee under section 5 shall be submitted by the concerned Division to the Cabinet Committee on Economic Affairs or, as the case may be, to the Cabinet Committee on Government Purchase in accordance with the procedures relating thereto.

(2) If the proposal is approved by the Cabinet Committee on Economic Affairs or the Cabinet Committee on Government Purchase, the administrative Ministry or Division shall take appropriate measures to implement it.

(3) If the Cabinet Committee on Economic Affairs or the Cabinet Committee on Government Purchase sends back the proposal with observations, the same shall be submitted to the Processing Committee and the Processing Committee shall, considering the observations of the Cabinet Committee, make its decision and submit the revised proposal to the Cabinet Committee for reconsideration and approval.

8. **Assistance to the Committee in performing its functions.**—The Committee may, if necessary, seek assistance from any person or any government, non-government or autonomous body for implementing any project.

9. **Bar to jurisdiction of Court, etc.**—No question regarding the validity of any act done or purported to be done, any action taken or any order issued or direction given under this Act shall be raised in any court.

10. **Protection of action taken in good faith.**—No suit or prosecution or any other legal proceeding shall lie against any officer or employee for anything which is in good faith done or purported to be done at the time of discharging his duties under this Act or rules made and general or special order passed thereunder.

11. **Power to make rules.**—For carrying out the purposes of this Act, the Government may, by notification in the official Gazette, make rules:

Provided that, until such rules are made, the Government may, if necessary, subject to consistency with this Act, make provisions by general or special order to undertake or implement any activity.

12. **Power of Government to remove difficulty.**—If any difficulty arises in case of giving effect of any provision of this Act due to ambiguity thereof, the Government may, by notification in the official Gazette, give direction in this behalf with clarification and explanation of the provision keeping consistency with other provisions of this Act.

13. **Publication of Authentic English Text.**—After the commencement of this Act, the Government shall, by notification in the official Gazette, publish an authentic text of this Act translated into English which shall be called the Authentic English Text of this Act :

Provided that in the event of conflict between the Bangla and the English text, the Bangla text shall prevail.

14. Savings of actions taken under this Act.—Notwithstanding expiry of this Act, all acts done and actions taken under this Act shall be continued and administered as if this Act had not been expired.

By order of the President

Mohammad Alauddin

Joint Secretary

Power Division.

মোঃ আব্দুল মালেক, উপপরিচালক, বাংলাদেশ সরকারি মুদ্রণালয়, তেজগাঁও, ঢাকা কর্তৃক মুদ্রিত।
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তেজগাঁও, ঢাকা কর্তৃক প্রকাশিত। website: www.bgpress.gov.bd



PRIVATE SECTOR POWER GENERATION POLICY OF BANGLADESH

**MINISTRY OF ENERGY AND MINERAL RESOURCES
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH**

OCTOBER 1996

REVISED NOVEMBER 2004

DHAKA

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1.0 INTRODUCTION

- 1.1 Bangladesh needs to achieve and sustain an annual economic growth rate of at least 6/7 percent to alleviate poverty and realize desirable socio-economic and human development. To achieve the growth target of GDP, it is absolutely essential that the minimum electricity growth rate is maintained at a factor of 1.5 of GDP growth. The provision of adequate and reliable supply of electricity at a reasonable cost is a pre-requisite to attain this goal. Besides, Bangladesh is still at a very low level of electrification, with only 15 percent of its population (about 120 million) having access to electricity and per capita generation is only 95 Kwh per annum. Hence, there is a great need to expand the electrification programme. The government of Bangladesh (GOB) recognizes that the pace of power development has to be accelerated in order to achieve overall economic development targets of the country and avoid looming power shortages. Power is the prime mover. Any big push of the economy would need accelerated power development.
- 1.2 Presently, three state-owned utilities under the Ministry of Energy and Mineral Resources are responsible for electricity development in the country. These are:
 - i) Bangladesh Power Development Board (BPDB), responsible for generation and transmission of power in the country and distribution in urban areas except the area under Greater Dhaka;
 - ii) Dhaka Electric Supply Authority (DESA), responsible for distribution of electricity in the greater Dhaka area including the metropolitan city of Dhaka; and
 - iii) Rural Electrification Board (REB), responsible for distribution of electricity in rural areas.
- 1.3 In comparison to the 11666 GWh electricity generated annually at present, the Power System Master Plan (PSMP) projects a requirement of 16500 GWh in 2000 and 24160 GWh in the year 2005. This implies an increase in peak demand from the present 2200 MW to 3150 MW by 2000 and 4600 MW by 2005 for which capacity addition of about 3350 MW will be required by 2005. Hence on average, additional 300 MW of generation capacity has to be added every year. The total investment between now and 2005, required to achieve such capacity enhancement, is Taka 176 billion or US\$ 4.4 billion. The corresponding investment requirement for expansion & reinforcement of transmission and distribution system would be about US\$ 2.2 billion for the same period, bringing the grand total to US\$ 6.6 billion.
- 1.4 The likelihood of securing such a substantial volume of investment for power generation alone through the public sector is remote. Besides, competing demands on government resources and declining levels of external assistance from multilateral/bilateral donor agencies further

constrain the potential for public investment in the power sector. Recognizing these trends, GOB amended its industrial policy to enable private investment in the power sector. GOB also adopted the recommendations contained in the report on Power Sector Reforms, prepared by a high level Inter-Ministerial Working Group, for restructuring the power sector and promoting private sector participation in the generation of electricity in order to attain higher economic efficiency. The Government is strongly committed to attract private investment for installing new power generation capacity on a build-own-operate (BOO) basis.

2.0 GOB POLICY AND THE POWER CELL

In order to translate this explicit policy commitment into actual investment projects, GOB created and set up a Power Cell under the Ministry of Energy & Mineral Resources (MEMR) in 1995. The Power Cell has a mandate to lead private power development, recommend power sector reforms & restructuring, conduct study on tariffs and formulation of a regulatory framework for the power sector. The Power Cell shall facilitate all stages of promotion, development, implementation, commissioning and operations of private power generation projects and suitably address the concerns of project sponsors. It will also assist project sponsors to secure necessary consents and permits from GOB where such consents and permits would be needed.

3.0 MODALITY FOR IMPLEMENTATION OF PRIVATE POWER PROJECTS

3.1 One Window Operation :

The designated institution to facilitate the development of private sector power projects shall be the Power Cell, MEMR. The Power Cell shall articulate and promote the private power policy of GOB and shall solicit and evaluate proposals, negotiate and process award of contracts, and finalize various agreements related to these projects. The Power Cell would also represent GOB interest in private power projects.

3.2 Solicitation of Proposals :

Independent Power Producers' (IPP) projects will be implemented on Build-own-operate (BOO) basis. International solicitation for specific projects will be processed by the Power Cell. The pre-qualification of the bidders will be made through advertisements in the national and international press. The evaluation criteria for pre-qualification will be given along with the pre-qualification documents to be issued to the intending bidders. The RFP (Request For Proposal) documents will be issued only to pre-qualified bidders.

After final evaluation of commercial bids from pre-qualified sponsors they will be ranked as per criteria set in the RFP. The first ranked bidder will be given a stipulated period to: (a) submit a performance guarantee and (b) reach financial closure. Failure to perform in either case will result in

forfeiture of the guarantee, if any, and an invitation to the second ranked bidder, under similar conditions. The RFP may include provision for time extension for financial closure, subject to an increase in the performance guarantee amount. In the event of a sponsor chosen on the basis of an unsolicited proposal, similar provisions on performance guarantees and specified time period for financial closure will apply.

3.3 Financing Arrangements :

- (a) BOO projects may involve limited recourse financing and the funds for the projects will be raised without any direct sovereign guarantee of repayment. Instead, the investors and lenders to the project sponsor(s) must look to the revenues earned by the sale of electricity for their returns on equity and debt servicing.
- (b) Minimum requirement for equity investment will be 20 percent.
- (c) The Government of Bangladesh may establish a Private Sector Infrastructure Development Fund (PSIDF), with the assistance of the World Bank and or other aid agencies, which may provide part of the capital cost of the project as subordinated debt. The debt would be available on market based interest rates and carry extended maturity periods.
- (d) To facilitate the creation and encouragement of a corporate debt securities market essential for raising local financing for power development projects, the following provisions will be allowed:
 - i) Permission to power generating companies to issue Corporate Bonds both bearer and registered with the consent of the Securities and Exchange Commission (SEC).
 - ii) Permission to issue shares at discounted prices upto the limit of 10% of the face value to enable venture capitalists to be provided higher rates of return proportionate to the risks.
 - iii) Permission to foreign banks to underwrite the issue of shares and bonds by the private power companies with the recognition by SEC of such underwriting.
 - iv) Tax facilities for private sector instruments as available to Non-Banking Financial Institutions.
 - v) Modification of Prudential Regulations to allow 80:20 debt equity ratio, if necessary.

3.4 Security Package :

- (a) Model Implementation Agreement (IA), Power Purchase Agreement (PPA) and Fuel Supply Agreement (FSA) will be prepared for private power projects to eliminate the need for protracted negotiations between GOB and Sponsors.

- (b) The Power Purchase Agreement (if executed by Government Agencies) will be guaranteed by the GOB for performance obligations of the concerned utilities.
- (c) In case the fuel is to be supplied by a public sector organisation, the performance of the fuel supplier will be guaranteed by the GOB under the terms of Fuel Supply Agreement.
- (d) For private power projects the Government will provide:
 - i) Standard protection against specific *force majeure* risk.
 - ii) Protection against changes in certain taxes and duties.

3.5 Allocation of Project/Plant Site and Provision of Fuel :

The plant sites will be selected by GOB in consultation with the investor/project sponsor. Fuel for such projects will be determined by GOB keeping in view preference for indigenous resources like Natural Gas, Coal and any other fossil fuels. However, in case of any limitations, if and when deemed necessary, GOB may also allow other fossil fuels including imported fuels. A fuel supply agreement in that event will be entered into by the project sponsors and fuel supplier. Investors may also be asked to bid for projects based on hydro or other renewable and/or non-conventional sources of energy, such as the sun, wind, biomass etc. For such projects, IA & PPA would be different, for obvious reasons.

4.0 TARIFF FOR BULK PURCHASE OF POWER AT BUSBAR

- 4.1 The power produced by the IPP shall be purchased (as per Power Purchase Agreement) by BPDB/DESA/REB or any other transmission or distribution company which may be established in future, or any large consumer. The Power Cell as the GOB agent will indicate which organisation will be the power purchaser at the time of issuance of RFP.

The tariff structure would consist of two parts:

- (a) **Capacity Payment:** This will cover debt service, return on equity, fixed operation and maintenance cost, insurance and other fixed costs. The capacity payment would be further divided into an escalating non-escalating portions. The capacity payment will be made in Bangladesh currency (Taka), but denominated in both dollars (to repay foreign loans and fixed costs) and local currency (to repay local loans and investment and local fixed costs). The capacity payment will be linked to a certain level of availability of the power plant which will be made known to the bidders at the time of issuance of RFP.
- (b) **Energy Payment:** This will cover the variable costs of operation and maintenance, including fuel and be paid in Taka. The payment

would be further divided into fuel component which would be a pass-through and a non-fuel component which escalates. The energy payment will be denominated in local currency to the extent to which the variable costs are in local currency.

- 4.2 In the solicited bids, the bidders shall offer bulk power tariff based on the capacity payment and energy payment and also provide the equivalent levelized tariff over the contract period in US cents/Kwh (to be paid in Taka), based on discount rate, tariff profile restriction and plant factor to be specified during the solicitation of bids. The evaluation will be based on the criteria to be provided in the RFP.

- 4.2.1 In case of Small Power Plant (SPP) upto 30 MW Installed capacity promoted by the local entrepreneur, the bidders will be allowed to provide the equivalent levelized tariff over the contract period in taka/ Kwh. The evaluation will be based on the criteria to be provided in the Request For Proposal (RFP).

- 4.3 The sponsors of private power project will provide year wise tariff profile over the contract period in a manner that will match their annual debt service requirements.

- 4.4 A mechanism shall be provided for the adjustments of certain tariff components to variations in Taka/ Dollar exchange rate, fuel price and inflation rates. In determining this adjustment/indexation, the issue of efficiency gains would be taken into consideration.

4.5 **Interconnection of IPP to Transmission System :**

The power will be purchased from the IPP at a specified voltage at the outgoing terminal (interconnection point) of the sub-station of the power plant. The transmission line for interconnection with the national grid will be provided by the appropriate agency. The costs of interconnecting facilities upto outgoing terminals of the private power projects (including step up auto transformers, circuit breakers and associated switchgear) will be borne by the private power producers.

5.0 **FISCAL INCENTIVES**

- 5.1 The private power companies shall be exempt from corporate income tax for a period of 15 years.
- 5.2 The companies will be allowed to import plant and equipment and spare parts up to a maximum of ten percent (10%) of the original value of total plant and equipment within a period of twelve (12) years of Commercial Operation without payment of customs duties, VAT (Value Added Tax) and any other surcharges as well as import permit fee except for indigenously produced equipment manufactured according to international standards.

- 5.3 Repatriation of equity along with dividends will be allowed freely.
- 5.4 Exemption from income tax in Bangladesh for foreign lenders to such companies.
- 5.5 The foreign investors will be free to enter into joint ventures but this is optional and not mandatory.
- 5.6 The companies will be exempted from the requirements of obtaining insurance/reinsurance only from the National Insurance Company, namely Sadharan Bima Corporation (SBC).

Private power companies will be allowed to buy insurance of their choice as per requirements of the lenders and the utilities.
- 5.7 The Instruments and Deeds required to be registered under local regulations will be exempted from stamp duty payments.
- 5.8 Power generation has been declared as an industry and the companies are eligible for all other concessions which are available to industrial projects.
- 5.9 The private parties may raise local and foreign finance in accordance with regulations applicable to industrial projects as defined by the Board of Investment (BOI).
- 5.10 Local engineering and manufacturing companies shall be encouraged to provide indigenously manufactured equipment of international standard to private power plants.

6.0 OTHER FACILITIES AND INCENTIVES FOR FOREIGN INVESTORS

The following facilities and incentives would be provided to private power producers:

- 6.1 Tax exemption on royalties, technical know-how and technical assistance fees, and facilities for their repatriation.
- 6.2 Tax exemption on interest on foreign loans.
- 6.3 Tax exemption on capital gains from transfer of shares by the investing company.
- 6.4 Avoidance of double taxation in case of foreign investors on the basis of bilateral agreements.
- 6.5 Exemption of income tax for upto three years for the expatriate personnel employed under the approved industry.

- 6.6 Remittance of upto 50% of salary of the foreigners employed in Bangladesh and facilities for repatriation of their savings and retirement benefits at the time of their return.
- 6.7 No restrictions on issuance of work permits to project related foreign nationals and employees.
- 6.8 Facilities for repatriation of invested capital, profits and dividends.
- 6.9 Provision of transfer of shares held by foreign shareholders to local shareholders/ investors.
- 6.10 TAKA, the national currency, would be convertible for international payments in current account.
- 6.11 Re-investment of remittable dividend to be treated as new foreign investment.
- 6.12 Foreign owned companies duly registered in Bangladesh will be on the same footing as locally owned companies with regard to borrowing facilities.

7.0 ISSUE OF SEPARATE STATUTORY REGULATORY ORDER (SRO)

A separate SRO will be issued for private sector power plants so that the incentives and concessions given under various regulations and directives are consolidated and placed together in one document.

8.0 RIGHT OF INTERPRETATION

In case of any ambiguity with regard to interpretation of any provision of this policy document, the GOB interpretation shall be final.

GLOSSARY OF ABBREVIATIONS/ ACRONYMS/ TERMS

BPDB	- Bangladesh Power Development Board.
BOI	- Board of Investment.
BOO	- Build-Own-Operate.
DESA	- Dhaka Electric Supply Authority.
FSA	- Fuel Supply Agreement.
GDP	- Gross Domestic Product.
GOB	- Government of Bangladesh.
IA	- Implementation Agreement.
IPP	- Independent Power Producer.
MEMR	- Ministry of Energy & Mineral Resources.
PPA	- Power Purchase Agreement.
PSIDF	- Private Sector Infrastructure Development Fund.
PSMP	- Power System Master Plan.
REB	- Rural Electrification Board.
RFP	- Request for Proposal.
SBC	- Sadharan Bima Corporation (A public sector general insurance company).
SPP	- Small Power Plant.
SRO	- Statutory Regulatory Order.
VAT	- Value Added Tax.

POLICY GUIDELINES FOR ENHANCEMENT OF PRIVATE PARTICIPATION IN THE POWER SECTOR, 2008

1. Preamble:

- (a) In 1996, Government of Bangladesh (GoB) adopted the Private Sector Power Generation Policy (PSPGP) to promote private sector participation in the generation of electricity with a view to promote economic growth;
- (b) In 2000, GoB issued a vision statement on power sector reforms with the objective of providing access to affordable and reliable electricity to all by the year 2020;
- (c) Augmenting generation capacity is a priority for GoB to meet existing power shortage and demand-growth in future years. To meet this goal, GoB has adopted a combination of measures: large generation capacity addition through the public-sector entities and Independent Power Producers (IPPs); tendering out small power plants on fast-track basis; and encouraging procurement of surplus power from Captive Power Plants (CPPs) and Small Power Plants (SPPs).

2. Objectives:

- (a) GoB desires to (1) promote further private participation in the power sector, harness competition, ensure optimal use and conservation of country's limited natural gas resources; and (2) develop new power plants and rehabilitate some of its Old and Inefficient Power Plants through Public Private Partnership;
- (b) GoB is keen to develop local private sector entrepreneurship to develop power projects in Bangladesh;
- (c) GoB intends to allow the private sector to:
 - (1) set up Commercial Power Plants (i) to supply electricity to Large Consumers on mutually negotiated tariffs; and (ii) to supply electricity to the Distribution Licensees at tariffs determined by the Bangladesh Energy Regulatory Commission (BERC);

- (2) use transmission and distribution lines of Power Grid Company of Bangladesh (PGCB) and Distribution Licensees on a non-discriminatory basis for wheeling of power produced in their existing as well as new Commercial Power Plants;
 - (3) rehabilitate Old and Inefficient Power Plants owned by the Public Sector Power Utilities on Rehabilitate, Own and Operate (ROO) or Rehabilitate, Operate and Transfer (ROT) model ; and
 - (4) develop new Joint Venture Power Plants in partnership with Public Sector Power Utilities.
- (d) It is expedient to formulate necessary Guidelines to achieve the above objectives. Now therefore, GoB has adopted these Guidelines for introducing competition and enhancing public-private partnership in the power sector. These Guidelines will be known as Policy Guidelines for Enhancement of Private Participation in the Power Sector, 2008. These Guidelines will become effective from the date of publication in the official gazette.

Part I. **Definitions**

3. Definitions

(a) Unless the context otherwise requires:

“BERC” means Bangladesh Energy Regulatory Commission established under the Bangladesh Energy Regulatory Commission Act, 2003.

“Build-Own-Operate (BOO)” means a contract whereby an investor undertakes to design, finance, build, operate and maintain a project and such project is to vest in the investor for specified period(s).

“BPDB” means Bangladesh Power Development Board established under Bangladesh Water and Power Development Boards Order, 1972 (P.O. No. 59 of 1972).

“Bangladeshi Private Investors” means Bangladeshi entrepreneurs including Non-resident Bangladeshis (as defined by the Board of Investment or Bangladesh Bank from time to time) and Public Sector Power Utilities listed in the Stock Exchanges of Bangladesh. Such investors may enter into joint venture agreement with foreign companies.

“Coal Policy” means the Bangladesh Coal Policy to be adopted by GoB.

“Commercial Power Plants” means power plants developed, owned and operated by the Private Investors under Part-II of these Guidelines.

“Consideration Money” means the market value of the existing assets of Old and Inefficient Power Plants, as assessed by the independent valuer under Section 5(e) of these Guidelines.

“CPPs” means Captive Power Plants as defined in the Policy Guidelines for Power Purchase from Captive Power Plant, 2007.

“Department of Environment” means a department of the Ministry of Environment and Forest established under Bangladesh Environment Conservation Act, 1995.

“Distribution Licensee” means any power distribution entity that has obtained necessary license from BERC under BERC Act, 2003 to distribute electricity.

“Export Processing Zones” means specified zones as defined and regulated under Bangladesh Export Processing Zone Authority Act, 1980.

“Generation Licensee” means any power generation entity that has obtained necessary license from BERC under BERC Act, 2003 to generate electricity.

“GoB” means Government of the People’s Republic of Bangladesh.

“Grid Code” means the technical standards adopted by PGCB for installation and operation of transmission system.

“Independent System Operator” means an entity established to take over the responsibilities as provided under Section 7(g) of these Guidelines.

“IPPs” means Independent Power Producers under Private Sector Power Generation Policy of Bangladesh, October 1996.

“Joint Venture Power Plants” means power plants developed under Part-IV of these Guidelines.

“Large Consumers” means consumers as defined in Annexure-I to these Guidelines.

“Old and Inefficient Power Plants” means the existing power plants owned by the GoB or Public Sector Power Utilities, especially, those: (i) operating inefficiently for the last three years with the average heat rate of maximum 3500 kcal/kwh for gas turbines, 3200 kcal/kwh for steam turbines and 2500kcal/kwh for combined cycles; or (ii) operating with availability of less than 50% percent for the last three years from the date of approval under Section 5(b) of these Guidelines and/or are in need of major overhauling or refurbishment in order to get into operation.

“PGCB” means Power Grid Company Ltd. of Bangladesh, incorporated under the Companies Act 1994.

“PPA” or “Power Purchase Agreement” refers to an agreement executed between Public Sector Power Utilities and power plants established under these Guidelines.

“Private Economic Zones” means specified zones established under the provisions of Bangladesh Private Economic Zones Act, 1996.

“Private Investors” includes Bangladeshi Private Investors or foreign Private Investors or joint venture comprising Bangladeshi Private Investors and foreign Private Investors.

“PPP” or **“Public Private Partnership”** means long term risk sharing arrangements entered into between the public and the private sectors to meet a service typically provided by the public sector. These include joint venture or partnership or other arrangements where the private sector provides investments with the public sector providing support and commitments that make the project feasible.

“PSPGP” means Private Sector Power Generation Policy, 1996.

“PSIG” means Private Sector Infrastructure Guidelines, 2004.

“Public Sector Power Utilities” include BPDB, Rural Electrification Board, Dhaka Power Distribution Company Ltd., Dhaka Electric Supply Company Limited, PGCB, West Zone Power Distribution Company Ltd., Ashuganj Power Station Company Limited, Electricity Generation Company of Bangladesh Limited, South West Zone Power Distribution Company Ltd., North West Zone Power Distribution Company Ltd. and other such boards, authorities, companies formed and successor thereof as well as any other bodies involved in generation, transmission and distribution of power in which GoB ownership is more than 50% (fifty percent).

“ROO” means a contract under which the existing Old and Inefficient Power Plants of Public Sector Power Utilities is transferred to Bangladeshi Private Investors to Rehabilitate, Own and Operate as long as the operator is complying with the terms of the contract.

“ROT” means a contract under which the existing Old and Inefficient Power Plants of GoB and Public Sector Power Utilities are turned over to Bangladeshi Private Investors to Rehabilitate, Operate and Transfer for a concession period, at the expiration of which the legal title to the facility will be transferred to the original owner.

“Special Economic Zones” means economic zones, as defined by the GoB from time to time.

“SPV” refers to a separate legal entity established through joint venture/partnership between public and private sectors to develop/Rehabilitate, Own, Operate/Rehabilitate, Own, Transfer a power plant under these Guidelines.

"**Wheeling of Power**" means evacuation or transmission of power generated as per provisions under Section 7 of these Guidelines subject to the payment of applicable wheeling charges.

- (b) Whenever the following capitalized terms are used in the Guidelines, whether in the singular or plural, in the future or past, they shall have the meaning ascribed to each of them,

Part II

Commercial Power Plants

4. Commercial Power Plants :

- (a) Private Investors can establish and operate Commercial Power Plants subject to provisions under Section 10(a) and 10(b) of these Guidelines.
- (b) Commercial Power Plants shall comply with applicable technical standards of grid connectivity and operation.
- (c) Such investors shall find their own buyer(s) to sell the electricity generated. They will be free to negotiate the applicable tariff with the Large Consumers.
- (d) Distribution Licensees may purchase power from Commercial Power Plants, as needed, subject to approval by BERC, but GOB will not provide any guarantee in favour of any Distribution Licensee.
- (e) Given the fast depleting condition of domestic natural gas, the new power plants shall preferably rely on coal, imported gas, liquid fuel, or renewable energy sources like solar, wind, hydro, biomass, municipal waste, and others, as fuels, instead of domestic natural gas. Any fuel supply or source of energy has to be arranged by developers for Commercial Power Plants.
- (f) Except for the power plants for which GoB has committed guaranteed fuel supply, GoB will not be responsible to supply fuels, or provide guarantee in favour of any fuel supplier to supply fuels to Commercial Power Plants.

(g) Private Investors will :

- (i) pay wheeling charge to Public Sector Power Utilities under section 7(a) of these Guidelines;
- (ii) pay surcharge, as shown in Annexure II, to respective Distribution Licensee; and
- (iii) sell electricity, as shown in Annexure II, at price regulated by BERC to Public Sector Power Utilities.

Part III.

PPP for Old and Inefficient Power Plants

5. Rehabilitation of Old and Inefficient Power Plants through PPP

- (a) Subject to the terms and conditions of these Guidelines and BERC Act 2003, Public Sector Power Utilities may allow its Old and Inefficient Power Plants to be available to the Bangladeshi Private Investors on ROO or ROT basis.
- (b) Such decision to make Old and Inefficient Power Plants to be available on ROO or ROT basis will require approval of respective Board of Public Sector Power Utilities.
- (c) Public Sector Power Utilities will invite Public Private Partnership in Old and Inefficient Power Plants through a tender and award process in accordance with provisions under the Private Sector Infrastructure Guidelines, 2004 or Public Procurement Act, 2006 or both, as applicable.
- (d) The assets, of the relevant power plants will be valued by Public Sector Power Utilities through an independent valuer (with proven experience of valuing large infrastructure projects) to assess the market value of such assets. The valuation report determining the market value of the existing assets of such plants will be made available to all bidders.
- (e) The successful bidders will be required to pay the Consideration Money upfront to Public Sector Power Utilities. Alternatively, subject to GoB's approval, the Consideration Money may be adjusted against the tariff.

- (f) Any liabilities related to Old and Inefficient Power Plants will be set off against Consideration Money or adjusted against tariff.
- (g) Following pre-qualification and successful submission of bids, power tariff offered by the bidders will form the basis for awarding a ROO or ROT Project.
- (h) Following award of the contract, the Bangladeshi Private Investors would Rehabilitate, Own and Operate, or Rehabilitate, Operate and Transfer the Project as per provisions of the PPA.
- (i) Public Sector Power Utilities will have the right to (i) terminate a ROO or ROT contract if the Bangladeshi Private Investors fail to rehabilitate and operate the Project, as per the PPA and (ii) seek compensation for loss, damage and any other relief under the agreement or law, as applicable and appropriate.
- (j) Qualified existing staff of the Old and Inefficient Power Plants will have priority for recruitment in ROO and ROT projects.

Part IV.

PPP for Joint Venture Power Plants

6. Requirements of Joint venture/partnership:

- (a) Public Sector Power Utilities can form joint venture or partnership with Bangladeshi Private Investors to develop new power plants on BOO Basis. A Special Project Vehicle (SPV) shall be established to implement and operate such projects.
- (b) Terms and conditions of the joint venture/partnership will be stipulated in a joint venture/partnership deed.
- (c) The nature of the SPV will be determined under the relevant laws of Bangladesh and other applicable legal instruments.
- (d) Such joint venture/partnership will require approval of the Board of the respective Public Sector Power Utilities and BERC.

- (e) Contribution of Public Sector Power Utilities i.e. project land and other assets will be monetized and added to the cash contribution, if any, and shall form the basis for determining its share in the joint venture/partnership.

Part V.

Wheeling of Power

7. Wheeling of Power

- (a) PGCB and all Distribution Licensees shall provide non- discriminatory open access, to their transmission and/or distribution system for use by any Generation Licensee subject to payment of transmission/distribution wheeling charges determined by BERC.
- (b) Open access, as per Section 7(a), will be, subject to availability of adequate capacity of transmission and/or distribution facilities, on first come first served basis.
- (c) Any dispute regarding the availability of adequate transmission and distribution facilities will be settled/adjudicated upon by BERC, which shall specify the manner in which such applications for settlement/adjudication of any disputes shall be filed by disputing parties and resolved.
- (d) Applicable transmission loss for open access transactions, shall be applied under the regulations of BERC in this regard.
- (e) Commercial Power Plants will be responsible to establish their dedicated transmission facilities in compliance with the Grid Code to reach the transmission facilities of PGCB or other Distribution Licensees.
- (f) Private Investors may build their dedicated transmission line from their power stations to Large Consumers according to provisions under the Grid Code.
- (g) The responsibilities of the Independent System Operator are the following:
 - i. to ensure and deal with efficient power flow in coordination with national load dispatch centre; and

- ii. to deal with mismatch and imbalance in power trading under BERC regulations.
- (h) Initially, PGCB will act as an Independent System Operator until the wheeled power under these Guidelines reaches 500 MW. Thereafter, a newly created agency will take over the functions of the Independent System Operator from PGCB

Part VI.

Qualification of Investors

8. Qualifications:

- (a) The interested Private Investors should possess, among others, the following qualifications for installation of Commercial Power Plant under Part II of these Guidelines:
- i. proven financial capacity to arrange financing for development of Commercial Power Plant.
 - ii. proven experience in developing and operating power plant of same or higher capacity as IPP, Rental Power Plant, SPP or CPP and selling power to Large Consumers.
- (b) The interested Bangladeshi Private Investors should possess, among others, the following qualifications for ROO/ROT project under Part III of these Guidelines:
- i. proven financial capacity to arrange financing for any large project;
 - ii. proven experience in developing and operating power plant of same or higher capacity as IPP, Rental Power Plant, SPP or CPP;
 - iii. proven experience in rehabilitating a power plant or that they will form a consortium with qualified third party having adequate experience in rehabilitation of power plants.
- (c) The interested Bangladeshi Private Investors should possess, among others, the following qualifications for development of Joint Venture Power Plants under Part IV of these Guidelines:
- i. proven financial capacity to arrange financing for any large project;

- ii. Proven experience in developing and operating power plant of same or higher capacity as IPP, Rental Power Plant, SPP or CPP or they will form a consortium with qualified third party having adequate experience in developing and operating power plants as IPP, Rental Power Plant, SPP or CPP.

Part VII

Power Purchase, Fuel Supply and Land Lease/Transfer by GoB

9. Power Purchase, Fuel Supply and Land Lease/Transfer by GoB:

- (a) Public Sector Power Utilities will purchase power from ROO or ROT project(s) under Part-III and Joint Venture Power Plants under Part-IV under a PPA. In this case, provisions under Section 4 of the PSPGP will be applicable.
- (b) Any PPA under Section 9(a) of these Guidelines, except for agreement between Commercial Power Plants and Public Sector Power Utilities for sale of power Under Annex II of these Guidelines, will require GoB approval.
- (c) ROO or ROT projects will benefit from the existing fuel supply arrangements that will be formalized through a Fuel Supply Agreement (FSA). Specification of the fuels will be provided in the PPA or FSA.
- (d) GoB may arrange transfer, acquisition or leasing out of the project land to the Bangladeshi Private Investors for a ROO or ROT Project under Part-III and Joint Venture Power Plants under Part-IV of these Guidelines.

Part VIII

Licensing/ Approval/ Clearance

10. Licensing/ Approval/ Clearance:

- (a) Private Investors, Bangladeshi Private Investors or SPV, as applicable, will obtain necessary License from BERC, as Independent Power Producer for

Commercial Power Plants under Part II, ROO or ROT Project under Part-III and Joint Venture Power Plants under Part-IV of these Guidelines.

- (b) Private Investors, Bangladeshi Private Investors or SPV will be required to submit environmental impact assessment report along with mitigation measures undertaken for Commercial Power Plants under Part II, ROO or ROT Project under Part-III and Joint Venture Power Plants under Part-IV under these Guidelines to Department of Environment and shall comply with environmental and other related laws, rules and regulations.

Part IX

GoB Support and Fiscal Incentives

11. GoB Support and Fiscal Incentives

- (a) All projects under these Guidelines will be eligible for all GoB support and incentives as provided in Sections 5 and 6 of PSPGP.
- (b) GoB will issue necessary permission to import fuels for Commercial Power Plants according to existing rules and regulations.
- (c) The Commercial Power Plants will get preference in developing coal mines and purchasing coal from existing coal mines, as per provision of the Coal Policy.
- (d) Bangladesh Bank will waive or relax the single exposure limit for the Banks and Financial Institutions to finance all power plants under these Guidelines.
- (e) Subject to the availability, GoB may lease out suitable land to the Private Investors for setting up Commercial Power Plants.

Part X

Miscellaneous

12. Non-competition:

Private investors under these guidelines will be entitled to a fair return on their investments. Therefore, until the contract between such Private Investors and Large Consumer is terminated, Public Sector Power Utilities will not compete with Private Investors to sell power to Large Consumers.

13. Right to Interpretation:

(a) Section headings are for convenience only and shall not affect interpretation of any section.

(b) In case of ambiguity with regard to interpretation of any provision of these Guidelines, GoB interpretation shall be final.

Annexure I

1. Large Consumers shall include, large industrial enterprise, Export Processing Zones, Special Economic Zone, Private Economic Zones, High Tech Parks, Large Real Estate etc. meeting the following voltage level and load characteristics :

- (a) consumers connected to the national grid through transmission lines of 33 KV and above having connected load not less than 5MW;
- (b) consumers connected at 33 KV or 11 KV lines of distribution utilities having connected load not less than 1 MW;
- (c) consumers connected at 11 KV or 0.4 KV lines of distribution utilities having connected load not less than 1 KW in case of renewable energy projects.

Annexure II

1. Commercial Power Plants under Part-II of these Guidelines will:
 - (a) pay a surcharge based on the value of the wheeled power to the concerned Distribution Licensees along with wheeling charge to cover cross subsidy, as determined by BERC.
 - (b) sell 20% of its electricity produced to Public Sector Power Utilities at prevailing bulk tariff determined by BERC.
2. To encourage Commercial Power Plants in a particular location GoB may reduce or waive this requirement of mandatory power sales under 1(b) above.
3. Subject to maximum limit set by BERC, as shown above in 1(a), Government may revise the surcharge and amount of energy to be sold, as shown above in 1(b), to Public Sector Power Utilities from time to time. In case of Commercial Power Plants in operation, any increase in the amount of energy to be sold will be fixed in consultation with Private Investors.

Bangladesh

Grid Code and System Operations



Bangladesh Energy Regulatory Commission

**ELECTRICITY GRID CODE
2018**

Effective Date: December, 2018



Bangladesh Energy Regulatory Commission

NOTIFICATION

Dated: xx December 2018

In exercise of the powers conferred by section 59 of the Bangladesh Energy Regulatory Commission Act 2003 (Act 13 of 2003), read with sub-sections 2(e) and 2(f) thereof and for the fulfillment of the objectives of the Act, the Bangladesh Energy Regulatory Commission is pleased to make the following regulations:

Short Title and Commencement

- (i) These regulations may be called Bangladesh Energy Regulatory Commission (Electricity Grid Code) Regulations, 2018 or in short **Grid Code**.
- (ii) These regulations shall come into force from the date of publication in the official gazette.

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1. INTRODUCTION

1.1 GENERAL:

In exercise of the powers conferred by section 59 of the Bangladesh Energy Regulatory Commission Act 2003 (Act 13 of 2003), for the fulfillment of the objectives of the Act, the Bangladesh Energy Regulatory Commission has formulated the Electricity Grid Code; hereafter called the **Grid Code**.

The **Grid Code** is a document that governs the boundary between the **Licensee** and **Users** and establishes procedures for operations of facilities that will use the **Transmission System**. The **Grid Code** specifies criteria, guidelines, basic rules, procedures, responsibilities, standards and obligations for the operation, maintenance and development of the Electricity **Transmission System** of Bangladesh to ensure a transparent, non-discriminatory and economic access and use of the **Grid**, whilst maintaining a safe, reliable and efficient operation of the same to provide a quality and secure electricity supply as reasonably as practicable.

It should be noted that the **Grid Code** is not concerned with the detailed design and operation of **Power Stations** and **Distribution Systems**, provided that their overall compatibility with the **Transmission System** needs is assured.

1.2 STRUCTURE OF THE GRID CODE

The **Grid Code** contains criteria and provisions on the following areas:

- i. **Management of the Code:** specifying the responsibilities of the **Transmission Licensee (Licensee)**, formation and functioning of **Code Review Panel**, and **Grid Code** review and revision;
- ii. **Planning:** specifying the technical and design criteria and procedures to be applied by the **Transmission Licensee (Licensee)** in the planning and development of the **Transmission System** and by other **Users** connected or seeking **Connection** to the **Transmission System**;
- iii. **Connection:** specifying the technical design criteria and standards to be complied with by the **Licensee** and other **Users** connected or seeking **Connection** to the **Transmission System**;
- iv. **Outage:** specifying the procedures relating to coordination of the **Outages** for scheduled maintenance of the **Transmission System**, **Generating unit** and **Distribution System** that will use the **Transmission System**;

- v. **Schedule and Dispatch:** specifying the procedures to be followed by the **System Operator**, the **Licensee** and **Users** relating to the scheduling and dispatch of **Generating Units** to meet the electrical demand;
- vi. **Operations:** specifying the conditions under which the **Licensee**, **System Operator** shall operate the **Transmission System** and other **Users** of the **Transmission System** shall operate their plant and/ or systems for the generation and distribution of electricity in so far as necessary to protect the security and quality of supply and safe operation of the **Licensee's Transmission System** under both normal and abnormal operating conditions. Operation of the **Grid** generally covers:
 - Frequency and Voltage Management
 - Contingency Planning
 - Cross Boundary Safety
 - Operational Event and Accident Reporting
 - Tests
 - Numbering and Nomenclature
 - Data Registration;
- vii. **Protection:** specifying the coordination responsibility and minimum standards of protection that are required to be installed by **Users** of the **Transmission System**;
- viii. **Metering:** specifying the minimum operational and commercial metering to be provided by the **Licensee** and **Users**, Communication requirements, Data acquisition;
- ix. **Performance Standard:** specifying the technical standards, uniform accounting system and financial standards and reporting indices in these respects to be implemented by the **Licensee**.

1.3

THE PURPOSE OF THIS CODE

- (a) The operating procedures and principles governing **Licensee's** relationship with all **Users** are set out in the **Grid Code**.
- (b) The **Grid Code** specifies day-to-day procedures for both planning and operational purposes and covers both normal and exceptional circumstances.
- (c) This **Code** also sets out the technical requirements to be met by those who are connected to the **Transmission System**.
- (d) It is conceived as a statement of what is optimal (particularly from a technical point of view) for all **Users** as well as the **Single Buyer** in relation to the planning, operation and use of the **Transmission System**.
- (e) It seeks to avoid any undue discrimination between **Users** and categories of **Users**. It

should be noted that the holder of the **Transmission License** is also defined as a **User**.

1.4 SCOPE

The **Licensee** shall comply with the **Grid Code** in its capacity as holder of the **Transmission License** and **Generators, Distribution Utilities, and Bulk Power Consumers** shall also comply with it as **User's** of the **Transmission System** in the course of their generation, distribution and utilization of electricity.

1.5 INTERPRETATION

1.5.1 The meaning of certain terms (which are printed in bold letters) used in the **Grid Code** shall be in accordance with the definitions listed in **Section 2, "Definitions"**, of the **Grid Code**.

1.5.2 **Section 2** of this code has been developed on the premise that accepted engineering terms do not require additional definitions.

1.5.3 The term "**Grid Code**" means any or all parts of this document.

1.6 IMPLEMENTATION AND OPERATION OF THE GRID CODE

1.6.1 The **Licensee** has the duty to implement the **Grid Code**. All **Users** are required to comply with the **Grid Code** that will be enforced by the **Licensee**. **Users** must provide the **Licensee** reasonable rights of access, service and facilities necessary to discharge its responsibilities in the **Users'** premises and to comply with instructions issued by the **Licensee**, reasonably required to implement and enforce the **Grid Code**.

1.6.2 If any **User** fails to comply with any provision of the **Grid Code**, it shall inform the **Licensee** without delay of the reason for its non-compliance and shall remedy its non-compliance promptly. Consistent failure to comply with the **Grid Code** may lead to **Disconnection** of the **User's** plant and/ or facilities.

1.6.3 The operation of the **Grid Code** will be reviewed regularly by the **Grid Code Review Panel** in accordance with the provisions of the relevant **Section** of the **Grid Code**.

1.7 GENERAL REQUIREMENTS

1.7.1 The **Grid Code** contains procedures to permit equitable management of day to day technical situations in the **Power System**, taking into account a wide range of operational

conditions likely to be encountered under both normal and abnormal circumstances. It is nevertheless necessary to recognize that the **Grid Code** cannot predict and address all possible operational conditions.

- 1.7.2** **Users** must therefore understand and accept that the **Licensee** and the **System Operator** in such unforeseen circumstances may be required to act decisively to discharge its obligations under its **License**. **Users** shall provide such reasonable co-operation and assistance as the **Licensee** and the **System Operator** may request in such circumstances.

1.8 CODE RESPONSIBILITIES

In discharging its duties under the **Grid Code**, the **Licensee** has to rely on information that other **Users** supply regarding their requirements and intentions. The **Licensee** shall not be held responsible for any consequences that arise from its reasonable and prudent actions on the basis of such information.

1.9 CONFIDENTIALITY

Under the terms of the **Grid Code**, the **Licensee** and the **System Operator** will receive information from **Users** relating to their intentions in respect of their Generation or Distribution/ Supply businesses. The **Licensee** shall not, other than as required by the **Grid Code**, disclose such information to any other person without the prior written consent of the provider of the information.

1.10 PROCEDURES TO SETTLE DISPUTE

- 1.10.1** In the event of any conflict between any provision of the **Grid Code** and any contract or agreement between the **Licensee** and a **User**, the provision of the **Grid Code** will prevail.

- 1.10.2** In the event of any dispute regarding interpretation of any part of the **Grid Code** provision between any **User** and the **Licensee**, the matter may be referred to the **Commission** for its decision. The **Commission's** decision shall be final and binding.

1.11 COMMUNICATION BETWEEN THE LICENSEE AND USERS

- 1.11.1** All communications between the **Licensee** and **Users** shall be in accordance with the provisions of the relevant **Section** of the **Grid Code**.

- 1.11.2** Unless otherwise specifically required by the **Grid Code**, all communications shall be in writing, save that where operation time scales require oral communication, these communications shall be confirmed in writing as soon as practicable.

1.12 PARTIAL INVALIDITY

If any provision or part of a provision of the **Grid Code** should become or be declared unlawful for any reason, the validity of all remaining provisions, or parts of provisions, of the **Grid Code** shall not be affected.

1.13 DIRECTIVE

Under the provisions of section 24 of the **Act**, the Government may issue policy **Directives** on matters concerning electricity including on measures that are considered necessary for the overall planning and coordination for the development of the electricity sector. The **Licensee** shall promptly inform the **Commission** and all **Users** of the requirement of such direction that affects the **Grid Code**. The **Users** shall comply with the directions.

1.14 MAINTENANCE

1.14.1 It is a requirement that all **User's** Plant and **Apparatus** on the **Licensee's** sites are maintained properly to ensure that they do not pose a threat to safety of any of the **Licensee's** Plant, **Apparatus** or Personnel on the **Licensee's** site. The **Licensee** shall have the right to inspect test results and maintenance records relating to such Plant and **Apparatus** at anytime.

1.14.2 It is also a requirement that all the **Licensee's** Plant and **Apparatus** on **User's** sites are maintained properly to ensure that they do not pose a threat to the safety of any **User's** Plant, **Apparatus** or Personnel on the **User** site. **Users** shall have the right to inspect test results and maintenance records relating to such Plant and **Apparatus** at anytime.

1.15 CITIZEN CHARTER

The **Licensee** shall publish Citizen Charter incorporating also its obligation under the License issued by the **Commission** and the **Grid Code**.

2. DEFINITIONS AND ABBREVIATIONS

2.1 DEFINITIONS

Defined Term	Definition
Act	The Bangladesh Energy Regulatory Commission Act, 2003, (Act 13 of 2003).
Apparatus	Electrical Apparatus and includes all machines, fittings, accessories and appliances in which conductors are used.
Appendix	An Appendix to a Section of the Grid Code .
Area of Supply	The area within which alone a Distribution Utility is for the time being authorized by his License to supply electricity.
Back to Back	Back to Back is an interface substation where both Rectifier and Inverter are present for conversion and reconversion of AC and DC transmission.
BERC	Bangladesh Energy Regulatory Commission. Also known as the Commission . Established by Bangladesh Energy Regulatory Commission Act 2003.
Black Start	The process of recovery from a total or partial blackout of the Transmission System .
Bulk Power Consumer	A person or establishment to whom electricity is provided and who has a dedicated supply from the Grid at 132kV or 230kV.
Capability Curve	Boundaries of the area within which a Generating Unit can operate safely.
Check Metering System	The tariff Metering System installed as Back-Up or Check Meter.

Connection	The electric lines and electrical equipment used to effect a Connection of a User's system to the Transmission System .
Connection Agreement	An agreement between the Licensee and a User setting out the terms relating to the Connection to and/ or use of the Transmission System .
Connection Conditions	The technical conditions to be complied with by any User having a Connection to the Transmission System as laid down in Section 5: "Connection Conditions" of the Grid Code .
Connection Point	The point of Connection of the User system or equipment to the Grid .
Control Person	A person identified as having responsibility for cross-boundary safety under Section 10: "Cross Boundary Safety" of the Grid Code .
Conventional Generating Unit/ Plant	A Generating Unit/ Plant which is not a Variable Renewable Energy Generating Unit/ Plant .
Declared Available Capacity	The estimated net capacity of the Generating Units announced by the Generator that equals the Dependable Capacity less any reductions due to scheduled outage, forced outage or maintenance outage.
Detailed Planning Data	As referred to Data Registration Section .
Directive	A policy Directive issued by the Government of Bangladesh or the Commission under the provision of the Act .
Disconnect	The act of physically separating a User's electrical equipment from the Transmission System .
Distribution Utility/ Distributor	An organization which is licensed to own and/ or operate all or part of the Distribution System and responsible for supply of electricity.
Distribution System	The system of electric lines and electrical equipment owned and operated by a Distribution Utility .

Electricity Act, 2018	The Electricity Act adopted in 2018 (Act 7 of 2018).
Electricity Rules, 1937	The Electricity Rules formulated in 1937.
Entity	Any Establishment, including the Single Buyer, Generator, the Licensee, Distributor, the System Operator, System Planner and User , who uses the Transmission System and who must comply with the provisions of the Grid Code .
External Interconnection	Electric lines and electrical equipment used for the transmission of electricity between the Transmission System and any other Transmission System other than the Power System of Bangladesh.
Extra High Voltage or EHV	Nominal voltage levels of 132 kV and above.
Generating Unit	The combination of an alternator and a turbine set (whether steam, gas, water or wind driven) or a reciprocating engine and all of its associated equipment, which together represents a single electricity generating machine.
Generating Plant	A facility consisting of one or more Generating Units , where electrical energy is produced from some other form of energy by means of suitable Apparatus .
Generator	An organization that has a License to generate electricity and who is subject to the Grid Code .
Grid Code/ Code	The set of principles and guidelines managed and serviced by the Licensee in accordance with the terms and conditions of the Transmission License and approved by the Commission .
Grid Code Review Panel/ Panel	The Panel set up under Section 3 : “Management of the Grid Code ”.
IPP	Independent Power Producer being a Power Station owned by a Generator who sells power to the Single Buyer under PPA signed according to the Private Sector Power Generation Policy of Bangladesh.

Licensee	The holder of the Transmission License for the bulk transmission of electricity between Generators and Distributors/ Bulk Power Consumers .
Load Dispatch Centre (LDC)	The control room operating round the clock for the purpose of managing the operation of the Transmission System and coordination of generation and distribution on a real time basis.
Merit Order	A way of ranking Generating Units based on ascending order of variable cost (fuel and variable O&M) to meet demand at the least cost.
Metering System	The tariff metering system installed at the Connection Points in the Transmission System and owned by the Single Buyer .
National Load Dispatch Centre (NLDC)	Same as definition of LDC .
National Plan	National Development Plan prepared and produced by the Planning Commission.
Net Electrical Output	The net electrical energy expressed in kW or kWh delivered to the Connection Point by the Generator .
Operating Committee	The committee with members representing the Generator , the Single Buyer , the System Operator and the Licensee dealing with all operational matters affecting the Transmission System and meeting regularly.
Off Peak Period	That period in a day when electrical demand is the lowest.
Outage	The reduction of capacity or taking out of service of a Generating Unit , Power Station or part of the Transmission System or Distribution System .
Peak Period	That period in a day when electrical demand is at its highest level.

Photovoltaic (PV)	A method of generating electrical energy by converting solar radiation into direct current electricity using semiconductors that directly produce electricity when exposed to light.
Photovoltaic Generating Plant	A Generating Plant which is made up of one or more solar panels, a controller or inverter, and the interconnections and mounting for the other components, which is connected to the system at a single Connection Point .
Power Purchase Agreement or PPA	The agreement between a Generator and the Single Buyer in which, subject to certain conditions, the Single Buyer agrees to purchase the electrical output of the Generator's Generating Unit and the Generator agrees to provide services from this Unit.
Power Station	An installation of one or more Generating Units (even when sited separately) owned and/ or operated by the same Generator and which may reasonably be considered as being managed as a single integrated generating complex.
Power System	The combination of the Generation System, Transmission System and Distribution System .
Power System Master Plan (PSMP)	Master plan for the Power System reviewed and updated periodically, preferably every 5 years, covering all issues relating to the Power System .
Power System Stabilizer	A supplementary excitation controller used to damp Generator electro-mechanical oscillations in order to stabilize the Grid .
Private Generator	A Generator which is not classified as a Public Sector Entity and operates as IPP/ Rental or any other basis under a PPA with the Single Buyer .
Public Sector Entities	The Bangladesh Power Development Board, the Bangladesh Rural Electrification Board constituted under the relevant Order, Ordinance and Act or any other power sector entity owned by the Government.

Section	A Section or part of this Grid Code that is identified as covering a specific topic.
Single Buyer	An Entity in the public sector purchasing electricity from both public and Private Generators and selling them to Distributors/ Bulk Power Consumers under Power Purchase and Power Sales Agreements respectively. It may ultimately be responsible for planning of least cost generation expansion; arranging establishment of private power generating stations as per generation expansion plan and for Power System operation including economic dispatch of generation.
Standard Planning Data	As referred to in Data Registration Section .
Supervisory Control and Data Acquisition / SCADA	SCADA refers to centralized real time control and monitoring system architecture that uses software and hardware elements where data collection functions are carried out from field through a communications system and system data is monitored centrally and control instructions are issued from master station to all parts the system. In Power System it is the combination of transducer/ IED, RTU, communication links and data processing systems which provides information to the NLDC and issues commands to field on the operation of the generation, transmission and distribution.
System Operator	The organization/ department assigned for operating the Transmission System and Load Dispatch (presently NLDC).
System Planner	The organization/ department assigned by the government (presently BPDB as Single Buyer) for preparing Master Plan for Power Sector.
Transmission License	The License granted to the Transmission Company by the Commission as per provisions of the Act .
Transmission System (Grid)	The system of EHV electric lines and electrical equipment owned and/ or operated by the Licensee for the purpose of the transmission of electricity between Power Stations , External Interconnections and the Distribution System , Bulk Power Consumers .

User

A person or establishment, including the **Licensee**, the **Single Buyer**, the **System Operator**, **Generator Distribution Utility** and **Bulk Power Consumer** who uses the **Transmission System** and who must comply with the provisions of the **Grid Code**.

2.2 ABBREVIATIONS

Term	Meaning
AACIR	Average Annual Customer Interruption Rate
ABCB	Air Break Circuit Breaker
ACP	Average Collection Period
AFC	Automatic Frequency Control
AVR	Automatic Voltage Regulator
APSCL	Ashuganj Power Station Company Limited
B2B	Back to Back
BERC	Bangladesh Energy Regulatory Commission
BPDB	Bangladesh Power Development Board
BREB	Bangladesh Rural Electrification Board
CPGCBL	Coal Power Generation Company of Bangladesh Limited
DPDC	Dhaka Power Distribution Company Limited
DESCO	Dhaka Electricity Supply Company Limited
EBIT	Earnings Before Interest and Taxes
EGCB	Electricity Generation Company Limited of Bangladesh
EHV	Extra High Voltage
FGMO	Free Governor Mode of Operation
HP	Horse Power
HV	High Voltage
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
Hz	Hertz
IEC	International Electro-Technical Commission
IEEE	Institute of Electrical and Electronic Engineers
IPP	Independent Power Producer
kA	Kilo Ampere
kV	Kilovolt
kVAR	Kilovolt Ampere Reactive

kW	Kilowatt
kWh	Kilowatt Hour
LDC	Load Dispatch Centre
mG	Milli-Gauss
MPEMR	Ministry of Power Energy and Mineral Resources
MOCB	Minimum Oil Circuit Breaker
mT	Milli-Tesla
MTBF	Mean Time Between Failures
MTTR	Mean Time To Repair
MW	Megawatt
MWh	Megawatt Hour
MVA	Megavolt Ampere
MVAR	Megavolt Ampere Reactive
NESCO	Northern Electric Supply Company Limited
NLDC	National Load Dispatch Centre
NWPGCL	North West Power Generation Company Limited
PBS	Palli Bidyut Samity
PGCB	Power Grid Company of Bangladesh Limited
PPA	Power Purchase Agreement
PSA	Power Sales Agreement
RMS	Root Mean Square
ROA	Return on Assets
RPCL	Rural Power Company Limited
SCADA	Supervisory Control And Data Acquisition
SF6	Sulphur Hexafluoride
TDD	Total Demand Distortion
THD	Total Harmonic Distortion
UsoAC	Uniform System of Accounts
VRE	Variable Renewable Energy
WZPDCL	West Zone Power Distribution Company Limited

3. MANAGEMENT OF THE GRID CODE

3.1 INTRODUCTION

The **Licensee** is required to implement and comply with the **Grid Code** and periodically review the same and its implementation. For the above purpose a **Grid Code Review Panel** comprising of representatives of all **Users** of the **Transmission System** shall be established.

Subject to the conditions in the next paragraph of this **Section**, a specific and important feature of the **Grid Code** is that no revision or modification of the **Code**, however large or small, may be made without being discussed at the **Grid Code Review Panel** meeting and approved by the **Commission**.

The **Commission** may issue directions requiring the **Licensee** to revise the **Grid Code** in such a manner as may be specified in those directions and the **Licensee** shall promptly comply with any such directions.

This document defines the procedure to be followed by the **Licensee** in maintaining the **Grid Code** and also in pursuing any change.

3.2 OBJECTIVE

The objective of this procedure is to define the method of managing the **Grid Code**, submitting and pursuing of any proposed change to the **Grid Code** and the responsibilities of all **Users** to effect that change.

3.3 RESPONSIBILITIES

3.3.1 The **Licensee** will be responsible for managing and servicing the **Grid Code** for discharging its obligations under the **License**.

3.3.2 The **Licensee** shall establish and service the requirements of the **Grid Code Review Panel** in accordance with provisions of sub-**Section** 3.4 of the **Code**.

3.4 GRID CODE REVIEW PANEL/ PANEL

3.4.1 The **Grid Code Review Panel** shall be maintained to undertake the following:

- i. To keep and maintain the **Grid Code** and its workings under scrutiny and

review.

- ii. To analyze any major **Grid** disturbances soon after the occurrence and evolve any consequent revision to the **Grid Code**.
- iii. To consider all requests for amendment to the **Grid Code** which any **User** makes.
- iv. To publish recommendations for changes to the **Grid Code** together with the reason for the change and any objections, if applicable.
- v. To issue guidance on the interpretation and implementation of the **Grid Code**.
- vi. To examine problems raised by **Users**.

3.4.2 The **Panel** shall be chaired by the Transmission Company in its capacity as the transmission **Licensee** and consist of the following members:

1. A Chairman from the **Licensee** not below the rank of Executive Director;
2. A Technical Member (Secretary) from the **Licensee** not below the rank of Chief Engineer;
3. A Technical Member from the **System Operator** or Planning Department of the **Licensee**.

Representative from each of the following:

4. One Member to represent the **Single Buyer**;
5. One Member from **BPDB** to represent Generation;
6. One member from **EGCB/ NWPGL/ APSCL/ RPCL/ CPGCBL** (for tenure of one year each on rotation basis);
7. One Member from **IPPs/ Private Generators** (for tenure of one year each on rotation basis to be notified by the **Licensee**, to represent all the **IPPs/ Private Generators** in Bangladesh);
8. One Member from **BPDB** to represent Distribution;
9. One Member from **BREB**;
10. One Member from **DPDC/ DESCO** (for tenure of one year each on rotation basis);
11. One Member from **WZPDCL/ NESCO** (for tenure of one year each on rotation basis).

3.4.3 The **Licensee** will inform all **Users** of the names and addresses of the **Panel** Chairman and Technical Secretary at least seven days before the first **Panel** meeting, and shall inform **Users** in writing of any subsequent changes.

3.4.4 Each **User** shall inform the **Panel** Technical Secretary of the name and designation of their **Panel** Representative not less than 3 working days before the first **Panel** meeting and shall inform the **Panel** Technical Secretary, in writing, of any subsequent change.

3.4.5 The Rules to be followed by the **Panel** in conducting their business shall be formulated by

the **Panel** themselves and shall be approved by the **Commission**. The **Panel** will meet at least once in three months.

- 3.4.6** Sub-meetings may be held by the **Licensee** with a **User** to discuss individual requirements and with groups of **Users** to prepare proposals for the **Panel** meeting. The **Panel** may set up sub-committees for detailed studies of related problems.

3.5 GRID CODE REVIEW AND REVISIONS

- 3.5.1** The Technical Secretary shall present all proposed revisions of the **Grid Code** to the **Panel** for its consideration.

- 3.5.2** The **Licensee** shall send to the **Commission** following reports at the conclusion of each Review Meeting of the **Panel**.

- (a) A report on the outcome of such review.
- (b) Any proposed revisions to the **Grid Code** as the **Licensee** reasonably thinks necessary for the achievement of the defined objectives.
- (c) All written representations or objections from **Users** arising during the review.

- 3.5.3** All revisions to the **Grid Code** shall require approval of the **Commission**. The **Commission** shall publish revisions to the **Grid Code** once approved by the **Commission**.

- 3.5.4** The **Licensee** shall present proposals to the **Commission** to allow relaxation, where **Users** have difficulties in meeting the **Grid Code** requirements.

- 3.5.5** The revision number and date of issue shall appear on every page of the **Grid Code**.

- 3.5.6** Every change from the previous version shall be clearly marked in the margin. In addition, a revision sheet shall be placed at the front of the revised version that lists the number of every changed sub-**Section**, together with a brief description of change.

- 3.5.7** The **Licensee** shall keep an up-to-date list of the recipients and locations of all serviced copies of the **Grid Code**.

4. TRANSMISSION SYSTEM PLANNING

4.1 INTRODUCTION

This **Section** identifies the method for data submissions by **Users** to the **Licensee** for the planning and development of the **Transmission System**. This **Section** also specifies the technical and design criteria and procedure to be applied by the **Licensee** in the planning and development of the **Transmission System**.

A requirement for reinforcement or extension of the **Transmission System** may arise for a number of reasons, including but not limited to the following:

- i. Development in a **User's** system already connected to the **Transmission System**.
- ii. The introduction of a new **Connection Point** between the **User's** system and the **Transmission System**.
- iii. An increase in system capacity to remove operating constraints and maintain standards of security.
- iv. Stability considerations.
- v. Cumulative effect of any of the above.

Accordingly, the reinforcement or extension of the **Transmission System** may involve work at an entry or exit point (**Connection Point**) of a **Generator** or **Distribution Utility** or **Bulk Power Consumer** to the **Transmission System**.

Since development of all **Users'** systems must be planned well in advance to permit consents and wayleaves to be obtained and detailed engineering design/ construction work to be completed, the **Licensee** will require information from **Users** and vice versa. To this effect the Planning Code imposes a time scale, for exchange of necessary information between the **Licensee** and **Users** having regard, where appropriate, to the confidentiality of such information.

4.2 OBJECTIVE

The provisions of this **Section** are intended to enable the **Licensee** in consultation with the **Single Buyer, Generators** and **Users**, to provide an efficient, co-ordinated, secure and economical **Transmission System** to satisfy requirement of future demand.

4.3 PERSPECTIVE PLAN

- 4.3.1 The **System Planner** will prepare and submit a long-term (preferably 20 years which may

be termed as planning-term) **Power System Master Plan** to the Government and to the **Commission** for generation expansion and for **Transmission System** expansion to meet the future demand.

4.3.2 For fulfillment of the above requirement the **System Planner** and the **Licensee** shall work together to:

- i. Forecast the demand for power within the **Area of Supply** in each of the succeeding planning-term and provide to the **Commission** details of the demand forecasts, data, methodology and assumptions on which the forecasts are based.
- ii. Prepare a least cost generation plan for the **Power System** based on analysis of primary fuel supply availability to meet the long-term load demand as per the forecast, after examining the technical, economic, and environmental aspects of all available alternatives taking into account the existing contracted generation resources and effects of demand side management.
- iii. Prepare a long-term plan for the expansion of the **Transmission System** compatible with the above load forecast and generation plan.
- iv. Combine the above elements to form the **Power System Master Plan** which shall be reviewed yearly to identify any major changes/ requirements or whenever the government urges for urgent power generation and communicated to the **Commission**.

4.3.3 The **Power System Master Plan** shall be updated periodically, preferably every 5 years and used as an input to the national plan.

4.4 PLANNING AND SECURITY STANDARDS

The **Transmission System** shall be planned in accordance with the following transmission system planning and security standards.

Voltage limits:

Normal Operating Condition:

±5% for 400 kV Bus

±6% for 230 kV and 132 kV Bus

Emergency Condition:

+/- 10 % for 400 kV Bus

+ 10/-15% for 230 kV and 132 kV Bus.

Transient voltage variation due to switching or tripping of transmission system equipment may exceed the above limit.

Minimum Contingency Criteria of Transmission Line Outages:

single contingency of a permanent three-phase outage of any one circuit element or transformer.

Stability

to be maintained stable during a fault clearance by three-phase trip within 5 cycles and followed by successful reclosure within 15 cycles.

4.5 PLANNING RESPONSIBILITY

4.5.1 The primary responsibility of load forecasting within its area rests with each of the **Distribution Utilities**. The **Distribution Utilities** shall determine peak load and energy forecasts of their respective areas for each category of loads for each of the succeeding planning-term and submit the same annually by 31st March to the **Licensee** and **System Planner**, along with details of the demand forecasts, data, methodology and assumptions on which the forecasts are based. The load forecasts shall be made for each of the **Connection Points** between the **Licensee** and **User** and shall include annual peak load and energy projections and daily load curve. The demand forecasts shall be updated annually or whenever major changes are made in the existing forecasts or planning. While indicating requirements of single consumers with large demands (5 MW or higher) the **Distribution Utility** shall satisfy itself as to the degree of certainty of the demand materializing.

4.5.2 The **Licensee** and **System Planner** are responsible for integrating the load forecasts submitted by each of the **Distribution Utilities** and determining the long term (20 years) load forecasts for the **Power System**. In doing so the **Licensee** and **System Planner** may apply appropriate diversity factors, and satisfy itself regarding probability of materialization of bulk loads of consumers with demands above 5 MW in consultation with that **Distribution Utility** concerned.

4.5.3 The **Licensee** and **System Planner** may also review the methodology and assumptions used by the **Distribution Utility** in making the load forecast, in consultation with the **Distribution Utility**. The resulting overall load forecast will form the basis of planning for expansion of generation and the **Transmission System**.

4.6 PLANNING DATA REQUIREMENT

4.6.1 To assist the **System Planner** to discharge its responsibilities, the **Licensee** and the **System Planner** shall jointly conduct system studies and prepare perspective plans for the

Transmission System as detailed in paragraph 4.3 of this **Section**. The **Users** shall furnish data to the **Licensee** and **System Planner** from time to time as detailed under Data Registration **Section** and categorized as Planning Data (PD).

- 4.6.2** To enable **Users** to co-ordinate planning, design and operation of their plants and systems with the **Transmission System** they may seek certain salient data of **Transmission system** as applicable to them, which the **Licensee** shall supply from time to time as detailed under Data Registration **Section** and categorized as Detailed System Data (Transmission).

5. CONNECTION CONDITIONS

5.1 INTRODUCTION

Connection Conditions specify the technical, design and operational criteria that must be complied with by any **User** connected to the **Transmission System**.

5.2 OBJECTIVE

The objective of this **Section** is to ensure the following:

- i. By specifying minimum design and operational criteria, to assist **Users** in their requirement to comply with License obligations and hence ensure that a system of acceptable quality is maintained.
- ii. Any new **Connection** shall not impose any adverse effects on existing **Users**, nor shall a new **Connection** suffer adversely due to existing **Users**.
- iii. All **Users** or prospective **Users** are treated equitably.
- iv. Specify the data required by the **Licensee** and **System Operator** from **Users**.
- v. The ownership and responsibility for all items of equipment is clearly specified in a schedule (Site Responsibility Schedule) for every site where a **Connection** is made.

5.3 SITE RESPONSIBILITY SCHEDULE

5.3.1 For every **Connection** to the **Transmission System** for which a **Connection Agreement** is required, the **Licensee** shall prepare a schedule of equipment with information supplied by the respective **Users**. This schedule, called a Site Responsibility Schedule, shall state the following for each item of equipment installed at the **Connection** Site:

- i. The ownership of equipment.
- ii. The responsibility for control of equipment.
- iii. The responsibility for maintenance of equipment.
- iv. The responsibility for operation of equipment.
- v. The manager of the site.
- vi. The responsibility for all matters relating to safety of persons at site.

An illustrative Site Responsibility Schedule is provided at **Appendix**.

- 5.3.2** The **User** owning the **Connection** site shall provide reasonable access and other required facilities to another **User** whose equipment is installed at the **Connection** site for installation, operation and maintenance, etc.

5.4 SYSTEM PERFORMANCE

- 5.4.1** All equipment connected to the **Transmission System** shall be of such design and construction as to satisfy at least the requirements of the relevant Bangladesh Standard Specification, where no Standard exists the appropriate **IEC** Standard or other International Standard will apply.
- 5.4.2** Installation of all electrical equipment shall comply with **Electricity Rules, 1937** and revisions thereof.
- 5.4.3** The **Transmission System** frequency shall normally be 50.0 Hz and shall normally be controlled in the range 49.5 – 50.5 Hz (50 Hz $\pm$ 1%). The **User** shall however be subject to the **Grid** discipline directed by the **Commission**.
- 5.4.4** Voltage variation on the **Transmission System** shall normally be $\pm 5\%$ for 400 kV, $\pm 6\%$ for 230 kV & 132 kV bus during normal operations and $\pm 10\%$ at 400 kV, $\pm 10\%$ -15% for 230 kV, 132 kV bus during emergencies in accordance with the provisions of Planning and Security Standards for **Transmission System**.
- 5.4.5** Insulation coordination of the **Users'** equipment and rupturing capacity of switchgear shall conform to applicable Bangladesh Standards/ Codes.
- 5.4.6** Protection schemes and Metering shall be as detailed in the Protection & Metering **Sections** of the **Code**.
- 5.4.7** For existing **Power Stations**, the equipment for communications (voice and data) and **SCADA** system shall be owned and maintained by the **Licensee**, unless alternative arrangements are mutually agreed. The **Users** shall be responsible to provide compatible **SCADA** and Communication interfaces (Voice, Data & Tele-protection) with the **System Operator SCADA** and Communication system for exchanging required system information and deliver control commands as stated in this **Grid Code**.
- 5.4.8** For new **Power Stations** or **User's** substations/ facilities, the equipment within their site for communication (voice & data), **SCADA** Control (for example RTU/ SAS) shall be installed, owned & maintained by the respective **Generator** or **Bulk Power Consumer** or other **User**.

5.5 CONNECTION POINT

5.5.1 Generator

5.5.1.1 Voltage may be 400 kV/ 230 kV/ 132 kV or as agreed with the **Single Buyer** and the **Licensee**.

5.5.1.2 For new **Power Stations** or **Connections**

Unless specifically agreed with the **Licensee** and the **Single Buyer**, the **Connection Point** shall be the outgoing gantry of **Power Station** switchyard. The metering point shall be at the outgoing **Connection Point**. All the substation equipment including Protection, Control and Metering equipment owned by the **Generator** within the perimeter of the **Generator's** site shall be maintained by the **Generator**. Other **Users'** equipment shall be maintained by the respective **Users**. From the outgoing feeder gantry onwards, the **Licensee** shall maintain all electrical equipment.

5.5.1.3 For existing **Power Stations**

The existing arrangement of maintenance of all line bay equipment installed within the substation attached to the **Power Station**, viz. Circuit Breaker, Isolator, Lightning Arrester, Current Transformer, Voltage Transformer etc., by the **Power Station**, shall continue to be with the **Generator**. However, maintenance of line protection and communication equipment shall continue to be the responsibility of the **Licensee** as before.

5.5.2 Distribution Utility

5.5.2.1 Voltage may be 132 kV/ 33 kV or as agreed with the **Single Buyer** and the **Licensee**.

5.5.2.2 The **Connection** and **Metering point** of a **Distribution Utility** shall be the outgoing 132 kV or 33 kV feeder gantry of the **Licensee's Grid** substation as agreed by the **Licensee** and the **Single Buyer**. The **Licensee** shall maintain all the terminal, communication, protection and metering equipment within the premises of the **Licensee**.

5.5.2.3 Provided that the Metering point and **Connection Point** may be at the LV side of **Grid** Transformer when LV bus and all the outgoing feeders are owned and utilized by a single **Distribution Utility**.

5.5.2.4 From the **Connection Point** onwards, the respective **Distribution Utility** shall maintain its own electrical line and equipment.

5.5.2.5 Any disagreement or dispute in respect of **Connection Point**, metering point and apportion of common metering units shall be referred in writing to the **Commission** for settlement.

5.5.3 Bulk Power Consumers

5.5.3.1 Voltage may be 230 kV/ 132 kV or as agreed with the **Single Buyer** and the **Licensee**.

5.5.3.2 The **Connection** and metering point shall be the outgoing feeder gantry of the **Licensee's Grid** substation.

5.5.3.3 From the **Connection Point** onwards, **Bulk Power Consumer** shall maintain its own electrical equipment.

5.5.3.4 Substation at consumer's electricity utilization premises shall be built, owned and maintained by the **Bulk Power Consumer** in accordance with the design approved by the **Licensee**.

5.5.3.5 The **Bulk Power Consumer's** substation shall only be fed by radial feeder from nearest **Grid** substation.

5.5.3.6 To ensure **Grid** safety, transmission lines shall not be diverted to consumer's substation i.e., Line In and Line Out (LILO) shall not be permitted by the **Licensee**.

5.6 DATA REQUIREMENTS

Users shall provide the **Licensee** with data for this **Section** as specified in the Data Registration **Section**.

5.7 PROCEDURE FOR APPLICATIONS FOR CONNECTION TO AND USE OF THE TRANSMISSION SYSTEM

5.7.1 Any **User** seeking to establish new or modified arrangements for **Connection** to and/or use of the **Transmission System** shall submit the following report, data and undertaking along with an application to the **Licensee**:

- i. **Power Purchase Agreement (PPA)/ Power Sales Agreement (PSA)** with the **Single Buyer**.
- ii. Report stating purpose and concurrence from the **Single Buyer** for the proposed **Connection** and/ or modification, **Connection** site, description of **Apparatus** to be connected or modification to **Apparatus** already connected.
- iii. Data as applicable and as listed in the Data Registration **Section**.
- iv. Confirmation that the prospective installation complies with the provisions in the **Electricity Act, 2018**.
- v. Construction schedule and target completion date.

- vi. An undertaking that the **User** shall abide by **Grid Code** and provisions of the **Electricity Rules, 1937** and revisions thereof, for installation and operation of the **Apparatus**.

- 5.7.2** For every new **Connection** sought, the **Licensee** and the **Single Buyer** jointly shall specify the **Connection Point** and the voltage to be used, along with the metering, protection, communication and **SCADA** requirements as specified in respective **Sections**.
- 5.7.3** The **Licensee** shall normally make a formal offer to the **User** within 2 months of receipt of the application complete with all information as may reasonably be required, subject to provision in paragraph 5.7.6.
- 5.7.4** The offer shall specify and take into account any works required for the extension or reinforcement of the **Transmission System** to satisfy the requirements of the **Connection** application and for obtaining statutory clearances, way leaves as necessary
- 5.7.5** In respect of offers for modification of existing **Connection**, the terms shall take into account, the existing **Connection Agreement**.
- 5.7.6**
- i. If the nature of complexity of the proposal is such that the prescribed time limit for making the offer is not adequate, the **Licensee** shall make a preliminary offer within the prescribed time limit. The offer shall indicate the extent of further time required with the consent of the **Commission** for more detailed examination of the issues
 - ii. On receipt of the preliminary offer, the **User** shall indicate promptly whether the **Licensee** should proceed further to make a final offer within the extended time limit.
- 5.7.7** All offers (other than preliminary offers) including revised offers shall remain valid for 60 days of issue of offer.
- 5.7.8** The **Licensee** shall make a revised offer, upon request by a **User**, if necessitated by changes in data earlier furnished by the **User**.
- 5.7.9** In the event of the offer becoming invalid or not being accepted by any **User** within the validity period, no further action shall be taken by the **Licensee** on the **Connection** applications.
- 5.7.10** The **Licensee** may reject any application for **Connection** to and/ or use of Transmission System:
- i. If such proposed **Connection** will violate any provisions of the **Transmission Licensee**.

- ii. If the proposed works stated in the application do not lie within the purview of the **Licensee** or do not conform to any provision of the **Grid Code**.
- iii. If the applicant fails to give confirmation and undertakings according to sub-**Section 5.7.1** and **5.7.3**.

5.8 REQUIREMENTS FOR CONVENTIONAL GENERATORS

5.8.1 Frequency Withstand Capability

The **Generator** shall ensure that each **Generating Unit** is capable of generating a full rated power output, within the frequency range of 49.5 to 50.5 Hz. Any decrease of power output occurring in the frequency range of 49.5 to 47.5 Hz shall not be more than the required proportionate value of the frequency decay.

Any variation of the system frequency within the range of 48.0 Hz to 51.5 Hz shall not cause the disconnection of the **Generating Unit**. The **Generating Units** shall be capable to operate, for at least 15 minutes, in case of increase in frequency within the range of 51.5 to 52 Hz; and for at least 30 minutes, in case of a decrease in frequency within the range of 48.0 to 47.5 Hz, in both cases provided the voltage at the **Connection Point** is within +/- 10% for 400 kV and +10/-15% for 230 kV, 132 kV of the nominal value.

If the system frequency momentarily rises above 52.0 Hz or falls below 47.5 Hz, the **Generation Unit** shall remain in synchronism with the system for at least five (5) seconds. **The System Operator** may waive this requirement, if there are sufficient technical reasons to justify the waiver.

5.8.2 Voltage Withstand Capability

The **Generator** shall ensure that each **Generating Unit** is capable of supplying its full rated power output (both active and reactive) within voltage variations within the range +/- 5% for 400 kV and +/- 6% for 230 kV, 132 kV during normal operating conditions. Outside this range, and up to a voltage variation of +/-10% for 400 kV and +10%/-15% for 230 kV, 132 kV, a reduction on active and/ or reactive power is allowed, provided that this reduction does not exceed 5% of the **Generator's** Declared Data.

5.8.3 Reactive Power Capability and Control

The **Generator** shall ensure that each **Generating Unit** is capable of supplying its full rated active power output within the limits of lagging and leading power factor at the **Generator** terminals as mentioned in **PPA**, and in accordance with its **Reactive Power Capability Curve**.

The **Generating Unit** shall be capable of contributing to system voltage control by continuous regulation of the reactive power supplied to the **Grid**. For such reason, it shall be fitted with a continuously acting automatic excitation control system to control the terminal voltage without instability over the entire operating range of the **Generating Unit**.

The performance requirements for excitation control facilities, including eventual **Power System Stabilizers**, where necessary for appropriate **Power System** operations shall be specified in the **Connection Agreement**.

5.8.4 Speed-Governing System

The **Generating Unit** shall be capable of contributing to frequency control by continuous regulation of the Active Power supplied to the system. The **Generating Unit** shall be fitted with a fast-acting speed-governing system to provide Frequency Control under normal operating conditions.

The speed-governing system shall have an overall speed-droop characteristic of five (5) percent or less. Unless waived by the **System Operator**, the speed-governing system shall be capable of accepting raise and lower signals from the control center of the **System Operator**.

5.8.5 Black Start Capability

The **Power System** shall have **Black Start** capability at a number of strategically located **Generating Plants**. The **Generator** shall specify in its application for a **Connection Agreement** if its **Generating Unit** has a **Black Start** capability.

5.9 REQUIREMENTS FOR VRE GENERATORS

5.9.1 Frequency Withstand Capability

The **Generator** shall assure that each **VRE Generating Unit** is capable of generating at maximum power output, depending on the availability of the primary resource, within the frequency range of 49.5 to 50.5 Hz.

The **VRE Generating Unit** shall be capable to continuously operate with any variation of the **Power System** frequency within the range of 48.0 Hz to 51.5 Hz. It shall be also capable to operate, for at least 5 minutes, in case of increase in frequency within the range of 51.5 to 52 Hz; and for at least 60 minutes, in case of a decrease in Frequency within the range of 48.0 to 47.5 Hz, in both cases provided the voltage at the **Connection Point** is within $\pm 10\%$ for 400 kV and $\pm 10\%$ to $\pm 15\%$ for 230 kV, 132 kV of the nominal value. In case the frequency momentarily falls below 47.5 Hz the **VRE Generating Unit** shall remain connected for at least 5 seconds. In case of increase in Frequency above 52.0 Hz the **VRE Generator** shall decide whether to disconnect the **VRE Generating Plant** and/ or its **Generating Units** from the **Grid**.

The **VRE Generation Plant** shall remain synchronized during a rate of change of frequency of values up to and including plus or minus 1.0 Hz per second measured as a rolling average over 500 milliseconds.

5.9.2 Voltage Withstand Capability

The **VRE Generating Units** shall be capable of generating at maximum power output, depending on the availability of the primary resource, and the interchange of reactive power at the **Connection Point**, as specified in paragraph 5.9.3, within the voltage variations within the standard limits for normal operating condition. Outside this range, and up to a voltage variation within standard limits for emergency condition, a reduction on active and/or reactive power can be allowed, provided that this reduction does not exceed 5% of the **Generator's Declared Data**.

5.9.3 Reactive Power Capability and Control

The **VRE Generating Plant** shall be capable of supplying reactive power output, at its **Connection Point**, within the following ranges:

- +/- 20 % of the **Generating Plant** capacity, as specified in the **Generator's Declared Data**, if the active power output, depending on the availability of the primary resource, is equal or above 58% of the **Generating Plant** capacity;
- Any reactive power value within the limits of power factor 0.95 lagging to 0.95 leading, if its active power output, depending on the availability of the primary resource, is within the 10 % and 58% of the **Generating Plant** capacity;
- No reactive power interchange with the **Grid** if the active power output, depending on the availability of the primary resource, is equal or less than 10% of the **Generating Plant** capacity.

The **VRE Generating Plant** shall be capable of contributing to voltage control by continuous regulation of the reactive power supplied to the **Grid** in any of the following modes, as it will be determined by the **System Operator**:

- Maintaining constant voltage at the **Connection Point**, at a set point instructed by the **System Operator**;
- Maintain an injection of reactive power, at the **Connection Point**, at a set point instructed by the **System Operator**;

- Maintaining a constant power factor of the injected active power at the **Connection Point**, at a value prescribed by the **System Operator**; or provided the limits of reactive power output established above are not exceeded.

In order to comply with these requirements the **VRE Generating Plant** shall be equipped with an appropriate control system able to control voltage or reactive power interchange over the entire operating range, which shall not create oscillations in the **Grid**.

5.9.4

Active Power Control

VRE Generating Plants should be equipped with an active power regulation control system able to operate, at least, in the following control modes, provided that system frequency is within the range 49 Hz – 51 Hz:

- a) Free active power production (no active power control): The **VRE Generating Plant** operates producing maximum active power output, depending on the availability of the primary resource.
- b) Active power constraint: The **VRE Generating Plant** shall operate producing active power output equal to a value specified by the **System Operator** (set-point), provided the availability of the primary resource is equal or higher than the prescribed value; or producing the maximum possible active power in case the primary resource availability is lower than the prescribed set-point;

In cases the **VRE Generating Plant** operates in active power constraint mode, whenever any control parameter is changed, such change must be commenced within two seconds and completed not later than 30 seconds after receipt of an order to change any parameter. The accuracy of the control performed must be within $\pm 2\%$ of the entered value or by $\pm 0.5\%$ of the rated power, depending on which yields the highest tolerance.

In case the system frequency exceeds 51.0 Hz, the active power control system should reduce the active power injected to the **Grid** previously, according with the following formula:

$$\Delta P = 33 \cdot P_m \cdot \left(\frac{51.0 - f_n}{50} \right)$$

Where:

ΔP : is the variation in Active Power output that should be achieved

P_m : is the Active Power output before this control is activated

f_n : is the **Grid** frequency.

The reduction in active power output shall be performed at the maximum possible gradient, provided the technical capabilities of the **VRE Generators** are not exceeded. If the active power for any **VRE Generating Plant** is regulated downward below its minimum technical limit, shutting-down of individual **VRE Generating Units** is allowed.

5.9.5 Performance During Grid Disturbances

The **VRE Generating Plant** shall be able to withstand without disconnection voltage dips at the **Connection Point**, produced by fault or disturbances in the **Grid**, whose magnitude and duration profiles are within the shaded area in Figure 1. This area is defined by following characteristics:

- If the voltage at the **Connection Point** falls to zero in any of the three phases, the PVS shall remain connected for at least 0.15 seconds;
- If the voltage at the **Connection Point** drops but it is still above 20% of the nominal value, in all the three phases, the **VRE Generating Plant** shall remain connected for at least 0.625 seconds;
- If the voltage at the **Connection Point** is equal or above 90% of the nominal value, in all the three phases, the **VRE Generating Plant** shall remain connected indefinitely, up to fault clearance;
- For voltages between 30% and 90% of the nominal value, the time the **VRE Generating Plant** shall remain connected, shall be determined by linear interpolation between following pairs of values [voltage = 30%; time = 0.625 seconds] and [voltage = 90%; time = 3.0 seconds].

In the case of larger voltage deviations and/ or lasting longer, the Wind Farm is allowed to be disconnected from the **Grid**.

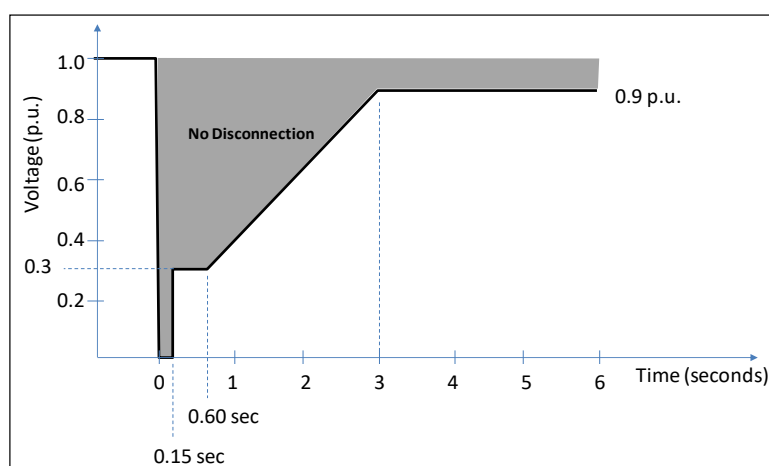


Figure 1: Low voltage withstand capability – VRE Generating Plant

In case of three phase faults on the **Grid**, at least the following performance should be achieved:

- a) Both during the time the fault exists in the **Grid** and during the voltage recovery period after fault elimination, there should be no reactive power consumption by the **VRE Generating Plant** at the **Connection Point**. reactive power consumption is only allowed during the first 150 milliseconds after the initiation of the fault and during the 150 milliseconds immediately after fault elimination, provided that during these periods the net consumption of reactive power of the **VRE Generating Plant** is not greater than 60% of the registered nominal capacity of the facility;
- b) Both during the time the fault exists in the **Grid** and during the voltage recovery period after fault elimination, there should be no consumption of active power by the **VRE Generating Plant**. Small consumptions of active power are allowed during the first 150 milliseconds immediately after the initiation of the fault and during the first 150 milliseconds immediately after the fault clearing could be allowed.
- c) Both during the fault period and during the recovery period after the fault elimination, the **VRE Generating Plant** should inject into the system the maximum possible current (I_{total}). This injection of current shall be carried out in such a way that the operation of the facility is situated inside of the shaded area of Figure 2, after 150 milliseconds from the initiation of the fault or the moment the fault has been eliminated.

In case of unbalanced faults (single-phase faults and/ or two-phase faults), at least the following performance should be achieved:

- a) Both during the fault period and the recovery period after fault elimination, there should be no reactive power consumption by the **VRE Generating Plant** at the **Connection Point**. Small amounts of reactive power consumption are allowed during the first 150 milliseconds immediately after the start of fault and immediately after its elimination. In addition, transitory consumptions are allowed during the fault period, provided that the following conditions are met:
 - Net consumption of reactive power by the **VRE Generating Plant** shall not exceed an amount equivalent to 40% of the **VRE Generating Plant** installed capacity during any 100 milliseconds period; and
 - Net consumption of reactive power, in each cycle (16.6 milliseconds), shall not exceed 40% of **VRE Generating Plant** installed capacity.
- b) Both during the period of existence of the fault and during the recovery period after fault elimination, there should be no consumption of active power by the **VRE Generating Plant** at the **Connection Point**. Transitory

consumption of active power is allowed, during the first 150 milliseconds after the initiation of the fault and the first 150 milliseconds after fault elimination.

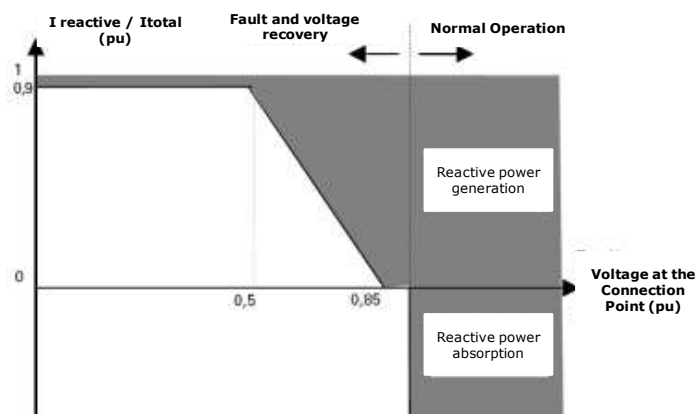


Figure 2: Allowed generation of Reactive Power during Voltage Dips

The **VRE Generator** shall demonstrate to the **System Operator** that the **VRE Generating Plant** complies with the above prescriptions through:

- a) A certification issued by the **VRE Generating Units** manufacturer, stating that its **VRE Generating Units** have been tested and certified in a reputable laboratory showing compliance with the stated requirements. Copy of the laboratory certification shall be included.
- b) A formal declaration from the **VRE Generator** and/ or its EPC Contractor indicating that the **VRE Generating Plant** installed protection system and their settings, do not impair the performance required by this sub-Section.

5.10 REQUIREMENTS FOR DISTRIBUTORS AND OTHER GRID USERS

5.10.1 Determination of the Connection Point

The **Distributor's** or other **Grid User's** equipment shall be connected to the **Grid** at voltage level(s) agreed to by the **Licensee**, the **Single Buyer** and the **Distributor** (or other **Grid User**) based on the studies performed by the **Licensee**.

5.10.2 Protection Arrangements

The **Distributor's** or other **Grid User's** equipment shall be connected to the **Grid** at voltage level(s) agreed to by the **Licensee** and the **Distributor** (or other **Grid User**) based on the studies performed by the **Licensee**.

5.10.3 Reactive Power Compensation

Reactive Power Compensation and/ or other facilities, shall be provided by concerned **Users** as far as possible in the low voltage systems close to the load points to avoid the need for exchange of reactive power to/ from the **Transmission System** and to maintain Transmission System voltage within the specified range. Concerned **Users** shall ensure/ maintain load power factor as specified by the **Commission** at **Connection Points** by providing reactive compensation facilities at their network.

5.11 INTERNATIONAL AND INTER-REGIONAL CONNECTION

5.11.1 International and Inter-regional **Connection** will be:

- (a) Synchronous; or
- (b) Asynchronous.

5.11.2 The procedure for International **Connection** to the **Grid** and the execution of agreement for the same shall be done by the **Licensee** in consultation with the **Single Buyer** and the Line Ministry.

5.11.3 HVDC Transmission

5.11.3.1 Asynchronous **Connection** may be established by **HVDC** transmission having any of the following options:

- (a) Rectifier at sending end and Inverter at receiving-end
- (b) **Back to Back** (B2B) with Rectifier and Inverter at both ends.

5.11.3.2 **HVDC** transmission design and appropriate configuration of overhead and underground transmission **Connections** will be determined following international standards. Configurations may be:

- (a) Monopole with ground return
- (b) Monopole with metallic return grounded at both ends
- (c) Bipolar, opposite polarity, grounded neutral at both ends
- (d) Bipolar, opposite polarity, with metallic return conductor.

5.11.4 HVAC Asynchronous Connection

Asynchronous **Connection** may be established by **HVAC** transmission running up to **Back to Back** (B2B) interface substation.

5.12 CONNECTION AGREEMENTS

A **Connection Agreement** shall include, as appropriate, within its terms and conditions the following:

- i. A condition requiring both parties to comply with the **Grid Code**;
- ii. Details of **Connection**;
- iii. Details of any capital related payments arising from necessary reinforcement or extension of the system;
- iv. A Site Responsibility Schedule;

5.13

APPENDIX

General format for Site Responsibility Schedule.

APPENDIX

CONNECTION CONDITIONS

SITE RESPONSIBILITY SCHEDULE

Name of Power Station/ Substation:.....

Site Owner:.....

Tel. Number:.....

Fax Number:.....

Item of Plant/ Apparatus 1	Plant Owner 2	Safety Responsibility 3	Control Responsibility 4	Operation Responsibility 5	Maintenance Responsibility 6	Remarks 7
..... kV Switchyard						
All equipment including busbar						
Feeders						

Name of Power Station/ Substation:.....

Site Owner:.....

Tel. Number:.....

Fax Number:.....

Item of Plant/ Apparatus 1	Plant Owner 2	Safety Responsibility 3	Control Responsibility 4	Operation Responsibility 5	Maintenance Responsibility 6	Remarks 7
Generating Units						

6. OUTAGE PLANNING

6.1 INTRODUCTION

This **Section** describes the process by which the **Licensee** carries out the planning of **Transmission System Outages**, including interface coordination with **Users**.

6.2 OBJECTIVE

The objective of this **Section** is to define the process that will allow the **Licensee** to optimize transmission **Outages** in coordination with **Generator's** and other **Users' Outages** while maintaining system security to the extent possible.

6.3 DEMAND ESTIMATION

6.3.1. Demand estimation is necessary both in the medium time scale to ensure adequate system plant margins and ratings and in the shorter time scale to assist with frequency control (see **Schedule and Dispatch Section**).

6.3.2. **Distribution Utilities** shall provide to the **Licensee** their estimates of demand at each **Connection Point** for the period from July to June by 31st March on year ahead, month ahead, and day ahead basis as required.

6.3.3. Based on this, the **Licensee** shall make monthly peak and off peak period demand estimates for the year ahead, daily peak and off peak period demand estimates for the month ahead and hourly demand estimates for the day ahead.

6.3.4. **Distribution Utilities** shall provide to the **Licensee** estimates of load that may be shed, when required, in discrete blocks with the details of the arrangements of such load shedding.

6.3.5. All data shall be collected in accordance with procedures agreed between the **Licensee** and each **User**.

6.3.6. The **Licensee** shall maintain a database of demand on an hourly basis.

6.4 GENERATOR OPERATING COMMITTEES

6.4.1. The **Licensee**, the **System Operator**, the **Single Buyer** and the **Generators** shall establish

Operating Committees, which shall serve as a point of coordination for the respective parties.

6.4.2. They shall meet at least once a month and establish the procedures relating to the operational interfaces between the parties. They shall include:

- (a) The coordination of programs for testing and operation of the interconnections and associated transmission **Grid** system **Apparatus**, the **Metering System** and the site;
- (b) Incident coordination (i.e., force majeure events);
- (c) Outage coordination;
- (d) Generation Scheduling;
- (e) Safety matters;
- (f) Emergency Plans;
- (g) Protection coordination;
- (h) Frequency and voltage management;
- (i) **Black Start** capabilities and procedures;
- (j) Any other operational matters agreed by the Committees.

6.5 TRANSMISSION OUTAGE PLANNING PROCESS

6.5.1. The **Licensee** shall produce a yearly transmission **Outage** program for the period July to June.

6.5.2. All **Generators** shall provide the **Licensee**, the **System Operator** and the **Single Buyer** with their proposed **Outage** programs in writing for the year ahead (July to June) by 31st March each year.

6.5.3. All **Distribution Utilities** shall provide the **Licensee**, the **System Operator** and the **Single Buyer** with their proposed **Outage** programs in writing for the year ahead (July to June) by 31st March each year.

6.5.4. **Outage** programs shall contain identification of unit (for **Generating Units**), **Outage** start date and duration of **Outage**.

6.5.5. The **Licensee** shall produce a draft **Outage** program based on the information received from **Generators** and **Distribution Utilities**, taking into account demand estimation and shall carry out studies as required each year.

6.5.6. The **Licensee** shall interact with all **Users** as necessary to review and optimize the draft plan, agree to any changes and produce an acceptable coordinated generation and transmission **Outage** plan. The **Licensee** shall release the finally agreed transmission **Outage** plan, which takes account of **User** requirements, to all **Users** by 31st May each year.

6.5.7. The **Licensee** shall review the final **Outage** plan monthly in consultation with **Users**, who shall be informed by **Licensee** of any proposed changes.

6.5.8. **Users'** requests for additional **Outages** will be considered by the **Licensee** and accommodated to the extent possible.

6.5.9. The **Licensee** shall inform **Users** promptly of any changes that affect them.

6.6 RELEASE OF CIRCUITS AND GENERATOR UNITS INCLUDED IN OUTAGE PLAN

6.6.1. Notwithstanding provision in any approved **Outage** plan, no cross boundary circuits or **Generating Unit** of a **Generator** shall be removed from service without specific release from the **System Operator**.

6.6.2. Once an **Outage** has commenced, if any delay in restoration is apprehended, the **System Operator** or **User** concerned shall inform the other party promptly together with revised estimation of restoration time.

6.7 DATA REQUIREMENTS

6.7.1. **Users** shall provide the **Licensee** with data for this **Section** as specified in the Data Registration **Section**.

7. SCHEDULE AND DISPATCH

7.1 INTRODUCTION

This **Section** specifies the procedure to be adopted for the scheduling and **Merit Order** dispatch of **Generating Units** to meet system demand.

7.2 OBJECTIVE

The objective of this **Section** is to detail the actions and responsibilities of the **Licensee**, the **Single Buyer** and the **System Operator** in preparing and issuing generation schedules and the responsibilities of **Users** to supply the necessary data and to comply with those schedules.

7.3 GENERATION SCHEDULING

7.3.1 Yearly/ Monthly/ Weekly Schedules

7.3.1.1. The **System Operator** shall coordinate and prepare yearly/ monthly and weekly load-generation balance schedules and generation schedules.

7.3.1.2. The demand estimation for each case shall be made by the **System Operator** using the data made available by the **Distribution Utilities** and historical data maintained by the **Licensee** and the **System Operator**.

7.3.1.3. The **System Operator** shall prepare a yearly schedule of **net electrical output** on a monthly basis, using the information from the dependable capacity of **Generating Units**, **VRE** generation forecasts, yearly outage program and estimated demands.

7.3.1.4. The **Generator** shall inform the **System Operator** and the **Single Buyer** promptly of any changes to any of the **net electrical output** notifications.

7.3.1.5. The **System Operator** shall provide to the **Licensee**, the **Single Buyer** and **Generators** yearly estimates of requirements for **net electrical output** on a monthly basis for the year ahead (year ahead notification) not less than 60 days before the beginning of each fiscal year. The **Licensee** in turn submit the monthly estimates of net electrical output requirement to the **Commission**.

7.3.1.6. The **System Operator** shall prepare a monthly schedule of Generation on a day by day basis,

using any **net electrical output** changes provided by the **Generator** and estimated demands.

7.3.1.7. The **System Operator** shall provide to the **Licensee**, the **Single Buyer** and **Generators** monthly estimates of requirements for **net electrical output** on a day by day basis for the month ahead (month ahead notification), with provisional estimates for the following 2 months, not less than 14 days before the beginning of each month.

7.3.1.8. The **System Operator** shall prepare a weekly schedule of Generation on an hourly basis, using any **net electrical output** changes provided by the **Generator** and estimated demands.

7.3.1.9. The **System Operator** shall provide to the **Licensee**, the **Single Buyer** and **Generators** weekly estimates of requirements for **net electrical output** on an hourly basis for the week ahead (week ahead notification), with provisional estimates for the following week, not less than 60 hours before the beginning of each week.

7.3.2 Day ahead schedule

7.3.2.1. The **System Operator** shall co-ordinate and prepare day ahead schedules of Generation.

7.3.2.2. All **Generators** shall provide the MW/ MVAR **Declared Available Capacity** (00.00 -24.00 hours) of all **Generating Units**, to the **System Operator** during each hour of the day commencing 36 hours ahead and provisionally, for the day immediately after (plant availability notification) by 12.00 hours.

7.3.2.3. **VRE generators** shall provide forecasted production for the **VRE generation units** hourly MW/ MVAR availability to the **System Operator**.

7.3.2.4. In working out the MW/ MVAR availability, Hydro **Power Stations** shall take into account their respective reservoir levels and any other restrictions and shall report the same to the **System Operator**.

7.3.2.5. The **Single Buyer** shall prepare, update **Merit Order** of **Generating Units** and provide to the **System Operator**.

7.3.2.6. After consolidation of the data provided by the **Generators**, the **System Operator** shall produce a day ahead hourly generation schedule based on **Merit Order** of the **Generating Units**. It shall consist of availability, scheduled generation, allocated spinning reserve and **Generating Unit** standby requirements. It shall also take into account the hourly demand estimates and the following:

Transmission System constraints

Hourly forecasts for **VRE** generations

Generating Units Schedule and Dispatch parameters

Requirements for voltage control
Allocated spinning reserve/ Operating reserve

- 7.3.2.7.** The **System Operator** shall provide to the **Licensee**, the **Single Buyer** and **Generators** the generation schedule requirements for **net electrical output**, start ups and reactive power on an hourly basis for that day, with provisional estimates for the following day, not less than 8 hours before the beginning of each day.
- 7.3.2.8.** **Generators** shall promptly report to the **System Operator** and the **Single Buyer**, changes of **Generating Unit** availability or capability, or any unexpected situation that could affect its operation including updated meteorological information which may affect **VRE Generators** production.
- 7.3.2.9.** The **System Operator** shall advise **Users** as soon as possible of any necessary rescheduling.
- 7.3.2.10.** The **System Operator** shall instruct **Generators** to hold capacity reserves (spinning and/or standby) to the agreed **Commission** guidelines or as determined for local conditions. In normal operation, **VRE Generators** are exempted to provide spinning and/ or standby reserves.
- 7.3.2.11.** The **System Operator** may also require the **Generators** to generate MVAR within their respective capability limits to hold station busbar voltages at specified levels.

7.4 GENERATION DISPATCH

- 7.4.1.** All **Generators** will be subject to dispatch instructions and shall regulate generation according to these instructions.
- 7.4.2.** In absence of any dispatch instructions by the **System Operator**, **Generators** shall generate according to the day ahead generation schedule, or in the case of **VRE Generators**, according to the available primary resources.
- 7.4.3.** Dispatch instructions shall be in standard format. These instructions will recognize declared availability, **Merit Order** and other parameters that have been made available by the **Single Buyer** and **Generator** to the **System Operator**. These instructions shall include time, **Power Station**, **Generating Units**, name of operators sending and receiving the same.
- 7.4.4.** Dispatch instructions include but not limited to:
- i. Switching a **Generating Unit** into or out of service.
 - ii. Details of reserve to be carried on a unit.

- iii. To increase or decrease MVAR generation to assist with voltage profile.
- iv. To begin pre-planned **Black Start** procedures.
- v. To hold spinning reserve.
- vi. To hold **Generating Units** on standby.

7.4.5. The required spinning reserve of **Generators** shall be maintained to meet the performance standards of the system, except in conditions of shortfall of supply or operation restrictions. In case of any emergencies, the **Generators** shall be instructed by the **System Operator** to operate with a lower reserve margin. The **System Operator** shall promptly inform the **Licensee, Single Buyer and Distribution Utilities** about this matter in the most practicable way.

7.5 COMMUNICATION BETWEEN THE SYSTEM OPERATOR AND GENERATORS

Dispatch instructions/ feedback from **Generators** shall be issued by e-mail, tele-printer, telephone or computer to computer communication, confirmed by exchange of names of operators sending and receiving the same and logging the same at each end. All oral instructions shall be complied with forthwith and written confirmation shall be issued promptly by e-mail, Fax, tele-printer or otherwise.

7.6 ACTION REQUIRED BY GENERATORS

7.6.1. All **Generators** shall comply promptly with a dispatch instruction issued by the **System Operator** unless this action would compromise the safety of plant or personnel.

7.6.2. The **Generator** shall promptly inform the **System Operator** in the event of any unforeseen difficulties in carrying out an instruction.

7.6.3. **Generators** shall immediately inform the **System Operator** by telephone of any loss or change (temporary or otherwise) to the operational capability of any **Generating Unit** (including significant changes in **VRE** generation forecasts), which is synchronized to the system or which is being used to maintain system reserve. **Generators** shall inform the **System Operator** of any change of AVR and/ or governor control mode of service with reasons.

7.6.4. **Generators** shall not de-synchronize **Generating Units** without instruction from the **System Operator** except on the grounds of safety to plant or personnel, which shall be promptly reported to the **System Operator**.

7.6.5. **Generators** shall report any abnormal voltage and frequency related operation of **Generating Units/ feeders** promptly to the **System Operator**.

7.6.6. **Generators** shall not synchronize **Generating Units** without instruction from the **System Operator**. In emergency situations, the **Generator** may synchronize Units with the **Grid**

without prior intimation in the interest of the operation of the **Grid** following standing instructions developed for such purpose under “contingency planning”.

7.6.7. Should a **Generator** fail to comply with any of the above provisions, it shall inform the **System Operator** promptly of this failure.

7.6.8. The **System Operator** shall ensure that the **Licensee** and the **Single Buyer** is kept informed and up to date with all operation changes and deviations from the planned schedule.

7.7 DATA REQUIREMENTS

Users shall provide the **System Operator** with data for this **Section** as specified in the Data Registration **Section**.

7.8 SHORTFALL MANAGEMENT

In preparing the day ahead generation schedule and dispatch schedule the **System Operator** shall consider the probable shortfall in generation, if any, and apportion the available generation among the **Entities** by maintaining a definite principle approved by the **Commission**. The **Entities**, in turn, manage the demand shortfall by imposing load shedding in a systematic and rational manner by maintaining a definite principle approved by the **Commission**.

The **System Operator** and **Distribution Utilities** shall always endeavor to restrict the net drawl at the **Connection Point** from the **Grid** within the drawl schedules, whenever the system frequency is within normal operating limits. The concerned **Distribution Utilities/ User** shall ensure that their automatic demand management scheme to ensure that there is no over drawl when frequency is 49.5 Hz or below. **Distribution Utilities** shall establish their own **SCADA** system to impose automatic load management in 11 kV feeders in case of shortfall.

8. FREQUENCY AND VOLTAGE MANAGEMENT

8.1 INTRODUCTION

This **Section** describes the method by which all **Users** of the **Transmission System** shall cooperate with the **Licensee** in contributing towards effective control of the system frequency and managing voltage profile of the **Transmission System**.

The **System Operator** has the overall responsibility of enforcing **Grid** discipline and managing the frequency of the Power System. The **Users** are required to follow the instructions of the **System Operator** for the backing down generation, regulating load, etc. to meet the objective. The **System Operator** shall accordingly instruct **Generating Units** to regulate generation/export and hold reserves of active and reactive power, within their respective declared parameters. The **System Operator** shall also regulate load as may be necessary to meet this objective.

The **System Operator** shall optimize voltage management by adjusting transformer taps to the extent available and switching of circuits/ reactors/ capacitor banks and other operational steps. The **System Operator** will instruct **Generating Units** to regulate MVAR generation within their declared parameters. The **System Operator** shall also instruct **Distribution Utilities** to regulate demand if necessary.

The supply of quality power at proper voltage and frequency is dependent on active cooperation of **Generators** and **Distribution Utilities** as well as fulfillment of obligations of individual **Users** of the **Transmission System**.

8.2 OBJECTIVE

The objectives of this **Section** are as follows:

- i. To define the responsibilities of all **Users** in contributing to frequency management.
- ii. To define the actions required to enable the **Licensee** to maintain **Transmission System** voltages and frequency within acceptable levels in accordance with **Commission Directives**, and Planning and Security Standards for **Transmission System**.

8.3 FREQUENCY MANAGEMENT

The normal frequency range will be 49.5 – 50.5 (50 Hz $\pm$ 1.0%). The **System Operator** shall identify frequency deviations and take the appropriate action to keep the frequency within the normal range.

8.4 RESPONSIBILITIES

The **System Operator** shall monitor actual generation and load-generation balance and regulate generation and demand to maintain frequency within the prescribed limits.

The **System Operator** and the **Licensee** shall continuously monitor 400 kV/ 230 kV/ 132 kV transmission **Grid** line loadings on the **Transmission System**.

Generators shall follow the dispatch instructions issued by the **System Operator**.

All **Generating Units** shall have the governor available and in service and must be capable of automatic increase or decrease in output within the normal declared frequency range and within their respective capability limit.

Under certain conditions the system frequency could rise to 52 Hz or fall to 47.5 Hz. All **Generating Units** should be capable of operating within the range according to the clause 5.9.1. and the **System Operator** informed promptly of any restrictions. **Generators** shall be responsible for protecting their **Generating Units** against damage should frequency excursions outside 52 Hz and 47.5 Hz ever occur. The **Generator** shall inform the **System Operator** immediately after taking such action.

Generators shall provide following parameters of their **Generating Units** to the NLDC to ensure their participation in frequency and voltage regulations:

- (a) Primary Frequency Control (i.e. Droop, Dead Band, Limiter etc.);
- (b) Secondary Frequency Control (the **System Operator** shall provide list for AGC/ EMS requirements);
- (c) Tertiary Frequency Control (manual from the **System Operator**);
- (d) Primary Voltage Control.

The **Generating Units** shall be designed to process the following capabilities:

- (a) All **Generating Units** shall be frequency sensitive.
- (b) Power and Frequency Control of the **Generating Units** shall be achieved with fast-acting prime mover Speed Governor.
- (c) The governor shall have the capability to freely regulate the frequency with adjustable governor speed droop settings in the range of 2% to 3% for Hydro Turbine, 4% to 6% for GT & ST and up to 10 % for Nuclear plant.
- (d) Capable of responding automatically to normal variation in the system frequency.
- (e) Governor dead band shall be within the range of $\pm 0.05\text{Hz}$. However, the governor shall respond to full frequency deviation once system frequency deviation exceeds this specified dead band.
- (f) Limiter (regulation range) setting shall be specified by the **System Operator** in collaboration with plants.

- (g) If and when the **Generating Unit** is required to operate in an islanded mode, then the Governor control system shall ensure that the islanded system will operate within the frequency range.

Distribution Utilities and **Bulk Power Consumers** shall co-operate with the **System Operator** in managing load on instruction from the **NLDC** as required.

The **Licensee** and the **System Operator** shall ensure that under frequency and df/dt load shedding schemes are always functional.

Close coordination between **Users** and the **NLDC** shall exist at all times for the purposes of effective frequency and voltage management.

8.4.1 Sustained rising frequency

Under rising (from 50 Hz) frequency conditions, **Generators** having governor in service shall be capable of automatic decrease output within the normal declared frequency range (49.5 Hz to 50.5 Hz) and within their respective limit (specified limiter or regulation range) in the mode of Primary Control or Free Governor Mode of Operation (FGMO).

The governor system of the plants running on FGMO shall be fitted with adjustable droop and shall have capability to operate with droop of 4% to 6% for thermal units & 2% to 3% for hydro units. The response (decrease of output) to a change (rising state) of system frequency shall be fully available within 10 seconds of the frequency change and be sustainable for a further 30 seconds.

The selected plants shall be capable of running on Automatic Generation Control (AGC/ LFC) Mode. Therefore, those plants shall automatically reduce output as per AGC command(s) in secondary frequency regulation. Secondary response shall fully available by 30 seconds from the time of frequency change to take over from primary response, and shall be sustainable for a period of at least 30 minutes.

When the frequency rises above 50.5 Hz actions must be taken immediately by the **Generators** which are beyond AFC. The **System Operator** shall take appropriate action to issue instructions to **Generators** to arrest the rising frequency and restore frequency within normal range. Such instructions may include reducing generated output (i.e. Tertiary or manual control) or de-synchronizing **Generating Units** or adding load to system if there is any load-shed. Frequency up to 52.0 Hz **Generators** shall have frequency withstand capability as mentioned in sub-Section 5.8.1.

Generators shall be responsible for protecting their **Generating Units** against damage should frequency excursions outside 52 Hz and 47.5 Hz ever occur

8.4.2 Sustained falling frequency

Under falling (from 50 Hz) frequency conditions, **Generators** having governor in service shall be capable of automatic increase output within the normal declared frequency range (49.5 Hz to 50.5 Hz) and within their respective limit (specified limiter or regulation range) in the mode of Primary Control or Free Governor Mode of Operation (FGMO).

The governor system of the plants running on FGMO shall be fitted with adjustable droop and shall have capability to operate with droop of 4% to 6% for thermal units & 2% to 3% for hydro units. The response (increase of output) to a change (falling state) of system frequency shall be fully available within 10 seconds of the frequency change and be sustainable for a further 30 seconds.

The selected plants shall be capable of running on Automatic Generation Control (AGC/ LFC) Mode. Therefore, those plants shall automatically increase output as per AGC command(s) in secondary frequency regulation. Secondary response shall fully available by 30 seconds from the time of frequency change to take over from primary response, and shall be sustainable for a period of at least 30 minutes.

If the secondary control is insufficient, tertiary control operates to return frequency to target value and restore the secondary control reserve. Tertiary frequency response is normally in the form of security constrained economic dispatch.

When the frequency falls below 49.5 Hz, the **System Operator** shall take appropriate action to issue instructions to **Generators** to arrest the falling frequency and restore it within normal range. Such instructions may include dispatch commands (i.e. Tertiary or manual control) or instructions to **Generators** to increase output, to synchronize standby **Generating Units** to the **Transmission System**.

All **Generating Units** that have been declared available shall be required to be synchronized and loaded in the event of the sustained low frequency below 49.5 Hz provided local and safety conditions permit. This action shall be performed without delay after failed attempts to contact the **System Operator**. The **Generator** shall inform the **System Operator** immediately after taking such action.

Distribution Utilities and **Bulk Power Consumers** should not increase load when frequency is below 49.5 Hz.

When frequency falls below 49.3 Hz, the **System Operator** shall take appropriate action to issue instructions to **Distribution Utilities** to reduce load demand by appropriate manual and/ or automatic load shedding.

When the frequency falls below 49.1, the **System Operator** shall impose SCADA operation to open the CB of outgoing feeders to the **Distribution Utilities/ Bulk**

Consumers at **Connection Points** to stabilize the system frequency.

The **System Operator** shall be responsible for the coordination, selection among the feeders by rotation (provision for automatic) and settings of staged automatic relay initiated under-frequency load shedding designed for system protection.

Frequency up to 47.5 Hz, **Generator** shall have frequency withstand capability as mentioned in sub-**Section** 5.8.1.

8.5

VOLTAGE MANAGEMENT

The **Licensee** and the **System Operator** shall carry out load flow studies and perform voltage stability analysis from time to time to predict where voltage problems may be encountered and to identify appropriate measures to ensure that voltages remain within the defined limits as specified in sub-**Section** 4.4. On the basis of these studies the **System Operator** shall instruct **Generators** to maintain specified voltage levels at their generation bus.

All **Generating Units** shall have Automatic Voltage Regulator (AVR) in service.

Generators shall inform the **System Operator** of their reactive reserve capability promptly on request.

Generators shall make available to the **System Operator** the up-to-date **Capability Curves** for all **Generating Units**, as detailed in **Section** 5, indicating any restrictions, to allow accurate system studies and effective operation of the **Transmission System**.

The **System Operator** and the **Licensee** shall continuously monitor 400 kV/ 230 kV/ 132 kV transmission **Grid** voltage levels at all **Grid** substations.

The **System Operator** and the **Licensee** shall regulate voltage levels within the prescribed levels.

The **System Operator** and the **Licensee** shall jointly take appropriate measures to control **Transmission System** voltages that may include but not be limited to transformer tap changing and use of MVAR reserves with **Generating units** within technical limits. These may include operation of the following equipments:

- a) Synchronous **Generating Units**
- b) Synchronous Condenser
- c) Tap Changing Transformers
- d) Auto-Transformer Tap Changing
- e) Booster Transformers

- f) Shunt Capacitors and Reactors
- g) Static VAR Compensator (SVC)
- h) Static Compensator (STATCOM)
- i) Line Reactance Compensator (Series Cap)
- j) Flexible AC Transmission (FACT) Devices. etc.

The **Licensee** shall co-ordinate with the **Distribution Utilities** to determine voltage levels at the **Connection Points**.

The **Distribution Utilities** and **Bulk Power Consumers** shall maintain power factor within the range 0.90 lagging and 0.95 leading at the **Connection Point**.

Distribution Utilities shall participate in voltage management by regulating their demand and changing tap positions on the 33/11 kV transformers as may be required.

8.6 MONITORING OF GENERATION

8.6.1

For effective operation of the **Transmission System**, it is important that a **Generator's** declared availability is realistic and that any departures are continually fed back to the **Generator** to help effect improvement. The monitoring by the **System Operator** of **Generating Unit** output, and active and reactive reserve capacity, shall be carried out to evaluate the reliability and performance of plant.

The **System Operator** shall continuously monitor **Generating Unit** outputs and bus voltages. More stringent monitoring may be performed at any time, as detailed in the **Testing Section**, when there is reason to believe that a **Generator's** declared availability may not match the actual availability or declared output does not match the actual output.

Generators shall provide to the **System Operator** hourly generation summation outputs where no automatically transmitted metering or **SCADA** equipment exists.

The **Generator** shall provide other logged readings, that the **System Operator** may reasonably require, for monitoring purposes where **SCADA** data is not available.

8.6.2 Generating Unit Tripping

Generators shall promptly inform the tripping of a **Generating Unit**, with reasons, to the **System Operator** in accordance with the **Operational Event/ Accident Reporting Section**. The **System Operator** shall keep a written log of all such tripping, including the reasons with a view to demonstrating the effect on system performance and identifying the need for remedial measures.

Generators shall submit a more detailed report of all trippings and forced outage/shut downs of each **Generating Unit** to the **System Operator** monthly.

8.6.3

Data Requirements

Generators shall submit data to the **System Operator** as listed in Data Registration **Section**, termed as Frequency and Voltage Management.

9. CONTINGENCY PLANNING

9.1 INTRODUCTION

A contingency in the **Transmission System** may arise owing to generation deficiencies, inadvertent tripping of **Transmission System** components, and failure of **Transmission System** equipment or operational errors. These may result in partial or total blackouts of the **Grid**.

This **Section** describes the recovery process to be followed by the **Licensee**, the **System Operator** and all **Users** in the event of **Transmission System** total or partial blackouts.

9.2 OBJECTIVE

The objective of this **Section** is to define a general guideline of the recovery process and responsibilities of all **Users** to achieve the fastest recovery in the event of a partial or total system blackout, taking into account essential loads, **Generating Units** capabilities and system constraints.

9.3 STRATEGY

9.3.1 The situation prevailing prior to the occurrence of the contingency, e.g. availability of specific **Generators**, transmission circuits and load demands, will largely determine the restorations process to be adopted in the event of a total blackout. The **System Operator** shall advise all **Users** of the situation and follow the strategy as outlined below for restoration.

9.3.2 **User's** persons authorized for operation and control shall be available at **User's** end for communication and acceptance of all operational communications throughout the contingency. Communication channels shall be restricted to operational communications only till normality is restored.

9.4 TOTAL SYSTEM BLACKOUT

9.4.1 The **System Operator** shall instruct all relevant **Generators** having **Power Stations** with **Black Start** capability to commence their pre-planned **Black Start** procedure.

9.4.2 The **System Operator** shall prepare the **Transmission System** for restoration by creating discrete power islands with no interconnection. Close coordination with concerned **Distribution Utilities** shall be maintained during the restoration process to arrange for

discrete demand blocks becoming available to stabilize **Generating Units**, as these become available in individual islands.

- 9.4.3** **Generators** to whom start up power supply is made available shall sequence their start up to match their auxiliary power demand with supply available.
- 9.4.4** Each discrete power island should contain at least one **Black Start Generator** capable of running on Isochronous Mode.
- 9.4.5** **Generators** shall inform the **System Operator** as **Generating Units** become available to take load, in order that the **System Operator** may assess the MW demand which the **Generating Unit** is likely to pick up on circuit breaker closure.
- 9.4.6** The **System Operator** shall co-ordinate with **Generators** and **Distribution Utilities** to:
- (a) Form discrete power islands with one **Generating Unit** feeding some local demand.
 - (b) Extend islands by adding more **Generating Units** and more demand in a coordinated manner maintaining load generation balance.
 - (c) Synchronize islands to form a larger, more stable island.

9.5 PARTIAL TRANSMISSION SYSTEM BLACKOUT

- 9.5.1** The **System Operator** shall ensure with the **Licensee** and **Users** that security of the healthy part of the **Transmission System** is maintained.
- 9.5.2** The **System Operator** and the **Licensee** shall gradually extend the healthy system to provide start-up power to appropriate **Generating Units**.
- 9.5.3** The **System Operator** and the **Licensee** with close coordination with **Distribution Utilities** and **Generators** shall gradually restore demand to match generation as it becomes available.
- 9.5.4** All **Users** shall take care to ensure load-generation balance is maintained at all times under the **System Operator's** direction.

9.6 RESPONSIBILITIES

- 9.6.1** The **Single Buyer** shall ensure sufficient **Black Start** and Fast Start capability at strategic locations in the **PPA** with the selected **Generators**.

- 9.6.2** The **System Operator** shall maintain a record of **Power Station Black Start** capability and associated **Power Station Black Start** plans.
- 9.6.3** The **System Operator** shall prepare, distribute and maintain up-to-date **Black Start** procedures covering the restoration of the **Transmission System** following total or partial blackout. Updated **Black Start** procedures shall be submitted to the **Commission**.
- 9.6.4** **Users** shall agree regarding **Black Start** procedures with the **System Operator** and the **Licensee** and promptly inform the **System Operator** when unable to follow the procedure.
- 9.6.5** The **System Operator** and the **Licensee** shall be responsible for directing the overall **Transmission System** restoration process by coordination with all **Users**.
- 9.6.6** **Distribution Utilities** shall be responsible for sectionalizing the **Distribution System** into discrete, unconnected blocks of demand. They shall advise the **System Operator** of the amount of MW likely to be picked up by the synchronizing **Generator**.
- 9.6.7** **Generators** shall be responsible for commencing their planned **Black Start** procedure on the instruction of the **System Operator** and steadily increasing their generation according to the demand that the **System Operator** is able to make available.
- 9.7 SPECIAL CONSIDERATIONS**
- 9.7.1** During the restoration process following **Transmission System** blackout conditions, normal standards of voltage and frequency shall not apply.
- 9.7.2** A list of essential loads and priority of restoration is shown in the **Appendix**. Updated list of essential loads and priority of restoration shall be submitted to the **Commission**.
- 9.7.3** **Distribution Utilities** with essential loads shall separately identify non-essential components of such loads, which may be kept off during system contingencies.
- 9.7.4** **Distribution Utilities** shall draw up an appropriate schedule with corresponding load blocks in each case. The non-essential loads can be put on only when system normalcy is restored, as advised by the **System Operator**.
- 9.7.5** All **Users** shall pay special attention in carrying out the procedures so that secondary collapse due to undue haste or in-appropriate loading is avoided.
- 9.7.6** Despite the urgency of the situation, careful, prompt and complete logging of all operations and operational messages shall be ensured by all **Users** to facilitate subsequent investigation into the incident and the efficiency of the restoration process. Such investigation shall be conducted promptly after the incident.

9.8

APPENDIX

Essential loads and priority of restoration.

APPENDIX**CONTINGENCY PLANNING****ESSENTIAL LOADS AND PRIORITY OF RESTORATION**

Priority	Type of Load	Name of Substation	Remarks

10. CROSS BOUNDARY SAFETY

10.1 INTRODUCTION

This **Section** sets down the requirements for maintaining safe working practices associated with cross boundary operations. It lays down the procedure to be followed when work is required to be carried out on electrical equipment that is connected to another **User's** system.

10.2 OBJECTIVE

The objective of this **Section** is to achieve agreement and consistency on the principles of safety as prescribed in the **Electricity Rules, 1937** and revisions thereof and widely practiced international rules by concern of the **Licensee** when working across a control boundary between the **Licensee** and another **User**.

10.3 CONTROL PERSONS

The **Licensee** and all **Users** shall nominate suitably authorized persons to be responsible for the coordination of safety across their boundary. These persons shall be referred to as **Control Persons**.

10.4 PROCEDURE

The **Licensee** shall issue a list of **Control Persons** (names, designations and telephone numbers) to all **Users** who have a direct control boundary with the **Licensee**. This list shall be updated promptly whenever there is change of name, designation or telephone number.

All **Users** with a direct control boundary with the **Licensee** shall issue a similar list of their **Control Persons** to the **Licensee**, which shall be updated promptly whenever there is a change to the **Control Persons** list.

Whenever work across a control boundary is to be carried out, the **Control Person**, of the **User** (which may be the **Licensee**), wishing to carry out work shall directly contact the other relevant **Control Person**. Code words will be agreed at the time of work to ensure correct identification of both parties.

Contact between the **Control Persons** shall normally be by direct telephone. Should the work extend over more than one shift the **Control Person** shall ensure that the relief **Control Person** is fully briefed on the nature of the work and the code words in operation.

The **Control Persons** shall co-operate to establish and maintain the precautions necessary

for the required work to be carried out in a safe manner. Both the established isolation and the established earth shall be locked in position, where such facilities exist, and shall be clearly identified.

Work shall not commence until the **Control Person**, of the **User** (which may be the **Licensee**), wishing to carry out the work, is satisfied that all the safety precautions have been established. This **Control Person** shall issue agreed safety documentation to the working party to allow work to commence.

When work is completed and safety precautions are no longer required, the **Control Person** who has been responsible for the work being carried out shall make direct contact with the other **Control Person** to request removal of those safety precautions.

The equipment shall only be considered as suitable for return to service when all safety precautions are confirmed as removed, by direct communication using code word contact between the two **Control Persons**, and return of agreed safety documentation from the working party has taken place.

The **Licensee, Generators and Distribution Utilities** shall jointly develop an agreed written procedure for cross boundary safety and continually update it.

Any dispute concerning Cross Boundary Safety shall be resolved at an appropriate higher level of authority.

10.5 SPECIAL CONSIDERATIONS

For cross boundary circuits all **Users** shall comply with the agreed safety rules which must be in accordance with the **Electricity Rules, 1937** and revisions thereof and widely practiced international rules.

All equipment on cross boundary circuits which may be used for the purpose of safety coordination and establishment of isolation and earthing, shall be permanently and clearly marked with an identification number or name, that number or name being unique in that substation. This equipment shall be regularly inspected and maintained in accordance with manufacturer's specification.

Each **Control Person** shall maintain a legibly written safety log, in chronological order, of all operations and messages relating to safety coordination sent and received by themselves. All safety logs shall be retained for a period of not less than 10 years.

11. OPERATIONAL EVENT/ ACCIDENT REPORTING

11.1 INTRODUCTION

This **Section** describes the requirements for reporting, in writing, incidents that were initially reported orally by/ to other **Users**.

11.2 OBJECTIVE

The objective of this **Section** is to define the incidents to be reported, the reporting route to be followed and the information to be supplied to ensure a consistent approach to the reporting of incidents and accidents on the **Transmission System**.

11.3 REPORTABLE INCIDENTS

Typical examples of reportable incidents that could affect the **Transmission System** are the following:

- i. Exceptionally high/ low system voltage or frequency.
- ii. Serious equipment problem, e.g. major circuit, transformer or bus-bar fault.
- iii. Loss of major **Generating Unit**.
- iv. Falling of Transmission line/ Tower due to natural calamity
- v. System split, **Transmission System** breakaway or black out.
- vi. Major fire incidents.
- vii. Major failure of protection.
- viii. Accidents.
- ix. Equipment and transmission line overload.
- x. Minor equipment alarms.

The last two reportable incidents are typical examples of those that are of lesser consequence, but which still affect the **Transmission System** and can be reasonably classed as minor. They will require corrective action but may not warrant management reporting until a later, more reasonable time.

11.4 REPORTING PROCEDURE

11.4.1.

- i. All reportable incidents occurring in lines and equipment of 33 kV and above at **Grid** substations shall promptly be reported orally by the **User** whose equipment has experienced the incident (The Reporting **User**) to any other significantly

affected **Users** and to the **System Operator** who shall immediately inform the **Licensee**.

- ii. Within 1 (one) hour of being informed by the Reporting **User**, the **System Operator** or the **Licensee** may ask for a written report on any incident.
- iii. If the reporting incident cannot be classed as minor then the Reporting **User** shall submit an initial written report within two hours of asking for a written report by the **System Operator**. This has to be further followed up by the submission of a comprehensive report within 48 hours of the submission of the initial written report.
- iv. In other cases the Reporting **User** shall submit a report within 5 (five) working days to the **System Operator**.
- v. The **System Operator** shall immediately communicate all oral or written reportable incidents to the **Licensee**.

11.4.2 The **System Operator** or the **Licensee** may call for a report from any **User** on any reportable incident affecting other **Users** and the **Licensee** in case the same is not reported by such **User** whose equipment might have been source of there portable incident.

The above shall not relieve any **User** from the obligation to report events in accordance with prevailing laws and regulations.

The format of such a report will be as agreed at the **Grid Code Review Panel**, but will typically contain the following information:

- i. Location of incident.
- ii. Date and time of incident.
- iii. Plant or equipment involved.
- iv. Supplies interrupted and duration if applicable.
- v. Amount of generation lost if applicable.
- vi. Brief description of incident.
- vii. Estimate of time to return to service.
- viii. Name of originator.
- ix. Action taken to overcome situation.

11.5 REPORTING FORM

The standard reporting form other than for accidents, shall be as agreed from time to time by the **Grid Code Review Panel**. When such a form has been agreed in **Grid Code Review Panel** meeting it will be included as an **Appendix** in this **Section** of the **Grid Code**. The

accepted form is to be numbered and included in the ISO/ Quality form of the users where applicable.

11.6 MAJOR FAILURE

Following a major failure, the **Licensee** and other **Users** shall co-operate to inquire and establish the cause of such failure and produce appropriate recommendations. The **Licensee** shall report the major failure to the **Commission** immediately for information and shall submit the enquiry report to the **Commission** within 2 (two) months of the incident.

11.7 ACCIDENT REPORTING

In both fatal and non-fatal accidents, the report shall be sent to the concern authorities according to section 29 of the **Electricity Act, 2018** and to the **Commission** in the prescribed form.

APPENDIX

INCIDENT REPORTING

FIRST REPORT _____**Date** :.....**Time** :.....

Date and time of incident :

Location of incident :

Type of incident :

System parameters before the incident :
(Voltage, Frequency, Flows, Generation, etc.)

System parameters after the incident :

Network configuration before the incident :

Relay indications received and performance of protection :

Damage to equipment :

Supplies interrupted and duration, if applicable :

Amount of Generation lost, if applicable :

Estimate of time to return service :

Cause of incident :

Any other relevant information and remedial action taken :

Recommendations for future improvement/ repeat incident :

Name of the Organization :

12. PROTECTION

12.1 INTRODUCTION

In order to safeguard a **User's** system from faults that may occur on another **User's** system, it is essential that certain minimum standards of protection be adopted. This **Section** describes these minimum standards.

12.2 OBJECTIVE

The objective of this **Section** is to define the minimum protection requirements for any equipment connected to the **Transmission System** and thereby minimize disruption due to faults.

12.3 GENERAL PRINCIPLES

No item of electrical equipment shall be allowed to remain connected to the **Transmission System** unless it is covered by appropriate protection aimed at reliability, selectivity, speed and sensitivity. Guidelines mentioned in protection manuals may be kept in view.

All **Users** shall co-operate with the **Licensee** to ensure correct and appropriate settings of protection to achieve effective, discriminatory removal of faulty equipment within the time for target clearance specified in this **Section**.

Protection settings shall not be altered, or protection bypassed and/ or **Disconnected** without consultation and agreement of all affected **Users**. In the case where protection is bypassed and/ or **Disconnected**, by agreement, then the cause must be rectified and the protection restored to normal condition as quickly as possible. If agreement has not been reached the electrical equipment will be removed from service forthwith.

Generator personnel shall not work upon or alter busbar Protection, mesh corner Protection, circuit breaker fail Protection, AC or DC Wiring (other than power supplies or DC tripping associated with the **Generating Unit** itself) in the absence of a representative of the **Licensee**. Protection and relay settings shall be coordinated across **Connection Point** to ensure effective disconnection of faulty **Apparatus**.

12.4 PROTECTION COORDINATION

The **Licensee** shall be responsible for arranging periodical meetings between all **Users** to discuss coordination of protection. The **Licensee** shall investigate any malfunction of protection or other unsatisfactory protection issues. **Users** shall take prompt action to correct any protection malfunction or issue as discussed and agreed to in these periodical meetings.

The **Licensee** shall be responsible for carrying out any required system studies to determine the necessary protection discrimination settings.

12.5 FAULT CLEARANCE TIMES

From a stability consideration the maximum fault clearance times for faults on any **User's** system directly connected to the **Transmission System**, or any faults on the **Transmission System** itself, are as follows:

Target Clearance Times:

i. 400kV & Above	:	80 ms
ii. 230kV	:	100 ms
iii. 132kV	:	120 ms
iv. 33kV	:	160 ms

12.6 GENERATOR REQUIREMENTS

All **Generating Units** and all associated electrical equipment of the **Generator** connected to the **Transmission System** shall be protected by adequate and coordinated protection so that the **Transmission System** does not suffer due to any disturbance originating from the **Generating Unit**.

In the event of failure of the protection systems provided to meet the fault requirements detailed above, back up protection shall be provided by the **Generator** with a fault clearance time not slower than 400ms for faults on the **Generating Unit's HV Connections**. The **Generating Unit's** shall remain stable for external faults & tripping in the **Transmission System**.

The protection shall also cover **EHV** lines and transformers to the standards as for the **Transmission System** and circuit breaker fail, pole slipping, loss of excitation, **Power System Stabilizer** and negative phase sequence tripping.

Busbar Protection shall be provided and maintained by the **Generators** for each generation bus and substation bus owned by the **Generators**.

12.7 TRANSMISSION LINE REQUIREMENTS

Every **EHV** line taking off from a **Power Station** or a substation shall have main protection and backup protection as mentioned below. The **Licensee** shall notify **Users** of any changes in its policy on protection from time to time. Protection panels for the protection of lines of the **Licensee** taking off from a **Power Station/** substation shall be owned and maintained by

the **Licensee. Power Station/** substation shall provide adequate space, **Connection** facility, and access to the **Licensee** for such purpose.

The **Generating units** shall ensure that all common facilities needed for installing required protective relaying are made available to the **Licensee**.

Requirement of reactive power compensation devices shall be considered as per system study and appropriate protection scheme shall be incorporated accordingly.

12.7.1 **Transmission line (Overhead/ Underground) of 230 kV and 400 kV**

Two distance/ line differential protections plus directional Earth-fault protection (in directional comparison scheme) shall be provided as the Main-1 and Main-2 protection respectively. One stand alone directional 3-phase directional over-current or 2-phase over-current plus one earth-fault with directional feature shall provide the backup protection. Main-1 and Main-2 protection shall be distance or differential protection recommended by **Licensee** based on the system study. Main-1 and Main-2 protection relays shall be from two different manufacturers if same type of protection is applied for Main-1 and Main-2. Three pole and/ or single pole single shot auto-reclosing equipment shall be fitted, as appropriate, as considered by the **Licensee**. All auto-reclosing equipment will be made inoperative for two phase trip-out and/ or back-up protection operation except Directional Earth Fault with carrier aided scheme. Both Distance and Directional Earth-fault functions shall have compatible communication aided Transfer Trip Scheme.

12.7.2 **Transmission line (Overhead/ Underground) of 132 kV**

One distance/ line differential protection plus directional Earth-fault protection (in directional comparison scheme) shall be provided as the main protection. One stand alone 3-phase directional over-current or 2-phase Over-current plus one earth-fault with directional feature shall provide the backup protection. Main protection shall be distance or differential protection recommended by **Licensee** based on the system study. Three pole and/ or single pole single shot auto-reclosing equipment shall be fitted, as appropriate, as considered by the **Licensee**. All auto-reclosing equipment will be made inoperative for three phase trip-out and/ or backup protection operation except Directional Earth Fault with carrier aided scheme. Both Distance and Directional Earth-fault functions shall have compatible communication aided Transfer Trip Scheme.

12.8 **DISTRIBUTION LINE REQUIREMENTS**

All 132 kV and 230 kV lines, not owned by the **Licensee**, at **Connection Points** shall have the same protection requirements as for the Transmission Line requirements under **Section 12.7.1** and **12.7.2**.

All 33 kV lines at **Connection Points** shall be provided with a minimum of over-current and Earth-fault protection with or without directional features as given below.

12.8.1 Non-Parallel Radial Feeders

Non-directional time lag Over-current and Earth-fault relay with a high set instantaneous element with suitable settings to obtain discrimination between adjacent relay stations.

12.8.2 Parallel Feeders/ Ring Feeders

Directional time lag Over-current and Earth-fault relays with a high set instantaneous element with suitable settings to obtain selectivity and coordination.

12.8.3 Long Feeders/ Transformer Feeders

For long feeders or transformer feeders, the relays should incorporate a high set instantaneous element along with the time lag Over-current and Earth-fault relays.

12.9 TRANSFORMER REQUIREMENTS

12.9.1 Generating Station/ Transmission System

All windings of auto-transformers and power transformers of **EHV** class shall be protected by two dedicated differential relays and REF relays as main protection. Differential and REF protection shall be either in one relay or separate relay. Main-1 and Main-2 protection relays shall be from two different manufacturers. In addition there shall be one backup time lag 3-phase Over-current and Earth-fault protection relay for each winding as appropriate as considered by respective authority. For parallel operation such backup protection shall have directional feature. For protection against heavy short circuits, the Over-current and Earth-fault relays should incorporate a high set instantaneous element. In addition to electrical protection, gas operated relays, winding temperature protection and oil temperature protection shall be provided. Over-voltage, thermal overload and over-fluxing protection should also be provided.

12.9.2 Distribution system

For smaller transformers of HV class on the **Distribution System** differential protection shall be provided for 10 MVA and above along with backup time lag Over-current and Earth-fault protection (with directional feature for parallel operations). Transformers 1.6 MVA and above and less than 10 MVA shall be protected by time lag Over-current, Earth-fault and instantaneous REF relays. In addition all transformers 1.6 MVA and above shall be provided with gas-operated relays, temperature protection and winding temperature protection and oil temperature protection.

12.10 SUBSTATION BUSBAR AND FIRE PROTECTION

12.10.1 All **Users** shall provide adequate main and back-up bus zone protection incorporated with Local Breaker Backup (LBB) or Breaker Fail Protection (BFP) for busbars in all 400 kV, 230 kV and 132 kV class substations.

For 132 kV, one busbar protection system shall be implemented and for 230 kV & 400 kV levels, redundant (Main-1 & Main-2) busbar protection systems shall be implemented. Main-1 and Main-2 bus bar protection system shall be from two different manufacturers. During expansion of any substation, integration in the busbar protection system shall have to be done by the owner of the new feeders with necessary engineering works and hardware.

12.10.2 Adequate precautions shall be taken and protection shall be provided against fire hazards to all **Apparatus** of the **Users** conforming to relevant Bangladesh Standard Specification and/or provisions in the **Electricity Rules, 1937** and amendments thereof and other standard engineering practices.

12.11 DATA REQUIREMENTS

Users shall provide the **Licensee** with data for this **Section** as specified in the Data Registration **Section**.

13. METERING, COMMUNICATION AND DATA ACQUISITION

13.1 INTRODUCTION

This **Section** specifies the minimum operational and commercial metering, communication and data acquisition requirements to be provided by each **User** at the **Connection Points** and also at the cross boundary circuits.

13.2 OBJECTIVE

The objective of this **Section** is to define the minimum acceptable metering and communication and data acquisition requirements to enable the **Licensee** to manage the **Transmission System** in a safe and economic manner consistent with **License** requirements.

13.3 GENERATION OPERATIONAL METERING

13.3.1 This sub-**Section** specifies the facilities that shall be provided for practices that shall be employed for monitoring output and response of **Power Stations** and **Generating Units**.

13.3.2 The **Generator** shall install operational metering to the **Licensee's** and **Single Buyer's** specification so as to provide operational information for both real time and recording purposes in relation to each **Generating Unit** at each **Power Station** in respect of:

- i. Bus Voltage
- ii. Frequency
- iii. MW
- iv. MWhr
- v. MVAR
- vi. Power Factor
- vii. Any other additional data as agreed between the **Licensee**, the **Single Buyer** and **Generator**.

13.3.3 All current transformers and voltage transformers used in conjunction with operational metering shall conform to relevant Bangladesh Standard Specifications or the relevant **IEC**, of accuracy class 0.2s and of suitable rating to cater to the meters and the lead wire burdens. All new or replacement of current and voltage transformers shall be of accuracy class 0.2s and 0.2 respectively. Overall accuracy of the **Metering System** shall be within 0.2%. In case of failure to achieve the accuracy of individual equipment's or overall accuracy limit, correction factor will be applied to calculate correct energy.

13.3.4 Metering shall be calibrated, so as to achieve overall accuracy of operational metering in the

limits as agreed between the **Licensee** and **Generator**. All new **Metering Systems** shall provide an overall measured accuracy of $\pm 0.2\%$. Records of calibration shall be maintained for reference and shall be made available to the **Licensee** upon request.

- 13.3.5** **Generators** shall furnish recorded data of all electrical measurements and events recorded by the operational metering to the **Licensee** daily or as agreed between the **Licensee** and the **Generator**.

13.4 TRANSMISSION SYSTEM OPERATIONAL METERING

- 13.4.1** This sub-**Section** specifies the facilities that shall be provided for practices that shall be employed for monitoring electrical supply and load characteristic at each substation.

- 13.4.2** The **Licensee** shall install operational metering so as to provide operational information for both real time and recording purposes in relation to each feeder, transformer and compensation device at each substation in respect of:

- i. BusVoltage
- ii. Frequency
- iii. MW
- iv. MWhr
- v. MVAR
- vi. Power Factor
- vii. Current
- viii. Any other additional data as agreed between the **Licensee**, the **Single Buyer** and **Generator**.

- 13.4.3** All current transformers and voltage transformers used in conjunction with operational metering shall conform to relevant Bangladesh Standard Specifications or the relevant **IEC**, of accuracy class 0.2s for CT and 0.2 for VT and of suitable rating to cater to the meters and the lead wire burdens. All new or replacement current and voltage transformers shall be of accuracy class 0.2. Accuracy class should be maintained strictly for new or replacement current and voltage transformers.

- 13.4.4** The **Licensee** shall furnish such data of all electrical measurements and events recorded by the operational metering to the **Generator** as required on request or as agreed between the **Licensee** and the **Generator**.

13.5 SUPERVISORY CONTROL AND DATA ACQUISITION (SCADA)

- 13.5.1** The **System Operator** and the **Licensee** shall install and make operative an operational

metering data collection system, under **SCADA** for storage, display and processing of metering data. For **Generators**, **Distribution Utilities**, **Bulk Consumers** and other **Users**, the equipments within their site for communication (voice & data), **SCADA** Control (for example RTU/ Gateways) shall be installed, owned & maintained by the respective **Users**:-

13.5.2 Necessary data shall be collected/ acquired, stored and real-time data is to be displayed at the **System Operator**.

13.5.3 The responsibilities for **SCADA** are detailed in Metering, Communication and Data Acquisition **Section**.

13.6 COMMERCIAL (TARIFF) METERING

13.6.1 This sub-**Section** specifies provision of commercial (Tariff) metering at **Connection Points** between the **Transmission System** and **Generating Stations**, and the **Transmission System** and **Distribution Systems**. It also specifies metering facilities that shall be provided for the measurement of electricity produced by **Generating Units** and for measurement of electricity consumed at **Power Stations**.

13.6.2 Metering shall be installed to measure:

- (a) Active energy for export.
- (b) Active energy for import.
- (c) Reactive energy for import.
- (d) Reactive energy for export.

13.6.3 At each commercial metering point associated with determination of energy exported or imported the **Single Buyer** shall install, own and maintain (with the assistance of the **Licensee**) a metering system defined as the **Metering System**, and **Check Metering System**.

13.6.4 The **Generator** or **Distribution Utility/ Bulk Power Consumer** may install, own and maintain a Metering System in their premises/ substations.

13.6.5 Minimum standard of accuracy of meters shall be of class 0.2S or as agreed between the **Single Buyer** and the **User** and shall conform to the relevant Bangladesh Standard Specification or relevant **IEC**.

13.6.6 All current transformers and voltage transformers used in conjunction with commercial (Tariff) metering shall conform to the relevant Bangladesh Standard Specification or relevant **IEC**. Accuracy class of current transformers shall be 0.2S and voltage transformers shall be 0.2. Burden rating of CTs and VTs must be suitable to cater to the meters and the lead wire burdens.

- 13.6.7** The **Metering System** and the **Check Metering System** shall be designed and installed based on Prudent Utility Practices providing a measured accuracy of $\pm 0.2\%$ or as agreed between the **Single Buyer** and the **User**.
- 13.6.8** Data collection shall be used to integrate impulses from meters over each integration period as per agreement, store values and transmit values to the data collection system of the **Single Buyer**. Data shall be collected from the **Metering System**.
- 13.6.9** Voltage supply to the metering shall be assured with necessary voltage selection schemes. Voltage failure relays or the internal voltage monitoring feature of the Tariff Meter shall be provided which will initiate alarm on loss of one or more phases of the voltage supply to any meter.
- 13.6.10** The **Single Buyer** shall ensure that the testing and calibration of the **Metering System** is carried out at intervals of not less than one hundred and eighty days (180). The **Single Buyer** shall give no less than fifteen days notice to the **User** according to guidelines provided in relevant Bangladesh Standard Specification or relevant **IEC** as applicable. Records of meter calibration test shall be maintained for future reference. The **User** may, at any time, request to inspect the test results and/or request a test if the **User** suspects the meter is incorrect.
- 13.6.11** The **Single Buyer** and the **User** shall jointly seal the **Metering System** and the **Check Metering System**. The **Single Buyer** shall break the seals only after giving at least twenty-four (24) hours notice except under emergency conditions. The **User** may attend the breaking of the seals if considered necessary by the **User**.
- 13.6.12** Any dispute arising between the parties that cannot be resolved between the parties shall be referred to a joint sub-committee convened by the **Grid Code Review Panel** Chairman and consisting of representatives of the parties in dispute and 2 independent **Grid Code Review Panel** Members representatives. If the joint sub-committee cannot resolve the dispute the **Single Buyer** shall refer it, with all supporting documentation, to the **Commission** for a decision.

13.7 COMMUNICATION

Independent dedicated communication links such as microwave, PLC, Optical Fiber, etc. for voice communication, for written communication and for data acquisition shall be installed between all **Power Stations**, substations, other **User's** premises and the **NLDC**.

The **Licensee**, the **System Operator** and **Generators** are authorized to tape record all telephoned voice communications relating to **Declared Available Capacity** control and schedule and dispatch and shall supply at the request of the other party a copy or transcript

of any such recording.

The **Licensee**, the **System Operator** and **Users** are authorized to tape record all cross boundary safety communications and shall supply at the request of the other party a copy or transcript of any such recording.

13.8 DATA ACQUISITION & CONTROL

13.8.1 For effective control of the **Transmission System**, the the **System Operator** needs real time data as follows:

- i. Voltage, Current flow, Real & Reactive power of transmission line, **Generators**, **Grid Transformers**, and distribution feeders;
- ii. Voltage & frequency of all buses;
- iii. Digital status & control of all switching devices;
- iv. Status & control of **Grid transformers**;
- v. All necessary alarms;
- vi. All necessary signals & controls for AGC;
- vii. Digital status & control of of atleast 50% load shed feeders;
- viii. Wind Speed and directioons at each Wind Generation Plant;
- ix. Solar irradiations at each **PV Plant**;
- x. Necessary weather data.

13.8.2 The **Licensee** shall provide and install all the facilities and equipment for Tele- metering, communication, control and monitoring, including voice channels, between the **Connection Point** and the **NLDC**.

13.8.3 The **Generators** shall provide and install within the complex such equipment, including power line Carrier equipment and/ or Fiber Optics Multiplexers, as needed for the complex to interconnect with the **Transmission System** equipment for Tele- metering, communication, control and monitoring, including voice channels, compatible to the **Licensee's** system or as agreed by the **Licensee**.

13.8.4 For the **SCADA** system the **Single Buyer** shall be responsible for providing and installing the equipment including any Remote Terminal Units (RTUs)/ Gateways within the **Generator** or **Distribution Utility** or **Bulk Power Consumer** sites. The **Generator**, **Distribution Utility** and **Bulk Power Consumer** shall provide and install within the complex interface terminals on the Metering System and such other equipment needed to interface with the **SCADA** system.

13.8.5 No **Power Station** and **Transmission System** substation shall be commissioned without communication & **SCADA** integration.

13.9 AGREED PROCEDURE FOR COMMUNICATION AND DATA TRANSMISSION

Mutually agreed procedures shall be drawn up between the **Licensee**, the **System Operator** and other **Users** outlining inter responsibility, accountability and recording of day to day communication and data transmission on operational matters.

13.9.1. Data Requirement

The **Licensee**, the **System Operator** and **Users** shall furnish metering data to each other, as applicable and as detailed in Data Registration **Section**.

14. TESTING

14.1 INTRODUCTION

This **Section** specifies the responsibilities and procedures for arranging and carrying out Tests which have (or may have) an effect on the **Transmission System** or the **Generation** or **Distribution Systems**.

14.2 OBJECTIVE

The objective of the **Section** are to establish whether **Generating Units** can operate within their Generation Schedule and Dispatch parameters as registered under the Data Registration **Section** and that the **Generator** and **Distributor/ Bulk Power Consumer** comply with the **Section 5 “Connection Conditions”**. It shall also establish whether each **Generating Unit’s Declared Available Capacity** is as declared and that the requirements of the provisions of frequency, voltage management and reserve capability are met in accordance with the provisions of the **Grid Code**.

14.3 RESPONSIBILITIES

The **System Operator** is responsible for ensuring that the following procedures are carried out. All **Users** are required to fully co-operate to ensure that all the arrangements are made for smooth execution of tests.

14.4 PROCEDURE

The **System Operator** shall monitor the performance of **Generating Units** against the registered parameters and the compliance by the **Generator** or **Distributor** with the **Section 5 “Connection Conditions”** of the **Grid Code**.

The **System Operator** shall inform a **Generator**, and confirm in writing, if monitoring demonstrates an apparent persistent or material mismatch in meeting the **Generating Unit** registered parameters or breach of the **Connection Conditions**.

For all parameters, except availability, the relevant **Generator** shall, as soon as possible, provide the **System Operator** with an explanation of the reasons for the failure to meet the requirements and the details of the action it proposes to take to meet the requirements and comply with the **Grid Code**.

The **System Operator** and the **Generator** will then discuss the action and endeavor to reach agreement on the actions required.

In the event that agreement cannot be made within 10 days of the notification the **System Operator** shall be entitled to propose that a test be carried out.

For the allocation of the costs of testing the general principle shall be that the Test Proposer (the **System Operator**/ the **Single Buyer**) shall bear the costs if the results show that the test was not justified and the **Generator** or **Distribution Utility/ Bulk Power Consumer** shall bear the costs if the results show the test was justified.

14.5 TEST PROCEDURES FOR CONVENTIONAL GENERATION

14.5.1 Declared Available Capacity Testing

If the **System Operator** has reasonable suspicion that the **Declared Available Capacity** of a **Generating Unit** is not as declared the **System Operator** may test that availability by issuing a dispatch instruction to the **Generating Unit** to attain the **Declared Available Capacity**. This may be instructed at any time even though it had not been previously scheduled or dispatched on **Merit Order** or system grounds.

The issue of a Dispatch instruction shall initiate the test.

The **Generating Unit** will pass the test if it can attain and maintain its load to the **Declared Available Capacity** for 2 hours.

14.5.2 Schedule and Dispatch Instruction Testing

If the **System Operator** has reasonable suspicion that the Scheduling and Dispatch parameters of a **Generating Unit** are not as registered and have not had notification of a temporary change to the parameters he may instruct the **Generating Unit** to demonstrate the capability of meeting its parameters. The **Generator** shall be given at least 48 hours notice of the test and the duration shall be consistent with the time taken to measure the result.

The issue of a Dispatch instruction shall initiate the test.

The performance of the **Generating Unit** shall be recorded in the presence of a representative of the **System Operator**, the **Generator** and the **Single Buyer**.

The **Generating Unit** will pass the test if the parameters under test are within +/- 2.5% of the declared value tested.

14.5.3 Reactive Power Testing

If the **System Operator** has reasonable suspicion that the reactive power capability of a **Generating Unit** is not as registered and have not had notification of a temporary change he may instruct the **Generating Unit** to demonstrate the capability of meeting its registered capability. The **Generator** shall be given at least 48 hours notice of the test and the duration will be for a period up to 60 minutes. The **Transmission System** voltage at the entry point shall be maintained by the **Generator** at the voltage specified by test proposer by adjustment of reactive power on the remaining units (if available) or by the **Licensee** by appropriate tap changing at the substation, as necessary.

The issue of a Dispatch instruction shall initiate the test.

The performance of the **Generating Unit** shall be recorded in the presence of a representative of the **System Operator**, the **Generator** and the **Single Buyer**.

The **Generating Unit** will pass the test if it is within +/- 2.5% of the registered capability. Due account shall be taken of any conditions on the system that may affect the test.

14.5.4 Automatic Frequency Sensitive Testing

If the **System Operator** has reasonable suspicion that the capability of the automatic frequency sensitive performance (Primary & Secondary response) of a **Generating Unit** is not as registered and have not had notification of a temporary change he may instruct the **Generating Unit** to demonstrate the capability of meeting its registered capability. The **Generator** shall be given at least 48 hours notice of the test.

The performance of the **Generating Unit** and system frequency shall be recorded in the presence of a representative of the **System Operator**, the **Generator** and the **Single Buyer**. Where measurements of the Governor pilot oil/valve position are to be made such measurements should indicate that the Governor parameters are within limits. The **Generating Unit** will pass the test if it is within +/- 2.5% of the level of response registered.

14.5.5 Fast Start Capability Testing

If the **System Operator** has reasonable suspicion that the capability of the fast start performance of a **Generating Unit** is not as registered and have not had notification of a temporary change he may instruct the **Generating Unit** to demonstrate the capability of meeting its registered capability. The **Generator** shall be given at least 48 hours notice of the test.

The issue of a Dispatch instruction shall initiate the test.

The performance of the **Generating Unit** and system frequency shall be recorded in the

presence of a representative of the **System Operator**, the **Generator** and the **Single Buyer**. Where measurements of the Governor pilot oil/ valve position are to be made such measurements should indicate that the Governor parameters are within limits.

The **Generating Unit** will pass the test if when synchronizing and running up to full declared availability it meets its fast start capability

14.5.6 **Black Start Testing**

The **System Operator** may, at any time require a **Generator** with **Black Start** capability to carry out a “**Black Start Test**” on a **Generating Unit** in order to demonstrate that the **Black Start Power Station** has a **Black Start** capability.

Where the **System Operator** requires the **Generator** to carry out the “**Black Start Test**” the **NLDC** shall not require the test to be carried out on more than one **Generating Unit**.

The **System Operator** shall not require a **Generator** with a **Black Start** capability to carry out a “**Black Start Test**” more than once every calendar years in respect of any particular **Generating Unit**.

When the **System Operator** requires a “**Black Start Test**” it shall notify the relevant **Generator** at least 7 days prior to the start of the test with details of the proposed test.

All “**Black Start Tests**” shall be carried out at a time specified by the **Licensee** in the notice given and shall be undertaken in the presence of a representative of the **System Operator**, the **Generator** and the **Single Buyer**.

The **Generating Unit** will pass the test if it meets its **Black Start** capability.

14.5.7 **Synchronization Time and Ramp Rate**

If the **System Operator** has reasonable suspicion that the time required for synchronization process & Ramp Rate of a **Generating Unit** is not as registered and have not had notification of a temporary change he may instruct the **Generating Unit** to demonstrate the capability of meeting its registered capability. The **Generator** shall be given at least 48 hours notice of the test and the duration will be for a period up to 60 minutes.

The issue of a Dispatch instruction shall initiate the test.

The performance of the **Generating Unit** shall be recorded in the presence of a representative of the **System Operator**, the **Single Buyer** and the **Generator**.

The **Generating Unit** will pass the test if in case of synchronization; the process is achieved within +/- 5 minutes of the registered synchronization time and in case of meeting Ramp Rates (up/down), the actual Ramp Rate is within +/- 10 % of the registered Ramp Rate.

14.6 TEST PROCEDURES FOR VRE GENERATION

- 14.6.1.** If the **System Operator** has reasonable suspicion that any **VRE Generating Plant** or **VRE Generating Unit** is not in accordance with the requirements indicated in **Section 5 (Connection Conditions)** it may instruct the **VRE Generating Plant** or **VRE Generation Unit** to demonstrate the capability of meeting such requirements. The **Generator** shall be given at least 48 hours notice of the required test and the duration will be for a period up to 60 minutes.

The issue of a Dispatch instruction shall initiate the test.

The performance of the **VRE Generating Plant** or **VRE Generating Unit** shall be recorded in the presence of a representative of the **System Operator** and the **Generator**.

- 14.6.2.** Following tests can be performed for **VRE Generating Plants**:

- a) The reactive power test shall demonstrate that the **VRE Generation Plant** meets the registered reactive power capability requirements specified in sub-**Section 5.9.2**. The **VRE Generating Plant** shall pass the test if the measured values are within ± 5 percent of the indicated requirements.
- b) The active power control test shall demonstrate that the **VRE Generation Plant** has the capability to control the injected power, as specified in sub-**Section 5.9.3**. The **VRE Generation Plant** shall pass the test if the measured response is within ± 5 percent of the required level of response within the time-frames indicated in such Sub-section.
- c) The Voltage Control test shall demonstrate that the **VRE Generation Plant** has the capability to control the voltage at the **Connection Point**, as specified in sub-**Section 5.9.2**. The **VRE Generating Plant** shall pass the test if:
 - i. In voltage control mode, the **VRE Generating Plant** is capable to control the voltage at the **Connection Point** within a margin not greater than 0.01 p.u., provided the reactive power injected or absorbed is within the limits specified.
 - ii. Following a step change in voltage, the **VRE Generation Plant** shall be capable of achieving 90 % of the change in reactive power output within a time less than 5 seconds, reaching its final value within a time no greater than 30 seconds.

- iii. In power factor control mode, the **VRE Generation Plant** is capable of controlling the power factor at the **Connection Point** within the required reactive power range, with a target power factor in steps no greater than 0.01.
- d) The frequency withstand capability tests shall demonstrate that the **VRE Generation Plant** is capable to operate in the frequency ranges stated in sub-Section 5.9.1. The **VRE Generation Plant** shall pass the test if it is capable to maintain stable operation during at least 95% of the times stated in such sub-Section, provided voltage at the **Connection Point** is within +/- 5 % of the nominal values.
- e) The Low Voltage Ride Through and performance under disturbances capability tests shall demonstrate that the **VRE Generation Plant** is capable to withstand voltage drops as indicated in sub-Section 5.9.5. The **VRE Generation Plant** shall pass the test if its performance is equal or better than the prescriptions in the said sub-Section. The **System Operator** and the **VRE Generator** shall agree the way that this test should be carried out.

14.7

FAILURE OF GENERATOR TO PASS TEST AND DISPUTES

If a **Generating Unit** fails to pass a test, the **Generator** shall provide the **System Operator** and the **Single Buyer** with a written report detailing the reasons for the failure, as far as they are known, within 3 days of the test. If a dispute arises relating to the failure the **System Operator** may, with the agreement of the **Generator**, carry out a re-test on 48 hours notice.

If the **Generating Unit** fails to pass the test or re-test and a dispute occurs, then either party may refer the dispute to the **Commission**. The decision of the **Commission** shall be binding on both parties.

If the **System Operator** and the **Generator** agree that the **Generating Unit** has failed the test, or re-test, the **Generator** shall submit in writing to the **System Operator** and the **Single Buyer** for approval the date and time by which the **Generator** shall restore the faulty unit to a condition where it would pass the test.

If the **Generating Unit** fails to pass the test or re-test the **Generator** may amend the relevant registered parameters of that **Generating Unit** to the capability achieved under test until the **Generating Unit** can achieve the previously registered values in a further re-test.

Once the **Generator** has indicated to the **System Operator** the time and date that the **Generating Unit** can achieve the previously registered parameters, the **System Operator** may either accept them or require a further test on 48 hours notice to demonstrate that they can be achieved. If a dispute occurs, then either party may refer the dispute to the **Commission**. The decision of the **Commission** shall be binding on both parties.

15. NUMBERING AND NOMENCLATURE

15.1 INTRODUCTION

This **Section** sets out the requirement that:

- a. **Licensee's HV Apparatus** on **User's** sites and
- b. **User's HV Apparatus** on **Licensee's** sites

shall have numbering and nomenclature in accordance with the system used from time to time by the **Licensee**.

The numbering and nomenclature of each item of HV **Apparatus** shall be included in the Operation Diagram prepared for each site.

15.2 OBJECTIVE

The objective of this **Section** is to ensure, in so far as possible, the safe and effective operation of the **Power System** and to reduce the risk of human error faults by requiring that the numbering and nomenclature of **User's Apparatus** shall be in accordance with the **Licensee's** system at **Connection Point** sites.

15.3 SCOPE

The **Section** applies to the **Licensee** and all **Users**

15.4 PROCEDURE

Licensee's HV Apparatus on User's Sites

- (a) **Licensee's HV Apparatus** on a **User's** sites shall have numbering and nomenclature in accordance with the system used by the **Licensee**.
- (b) When the **Licensee** is to install HV **Apparatus** on a **User's** site, the **Licensee** shall notify the relevant **User** of the numbering and nomenclature to be adopted for that HV **Apparatus** at least eight months before installation.
- (c) The notification shall be made in writing to the relevant **User** and will consist of a proposed Operation Diagram incorporating the proposed new HV **Apparatus** to be installed, its proposed numbering and the date of installation

- (d) The relevant **User** shall respond in writing within one month of the notification, confirming receipt and confirming either that any other HV **Apparatus** of the **User** on the site does not have that numbering and/ or nomenclature which could be confused with that proposed by the **Licensee**, or, to the extent that it does and that the relevant numbering and/ or nomenclature will be changed before installation of the **Licensee's** HV **Apparatus**.
- (e) The relevant **User** shall not install, or permit the installation of, any HV **Apparatus** on the site which has numbering and/ or nomenclature that could be confused with the **Licensee's** HV **Apparatus** which is either already on that site or which the **Licensee** has notified that **User** will be installed on that site.

User's HV Apparatus on Licensee's Sites

- (a) **User's** HV **Apparatus** on **Licensee's** sites shall have numbering and nomenclature in accordance with the system used by the **Licensee**.
- (b) When a **User** is to install its HV **Apparatus** on the **Licensee's** site, or wishes to replace existing HV **Apparatus** on the **Licensee's** site and also wishes to adopt new numbering and nomenclature for such HV **Apparatus**, the **User** shall notify the **Licensee** of the details of the HV **Apparatus** and the proposed numbering and nomenclature to be adopted for that HV **Apparatus** at least eight months before installation or change.
- (c) The notification shall be made in writing to the **Licensee** and will consist of a proposed Operation Diagram incorporating the proposed new HV **Apparatus** to be installed, its proposed numbering and the date of installation.
- (d) The **Licensee** shall respond in writing within one month of the notification, confirming receipt and confirming whether or not the **Licensee** accepts the **User's** proposed numbering and nomenclature and, if they are not acceptable, shall give details of the numbering and/ or nomenclature which will be adopted for the **User's** HV **Apparatus**.

Changes

Where the **Licensee**, in its reasonable opinion has decided that it needs to change the existing numbering or nomenclature of the **Licensee's** HV **Apparatus** on a **User's** site or the **User's** HV **Apparatus** on the **Licensee's** site:

- (a) The provisions of the above paragraphs shall apply to such change of numbering of **Licensee's** HV **Apparatus** with any necessary amendments to those provisions to reflect that only a change is being made, and

- (b) In the case of a change in the numbering or nomenclature of **User's HV Apparatus** on the **Licensee's** site, the **Licensee** shall notify the **User** of the numbering or nomenclature the **User** shall adopt for that HV **Apparatus** at least eight months prior to the change being needed and the **User** shall respond in writing to the **Licensee** within one month of the notification confirming receipt.

In either case the notification shall indicate the reason for the proposed change.

Users shall be provided upon request with details of the **Licensee's** current numbering and nomenclature system.

When either the **Licensee** or the **User** installs HV **Apparatus** which is subject to this **Section**, the **Licensee** or the **User**, as the case may be installing such **Apparatus** shall be responsible for the provision and erection of clear and unambiguous labeling showing the numbering and nomenclature. Where a **User** is required to change the numbering and nomenclature he shall be responsible for the provision and erection of clear and unambiguous labeling showing the numbering and nomenclature by the required date.

Where the **Licensee** changes the numbering and nomenclature of its HV **Apparatus**, under this **Section**, then the **Licensee** shall be responsible for the provision and erection of clear and unambiguous labeling showing the numbering and nomenclature by the required date.

The **Licensee** shall not change the system of numbering and nomenclature unless to reflect new or newly adopted technology or reasons of safety.

The **Licensee** shall submit the Numbering and Nomenclature to the **Commission** whenever adopted and whenever changed or revised.

16. DATA REGISTRATION

16.1 INTRODUCTION

This **Section** contains a list of all data required by the **Licensee** that is to be provided by **Users** and data required by **Users** to be provided by the **Licensee** at times specified in the **Grid Code**. Other **Sections** of the **Grid Code** contain the obligation to submit the data and defines the times when data is to be supplied by **Users**.

16.2 OBJECTIVE

The objective of the **Section** is to list all the data required to be provided by **Users** to the **Licensee** and vice versa, in accordance with the provisions of the **Grid Code**.

16.3 RESPONSIBILITIES

All **Users** are responsible for submitting up-to-date data to the **Licensee** in accordance with the provisions of the **Grid Code**.

All **Users** shall provide the **Licensee** with the name, address and telephone number of the person responsible for sending the data.

The **Licensee** shall inform all **Users** of the name, address and telephone number of the person responsible for receiving data.

The **Licensee** shall provide up-to-date data to **Users** as provided in the relevant schedule of the **Grid Code**.

Responsibility for the correctness of data rests with the concerned **Users** providing the data.

16.4 DATA CATEGORIES AND STAGES IN REGISTRATION

Data as required to be exchanged have been listed in the **Appendices** of this **Section** under various categories with cross-reference to the concerned **Sections**. The **Licensee** and the **System Operator** may prepare structured formats for the **Users** to provide required data (based on data listed in the **Appendices**) for efficient management of related software.

16.5 CHANGES TO USERS DATA

Whenever any **User** becomes aware of a change to any items of data that is registered with the **Licensee**, the **User** must promptly notify the **Licensee** of the changes. The **Licensee** on receipt of intimation of the changes shall promptly correct the database accordingly. This shall also apply to any data compiled by the **Licensee** regarding to its own system.

16.6 DATA NOT SUPPLIED

Users are obliged to supply data as referred to in the individual **Section** of the **Grid Code** and listed out in the Data Registration **Section Appendices**. In case any data is unavailable and hence not supplied by any **User**, the **Licensee** may, acting reasonably, if and when necessary, estimate such data depending upon the urgency of the situation. Similarly in case any data is unavailable and not supplied by the **Licensee**, the concerned **User** may, acting reasonably, if and when necessary, estimate such data depending upon urgency of the situation. Such estimates will in each case, be based upon corresponding data for similar plant or **Apparatus** or upon such other information, the **User** or the **Licensee**, as the case may be, deems appropriate.

16.7 SPECIAL CONSIDERATIONS

The **Licensee** and any other **User** may at any time make reasonable request for extra data as necessary.

APPENDICES

APPENDIX	SUBJECT	PAGE
A	STANDARD PLANNING DATA	87
B	DETAILED PLANNING DATA	98
C	OPERATIONAL PLANNING DATA	114
D	PROTECTION DATA	118
E	METERING DATA	119

APPENDIX- A**DATA REGISTRATION****A. STANDARD PLANNING DATA**

REFERENCE TO:
SECTION 4 SYSTEM PLANNING
SECTION 5 CONNECTION CONDITION

A.1 STANDARD PLANNING DATA (GENERATION)**A.1.1 THERMAL (FOSSIL FUEL)****A.1.1.1 GENERAL**

i.	Site	Give location map to scale showing roads, railway lines, transmission lines, rivers and reservoirs if any.
ii.	Fossil Fuel Natural Gas, Diesel, Furnace Oil, Coal etc,	Give information on means of coal transport from coal mines in case of pithead stations or means of coal carriage and handling if coal is imported. [In case of other fuels, give details of source of fuel and their transport.]
iii.	Water Sources	Give information on availability of water for operation of the Power Station .
iv.	Environmental	State whether forest, lands mining clearance areas are affected.
v.	Site map (To Scale)	Showing area required for Power Station , coal linkage, coal yard, water pipe line, ash disposal area, colony etc.
vi.	Approximate period of construction.	

A.1.1.2 CONNECTION

i.	Connection Point	Give single line diagram of the proposed Connection with the system.
ii.	Step up voltage for Connection	kV.

A.1.1.3 STATION CAPACITY

i.	Total Power Station capacity (MW)	State whether development will be carried out in phase and if so, furnish details.
ii.	No. of units & unit size	MW.

A.1.1.4 GENERATING UNIT DATA

i.	Steam Generating Unit	State type, capacity, steam pressure, steam temperature etc.
ii.	Steam turbine	State type and capacity.
iii.	Generator	a) Type b) Rating (MVA) c) Terminal voltage (kV) d) Rated Power Factor e) Reactive Power Capability (MVAR) in the range 0.95 of leading and 0.85 lagging f) Short Circuit Ratio g) Direct axis Synchronous reactance (% on MVA rating) h) Direct axis Transient reactance (% on MVA rating) i) Direct axis sub-transient reactance (% on MVA rating) j) Auxiliary Power Requirement (MW)
iv.	Generator Transformer	a) Type b) Rated capacity (MVA) c) Voltage Ratio (HV/LV) d) Tap change Range (+% to -%) Percentage Impedance (Positive Sequence at Full load)

A.1.2 HYDRO ELECTRICAL**A.1.2.1 GENERAL**

i.	Site	Give location map to scale showing roads, railway lines and transmission lines.
ii.	Site map (To scale)	Showing proposed dam, reservoir area, water conductor system, fore-bay, power house etc.
iii.	SubmergedArea	Give information on area submerged, villages submerged, submerged forest land, agricultural land etc.
iv.	Approximate period of construction.	

A.1.2.2 CONNECTION**Connection Point**

Give single line diagram proposed **Connection** with the **Transmission System**.

i.	Step up voltage for Connection	kV

A.1.2.3 STATION CAPACITY

i.	Total Power Station capacity (MW)	State whether development be carried out in phases and if so furnish details.
ii.	No of units & unit size	MW

A.1.2.4 GENERATING UNIT DATA

i.	Operating Head (in Mtr.)	a) Maximum b) Minimum c) Average.
ii.	Turbine	State Type and capacity
iii.	Generator	a) Type b) Rating (MVA) c) Terminal voltage (kV) d) Rated Power Factor e) Reactive Power Capability (MVAR) in the range 0.95 of leading and 0.85 of lagging f) Short Circuit Ratio g) Direct axis Synchronous reactance (% on MVA rating) h) Direct axis Transient reactance (% on rated MVA) i) Direct axis sub-transient reactance (% on rated MVA) j) Auxiliary Power Requirement (MW)
iv.	Generator Transformer	a) Type b) Rated Capacity (MVA) c) Voltage Ratio d) HV/LV e) Tap change Range (+% to-%) f) Percentage Impedance (Positive sequence at full load).

A.1.3 WIND FARMS**A.1.3.1 GENERAL**

i.	Site	Give location map to scale showing roads, railway lines and transmission lines.
ii.	Site map (To scale)	Showing proposed Wind Farm area, location of each Wind Turbine, power house etc.
iii.	Approximate period of construction.	

A.1.3.2 CONNECTION

i.	Connection Point	Give single line diagram proposed Connection with the Transmission System .
ii.	Step up voltage for Connection	kV

A.1.3.3 STATION CAPACITY

i.	Total Power Station capacity (MW)	State whether development be carried out in phases and if so furnish details.
ii.	No of units & unit size	MW

A.1.3.4 GENERATING UNIT DATA

i.	Wind Generating Plant	State number of Wind Turbines, type and capacity.

- ii. Wind Turbines
 - a) Type
(fixed speed/ variable speed);
(induction machine, double fed induction machine, synchronous **Generator**);
(directly coupled or coupled through inverters)
 - b) Wind Turbine manufacturer
 - c) Rating (MVA)
 - d) Terminal voltage (kV)
 - e) Rated Power Factor
 - f) Reactive Power Capability (MVAR) curve
 - g) Frequency tolerance range
 - h) Rated wind speed (m/s)
 - i) Cut-in wind speed (m/s)
 - j) Cut-off wind speed (m/s)
 - k) Short Circuit Ratio(% on MVA rating)
 - l) Auxiliary Power Requirement (MW)

- iii. Generator Transformer
 - a) Type
 - b) Rated Capacity (MVA)
 - c) Voltage Ratio HV/LV
 - d) Tap change Range (+% to -%)
 - e) Percentage Impedance (Positive sequence at full load)

A.1.4 PV GENERATING PLANTS**A.1.4.1 GENERAL**

i.	Site	Give location map to scale showing roads, railway lines and transmission lines.
ii.	Site map (To scale)	Showing proposed PV Generation Plant area, location of PV panels and general arrangement.
iii.	Approximate period of construction.	

A.1.4.2 CONNECTION

i.	Connection Point	Give single line diagram proposed Connection with the Transmission System .
ii.	Step up voltage for Connection	kV

A.1.4.3 STATION CAPACITY

i.	Total Power Station capacity (MW)	State whether development be carried out in phases and if so furnish details.
ii.	No of units & unit size	MW

A.1.4.4 GENERATING UNIT DATA

i.	PV Generating Plant	State number of solar panels, type and capacity.				
ii.	PV solar panels	<table border="0"> <tr> <td style="vertical-align: top;">a)</td> <td style="vertical-align: top;">Type and technology</td> </tr> <tr> <td style="vertical-align: top;">b)</td> <td style="vertical-align: top;">PV panels and inverter manufacturers</td> </tr> </table>	a)	Type and technology	b)	PV panels and inverter manufacturers
a)	Type and technology					
b)	PV panels and inverter manufacturers					

- c) Solar Panels Rating (MWdc)
 - d) Inverters rating (MWac)
 - e) Terminal voltage (kV)
 - f) Rated Power Factor
 - g) Reactive Power Capability (MVAR) curve
 - h) Frequency tolerance range
 - i) Auxiliary Power Requirement (MW)
- iii. Generator Transformer
 - a) Type
 - b) Rated Capacity (MVA)
 - c) Voltage Ratio HV/LV
 - d) Tap change Range (+% to -%)
 - e) Percentage Impedance (Positive sequence at full load)

A.2 STANDARD PLANNING DATA (TRANSMISSION)

Note: The compilation of the data is the internal matter of the **Licensee**, and as such the **Licensee** shall make arrangements for getting the required data from different Departments of the **Licensee** to update its Standard Planning Data in the format given below:

- i. Name of line (Indicating **Power Stations** and substations to be connected).
- ii. Voltage of line (kV).
- iii. No. of circuits.
- iv. Route length (km).
- v. Conductor type and sizes.
- vi. Line parameters (PU values).
 - a. Resistance/km.
 - b. Inductance/km.
 - c. Susceptance/km (B/2).
- vii. Approximate power flow expected MW & MVAR.
- viii. Terrain of route - Give information regarding nature of terrain i.e. forest land, fallow land, agricultural and river basin, hill slope etc.
- ix. Route map (to Scale) - Furnish to topographical map showing the proposed route showing existing power lines and telecommunication lines.
- x. Purpose of **Connection** - Reference to scheme.
- xi. Approximate period of Construction.

A.3 STANDARD PLANNING DATA DISTRIBUTION

A.3.1 GENERAL

- i. Area map (to Scale)- Marking the area in the map for which Distribution License is applied for.
- ii. Consumer Data- Furnish categories of consumers, their numbers and connected loads.
- iii. Reference to Electrical Divisions presently in charge of the Distribution.

A.3.2 CONNECTION

- i. **Connection Points** - Furnish single line diagram showing **Connection Points**.
- ii. Voltage of supply at **Connection Points**.
- iii. Names of **Grid** substation feeding the **Connection Points**.

A.3.3 LINES AND SUBSTATIONS

- i. Line data- Furnish lengths of line and voltages within the Area.
- ii. Substation data- Furnish details of 33/11 kV substations, 11/0.4 kV substations, capacitor installations.

A.3.4 LOADS

- i. Loads drawn at **Connection Points**.
- ii. Details of loads fed at **EHV**, if any. Give name of consumer, voltage of supply, contract demand and name of **Grid** substation from which line is drawn, length of **EHV** line from **Grid** substation to consumer's premises.

A.3.5 DEMAND DATA (FOR ALL LOADS 5 MW AND ABOVE)

- i. Type of load - State whether furnace loads, rolling mills, traction loads, other industrial loads, pumping loads etc.
- ii. Rated voltage and phase.
- iii. Electrical loading of equipment- State number and size of motors, types of drive and control arrangements.
- iv. Sensitivity of load to voltage and frequency of supply.
- v. Maximum Harmonic content of load.
- vi. Average and maximum Phase unbalance of load.
- vii. Nearest substation from which load is to be fed.
- viii. Location map (to scale)- Showing location of load with reference to lines and substations in the vicinity.

A.3.6 LOAD FORECAST DATA

- i. Peak load and energy forecast for each category of loads for each of the succeeding 20 years.
- ii. Details of methodology and assumptions on which forecasts are based.
- iii. If supply is received from more than one Substation, the substation wise break up of peak load and energy projections for each category of loads for each of the succeeding 20 years along with estimated daily load curve.
- iv. Details of loads 5 MW and above.
 - a. Name of prospective consumer.
 - b. Location and nature of load/ complex.
 - c. Substation from which to be fed.
 - d. Voltage of supply.
 - e. Phasing of load.

APPENDIX- B**B. DETAILED PLANNING DATA**

REFERENCE TO:
SECTION 4 SYSTEM PLANNING
SECTION 5 CONNECTION CONDITIONS

B.1 DETAILED PLANNING DATA (GENERATION) PART 1. FOR ROUTINE SUBMISSION**B.1.1 THERMAL POWER STATIONS (FOSSIL FUEL)****B.1.1.1 GENERAL**

- i. Name of **Power Station**.
- ii. Number and capacity of **Generating Units** (MVA).
- iii. Ratings of all major equipments (boilers and major accessories, turbines, alternators, **Generating Unit** transformers etc.).
- iv. Single line diagram of **Power Station** and switchyard.
- v. Relaying and metering diagram.
- vi. Neutral Grounding of **Generating Units**.
- vii. Excitation control (What type is used? e.g. Thyristor, Fast Brushless?).
- viii. Earthing arrangements with earth resistance values.

B.1.1.2 PROTECTION AND METERING

- i. Full description including settings for all relays and protection systems installed on the **Generating Unit**, **Generating Unit** transformer, auxiliary transformer and electrical motor of major equipment listed, but not limited to above.
- ii. Full description including settings for all relays installed on all outgoing feeders from **Power Station** switchyard, tie circuit breakers, incoming circuit breakers.
- iii. Full description of inter-tripping of circuit breakers at the point or points of **Connection** with the **Transmission System**.
- iv. Most probable fault clearance time for electrical faults on the **User's** system.
- v. Full description of operational and commercial metering schemes.

B.1.1.3 SWITCHYARD

In relation to interconnecting transformers:

- i. Rated MVA.
- ii. Voltage Ratio.
- iii. Vector Group.
- iv. Positive sequence reactance for maximum, minimum, normal Tap. (% on MVA).
- v. Positive sequence resistance for maximum, minimum, normal Tap. (% on MVA).
- vi. Zero sequence reactance. (% on MVA).
- vii. Tap changer Range (+% to -%) and steps.
- viii. Type of Tap changer. (OFF/ON).

In relation to switchgear including circuit breakers, isolators on all circuits connected to the **Connection Points**:

- i. Rated voltage (kV).
- ii. Type of circuit breaker (MOCB/ABCB/SF6).
- iii. Rated short circuit breaking current (kA) 3phase.
- iv. Rated short circuit breaking current (kA) 1phase.
- v. Rated short circuit making current (kA) 3phase.
- vi. Rated short circuit making current (kA) 1-phase.
- vii. Provisions of auto reclosing with details.

Lightning Arresters:

Technical data.

Communication:

Details of equipment installed at **Connection Points**.

Basic Insulation Level (kV):

- i. Busbar.
- ii. Switchgear.
- iii. Transformer bushings.
- iv. Transformer windings.

B.1.1.4 GENERATING UNITS

(a) Parameters of **Generating Units**:

- i. Rated terminal voltage (kV).
- ii. Rated MVA.
- iii. Rated MW.
- iv. Inertia constant (MW Sec./MVA)H.
- v. Short circuit ratio.
- vi. Direct axis Synchronous reactance (% on MVA) X_d
- vii. Direct axis Transient reactance (% on MVA) X'_d
- viii. Direct axis sub-transient reactance (% on MVA) X''_d
- ix. Quadrature axis Synchronous reactance (% on MVA) X_q
- x. Quadrature axis Transient reactance (% on MVA) X'_q
- xi. Quadrature axis sub-transient reactance (% on MVA) X''_q
- xii. Direct axis Transient open circuit time constant (Sec) T'_{do}
- xiii. Direct axis sub-transient open circuit time constant (Sec) T''_{do}
- xiv. Quadrature axis Transient open circuit time constant (Sec) T'_{qo}
- xv. Quadrature axis sub-transient open circuit time constant (Sec) T''_{qo}
- xvi. Stator resistance (Ohm) R_a
- xvii. Stator leakage reactance (Ohm) X_l
- xviii. Stator time constant (Sec).
- xix. Rated field current (A).
- xx. Open circuit saturation characteristic for various terminal giving the compounding current to achieve the same.

(b) Parameters of Excitation Control System:

- i. Type of excitation.
- ii. Maximum field voltage.
- iii. Minimum field voltage.
- iv. Rated field voltage.
- v. Details of excitation loop in block diagrams showing transfer functions of individual elements using IEEE symbols.
- vi. Dynamic characteristics of over-excitation limiter.
- vii. Dynamic characteristics of under-excitation limiter.

(c) Parameters of Governor:

- i. Governor average gain (MW/Hz).
- ii. Speeder motor setting range.
- iii. Time constant of steam or fuel governor valve.
- iv. Governor valve opening limits.
- v. Governor valve rate limits.

- vi. Time constant of turbine.
- vii. Governor block diagram showing transfer functions of individual elements using IEEE symbols.

(d) Operational Parameters:

- i. Minimum notice required to synchronize a **Generating Unit** from de-synchronization.
- ii. Minimum time between synchronizing different **Generating Units** in a **Power Station**.
- iii. The minimum block load requirements on synchronizing.
- iv. Time required for synchronizing a **Generating Unit** for the following conditions:
 - a) Hot
 - b) Warm
 - c) Cold
- v. Maximum **Generating Unit** loading rates for the following conditions:
 - a) Hot
 - b) Warm
 - c) Cold
- vi. Minimum load without oil support (MW).

B.1.2 HYDRO-ELECTRIC STATIONS

B.1.2.1 GENERAL

- i. Name of **Power Station**.
- ii. No. and capacity of units.(MVA)
- iii. Ratings of all major equipment.
 - a) Turbines (HP).
 - b) **Generators** (MVA).
 - c) Generator Transformers (MVA).
 - d) Auxiliary Transformers (MVA).
- iv. Single line diagram of **Power Station** and switchyard.
- v. Relaying and metering diagram.
- vi. Neutral grounding of **Generator**.
- vii. Excitation control.
- viii. Earthing arrangements with earth resistance values.
- ix. Reservoir Data.
 - a) Salient features
 - b) Type of Reservoir
 1. Multi purpose
 2. For Power
 - c) Operating Table with
 1. Area capacity curves and
 2. Unit capability at different net heads
 - d) Rule Curve.

B.1.2.2 PROTECTION

- i. Full description including settings for all relays and protection systems installed on the **Generating Unit**, generator transformer, auxiliary transformer and electrical motor of major equipment included, but not limited to those listed above.
- ii. Full description including settings for all relays installed on all outgoing feeders from **Power Station** switchyard, tie breakers, incoming breakers.
- iii. Full description of inter-tripping of breakers at the point or **Connection Points** with the **Transmission System**.

- iv. Most probable fault clearance time for electrical faults on the **User's** System.

B.1.2.3 SWITCHYARD

- (a) Interconnecting Transformers:
 - i. Rated MVA.
 - ii. Voltage ratio.
 - iii. Vector group.
 - iv. Positive sequence reactance for maximum, minimum and normal tap. (% on MVA).
 - v. Positive sequence resistance for maximum, minimum and normal Tap (% on MVA).
 - vi. Zero sequence reactance (% on MVA).
 - vii. Tap changer range (+% to -%) and steps.
 - viii. Type of tap changer (OFF/ON).
- (b) Switchgear (including circuit breakers, isolators on all circuits connected to the **Connection Points**.)
 - i. Rated voltage (kV).
 - ii. Type of Breaker (MOCB/ABCB/SF6).
 - iii. Rated short circuit breaking current (kA) 3phase.
 - iv. Rated short circuit breaking current (kA) 1phase.
 - v. Rated short circuit making current (kA) 3phase.
 - vi. Rated short circuit making current (kA) 1phase.
 - vii. Provisions of auto reclosing with details.
- (c) Lightning Arresters: Technical data.
- (d) Communications:

Details of communications equipment installed at **Connection Points**.
- (e) Basic Insulation Level (kV):
 - i. Busbar.
 - ii. Switchgear.
 - iii. Transformer Bushings.
 - iv. Transformer windings.

B.1.2.4 GENERATING UNITS

(a) Parameters of **Generator**

- i. Rated terminal voltage (kV).
- ii. Rated MVA.
- iii. Rated MW.
- iv. Inertia constant (MW sec/MVA) H.
- v. Short circuit ratio.
- vi. Direct axis synchronous reactance. (% on MVA) X_d
- vii. Direct axis transient reactance (% on MVA) X'_d .
- viii. Direct axis sub-transient reactance (% on MVA) X''_d .
- ix. Quadrature axis synchronous reactance (% on MVA) X_q
- x. Quadrature axis transient reactance (% on MVA) X'_q
- xi. Quadrature axis sub-transient reactance (% on MVA) X''_q
- xii. Direct axis transient open circuit time constant (sec) T'_{do}
- xiii. Direct axis sub-transient open circuit time constant (Sec) T''_{do}
- xiv. Quadrature axis transient open circuit time constant (Sec) T'_{qo}
- xv. Quadrature axis transient open circuit time constant (Sec) T''_{qo}
- xvi. Stator Resistance (Ohm) R_a
- xvii. Stator leakage reactance (Ohm) X_l
- xviii. Stator time constant (Sec).
- xix. Rated Field current (A).
- xx. Open Circuit saturation characteristics of the **Generator** for various terminal voltages giving the compounding current to achieve this.
- xxi. Type of Turbine.
- xxii. Operating Head (Mtr.).
- xxiii. Discharge with Full Gate Opening (cusecs).
- xxiv. Speed Rise on total Load throw off (%).

(b) Parameters of Excitation Control System: As applicable to thermal **Power Stations**.

(c) Parameters of Governor:

As applicable to thermal **Power Station**.

(d) Operational Parameter:

- i. Minimum notice required to synchronize a **Generating Unit** from de-synchronization.
- ii. Minimum time between synchronizing different **Generating Units** in a **Power Station**.
- iii. Minimum block load requirements on synchronizing.

B.1.3 VRE GENERATING PLANTS

B.1.3.1 GENERAL

- i. Name of **Power Station**.
- ii. No. and capacity of wind turbines. (MVA)
- iii. Ratings of all major equipment:
 - a) Wind Turbines (MVA) or PV panels (MVA)
 - b) Generator Transformers (MVA).
 - c) Auxiliary Transformers (MVA).
- iv. Single line diagram of **Power Station** and switchyard.
- v. Relaying and metering diagram.
- vi. Neutral grounding of **Generator**.
- vii. Voltage control.
- viii. Earthing arrangements with earth resistance values.
- ix. Wind Characteristics (for Wind Power plants):
 - a) Expected monthly production (MWh)
 - b) Average wind and direction (monthly)
 - c) Wind Turbine Operating characteristics
 1. Cut-in wind;
 2. Cut-off wind; and
 3. Wind-electrical power curve
- x. Characteristics of the PV system (for PV power plants):
 - a) Expected monthly production (MWh)
 - b) Hourly average irradiation (for each month)
 - c) PV system characteristics:
 1. Cut-in irradiation;
 2. Cut-off irradiation; and
 3. Irradiation-electrical power curve.

B.1.3.2 PROTECTION

- i. Full description including settings for all relays and protection systems installed on the **Wind Generating Plant**, generator transformer, auxiliary transformer and electrical motor of major equipment included, but not limited to those listed above.

- ii. Full description including settings for all relays installed on all outgoing feeders from **Power Station** switchyard, tie breakers, incoming breakers.
- iii. Full description of inter-tripping of breakers at the point or points of **Connection** with the **Transmission System**.
- iv. Most probable fault clearance time for electrical faults on the **User's** System.

B.1.3.3 SWITCHYARD

- a) Interconnecting Transformers:
 - i. Rated MVA.
 - ii. Voltage ratio.
 - iii. Vector group.
 - iv. Positive sequence reactance for maximum, minimum and normal tap (% on MVA).
 - v. Positive sequence resistance for maximum, minimum and normal Tap (% on MVA).
 - vi. Zero sequence reactance (% on MVA).
 - vii. Tap changer range (+% to -%) and steps.
 - viii. Type of tap changer. (OFF/ON).
- b) Switchgear (including circuit breakers, isolators on all circuits connected to the **Connection Points**):
 - i. Rated voltage (kV).
 - ii. Type of Breaker (MOCB/ ABCB/ SF6).
 - iii. Rated short circuit breaking current (kA) 3 phase.
 - iv. Rated short circuit breaking current (kA) 1 phase.
 - v. Rated short circuit making current (kA) 3 phase.
 - vi. Rated short circuit making current (kA) 1 phase.
 - vii. Provisions of auto reclosing with details.
- c) Lightning Arresters:

Technical data.
- d) Communications:

Details of communications equipment installed at **Connection Points**.

- e) Basic Insulation Level (kV):
 - i. Busbar.
 - ii. Switchgear.
 - iii. Transformer Bushings.
 - iv. Transformer windings.

B.1.3.4 VRE GENERATING UNITS

- a) Parameters of **Generator**:
 - i. Rated terminal voltage (kV).
 - ii. Rated MVA.
 - iii. Rated MW.
 - iv. Inertia constant (MWsec/MVA) H. (for wind turbines directly connected)
 - v. Short circuit ratio.
- b) Parameters of the Voltage Control System:
 - i. Type of control voltage.
 - ii. Details of the voltage control loop in block diagrams showing transfer functions of individual elements using IEEE symbols.
- c) Parameters of the active power control:
 - i. Governor block diagram showing transfer functions of individual elements using IEEE symbols.
- d) Operational Parameter:
 - i. Minimum notice required to synchronize a **VRE Generating Plant** from de-synchronization.
 - ii. Minimum block load requirements on synchronizing.

PART 2. FOR SUBMISSION ON REQUEST BY LICENSEE

B.1.4 THERMAL POWER STATIONS

B.1.4.1 GENERAL

- i. Detailed Project Report.
- ii. Status Report:
 - a. Land.
 - b. Fossil Fuel.
 - c. Water.
 - d. Environmental clearance.
 - e. Rehabilitation of displaced persons.
- iii. Techno-economic approval by the **Commission**.
- iv. Approval of Bangladesh Government
- v. Financial Tie-up.

B.1.4.2 CONNECTION

- i. Reports of Studies for parallel operation with the **Transmission System**:
 - a. Short circuit studies.
 - b. Stability studies.
 - c. Load flow studies.
- ii. Proposed **Connection** with **Transmission System**:
 - a. Voltage.
 - b. Number of circuits.
 - c. **Connection Point**.

B.1.5 HYDRO-ELECTRIC POWER STATIONS

B.1.5.1 GENERAL

- i. Detailed Project Report.
- ii. Status Report:
 - a. Topographical survey.
 - b. Geological survey.
 - c. Land.
 - d. Environmental clearance.
 - e. Rehabilitation of displaced persons.
- iii. Techno-economic approval by the **Commission**.
- iv. Approval of Bangladesh Government.
- v. Financial Tie-up.

B.1.5.2 CONNECTION

- i. Reports of Studies for parallel operation with the **Transmission System**:
 - a. Short circuit studies.
 - b. Stability studies.
 - c. Load flow studies.
- ii. Proposed **Connection** with **Transmission System**:
 - a. Voltage.
 - b. Number of circuits.
 - c. **Connection Point**.

B.1.6 VRE GENERATING STATIONS

B.1.6.1 GENERAL

- i. Detailed Project Report.
- ii. Status Report:
 - a. Topographical survey.
 - b. Geological survey.
 - c. Land.
 - d. Environmental clearance.
 - e. Rehabilitation of displaced persons.
- iii. Techno-economic approval by the **Commission**.
- iv. Approval of Bangladesh Government.
- v. Financial Tie-up.

B.1.6.2 CONNECTION

- iii. Reports of Studies for parallel operation with the **Transmission System**:
 - a. Short circuit studies.
 - b. Stability studies.
 - c. Load flow studies.
- iv. Proposed **Connection** with **Transmission System**:
 - a. Voltage.
 - b. Number of circuits.
 - c. **Connection Point**.

B.2 DETAILED SYSTEM DATA, TRANSMISSION

B.2.1 GENERAL

- i. Single line diagram of the **Transmission System** down to 33 kV bus at **Grid** substation detailing:
 - a. Name of Substation.
 - b. **Power Station**, connected.
 - c. Number and length of circuits.
 - d. Interconnecting transformers.
 - e. Substation bus layouts.
 - f. Power transformers.
 - g. Reactive compensation equipment.

- ii. Substation layout diagrams showing:
 - a. Busbar layouts.
 - b. Electrical circuitry, lines, cables, transformers, switchgear etc.
 - c. Phasing arrangements.
 - d. Earthing arrangements.
 - e. Switching facilities and interlocking arrangements.
 - f. Operating voltages.
 - g. Numbering and nomenclature:
 - 1) Transformers.
 - 2) Circuits.
 - 3) Circuit breakers.
 - 4) Isolating switches.

B.2.2 LINE PARAMETERS (For all circuits)

- i. Designation of Line.
- ii. Length of line (km)
- iii. Number of circuits.
- iv. Per Circuit values:
 - a. Operating voltage (kV).
 - b. Positive Phase sequence reactance (pu on 100 MVA) X_1
 - c. Positive Phase sequence resistance (pu on 100 MVA) R_1
 - d. Positive Phase sequence susceptance (pu on 100 MVA) B_1
 - e. Zero Phase sequence reactance (pu on 100 MVA) X_0
 - f. Zero Phase sequence resistance (pu on 100 MVA) R_0
 - g. Zero Phase sequence susceptance (pu on 100 MVA) B_0

B.2.3 TRANSFORMER PARAMETERS (For all transformers)

- i. Rated MVA.
- ii. Voltage Ratio.
- iii. Vector Group.
- iv. Positive sequence reactance, maximum, minimum and normal (pu on 100 MVA) X_1
- v. Positive sequence, resistance maximum, minimum and normal (pu on 100 MVA) R_1
- vi. Zero sequence reactance (pu on 100 MVA).
- vii. Tap change range (+% to -%) and steps.
- viii. Details of Tap changer.(OFF/ON).

B.2.4 EQUIPMENT DETAILS (For all substations)

- i. Circuit Breakers
- ii. Isolating switches
- iii. Current Transformers
- iv. Potential Transformers

B.2.5 RELAYING AND METERING

- i. Relay protection installed for all transformers and feeders along with their settings and level of coordination with other **Users**.
- ii. Metering Details.

B.2.6 SYSTEM STUDIES

- i. Load flow studies (peak and off peak loads).
- ii. Transient stability studies for three phase fault in critical lines.
- iii. Dynamic Stability Studies
- iv. Short circuit studies (three phase and single phase to earth)
- v. Transmission and distribution losses in the system.

B.2.7 DEMAND DATA (For all substations)

- i. Demand Profile (Peak and off peak load)

B.2.8 REACTIVE COMPENSATION EQUIPMENT

- i. Type of equipment (fixed or variable).
- ii. Capacities and/ or inductive rating or its operating range in MVAR.
- iii. Details of control.
- iv. **Connection Point** to the System.

B.3 DETAILED PLANNING DATA, DISTRIBUTION

B.3.1 GENERAL

- i. Distribution map (To scale) showing all lines up to 33 kV and 33/11 kV substations belonging to the **Distribution Utility**.
- ii. Single line diagram of **Distribution System** (showing distribution lines **Connection Points** with the **Transmission System**, 132/33 kV and 33/11 kV substations).
- iii. Numbering and nomenclature of lines and substations (Identified with feeding **Grid** substations of the **Transmission System** and concerned 132/33 kV and 33/11 kV substation of **Distribution Utility**).

B.3.2 CONNECTION

- i. **Connection Points** (Furnish details of existing arrangement of **Connection**).
- ii. Full description of operational and commercial metering scheme.

B.3.3 LOADS

- i. Connected load - Furnish consumer details, Numbers of consumers category wise, details of loads 1 MW and above.
- ii. Information on diversity of load and coincidence factor.
- iii. Daily demand profile (current and forecast) on each 132/33 kV and 33/11 kV substation.
- iv. Cumulative demand profile of **Distribution System** (current and forecast).

APPENDIX- C**C. OPERATIONAL PLANNING DATA****C.1 OUTAGE PLANNING DATA
REFERENCE TO:
SECTION 6 OUTAGE PLANNING****C.1.1 DEMAND ESTIMATES**

Item	To be Submitted By
i. Estimated aggregate annual sales of energy in million units and peak and off peak demand in MW & MVAR at each Connection Point for the period from July of current year to June of next year.	31 st March of current year.
ii. Estimated aggregate monthly sales of energy in million units and peak and off peak demand in MW & MVAR at each Connection Point for the next month.	15 th of current month
iii. Hourly demand estimates for the day ahead.	10.00 Hours every day

C.1.2 ESTIMATES OF LOAD SHEDDING

Item	To be Submitted By
i. Details of discrete load blocks that may be shed to comply with instructions issued by the System Operator when required, from each Connection Point .	Soon after connection is made.

C.1.3 YEAR AHEAD OUTAGE PROGRAMME

(For the period July to June)

C.1.3.1 GENERATORS OUTAGE PROGRAMME

Item	To be Submitted By
i. Identification of Generating Unit .	31 st March each year
ii. MW which will not be available as a result of Outage .	31 st March each year

iii. Preferred start date and start time or range of start dates and start times and period of Outage .	31 st March each year
iv. If outages are required to meet statutory requirements, then the latest date by which Outage must be taken.	31 st March each year

C.1.3.2 YEAR AHEAD DISTRIBUTION UTILITY'S OUTAGE PROGRAMME

Item	To be Submitted By
i. Loads in MW not available from any Connection Point .	31 st March each year
ii. Identification of Connection Point .	31 st March each year
iii. Period of suspension of drawal with start date and start time.	31 st March each year

C.1.3.3 THE LICENSEE'S OVERALL OUTAGE PROGRAMME

Item	To be Submitted By
i. Report on proposed Outage program	31 st April each year
ii. Release of finally agreed Outage plan.	31 st May each year

C.2

GENERATION SCHEDULING DATA

REFERENCE TO:
SECTION 7 SCHEDULE AND DISPATCH

Item	To be Submitted By
i. 36 hour ahead hourly MW & MVAR Declared Available (forecasted in case of VRE) Capacity (00.00 - 24.00 Hours) of all Generator Units.	12.00 Hours every day.
ii. Status of Generating Unit excitation AVR (or voltage control system) in service (Yes/ No).	12.00 Hours every day.
iii. Status of Generating Unit speed control system. Governor (or active power control system) in service (Yes/ No).	12.00 Hours every day.
iv. Spinning reserve capability (MW)	12.00 Hours every day.
v. Backing down capability with/ without oil support (MW)	12.00 Hours every day.
vi. Hydro reservoir levels and restrictions (rule curve)	12.00 Hours every day.
vii. Generating Units hourly summation outputs (MW)	12.00 Hours every day
viii. Provisional day after Declared Availability Capacity notification	

C.3 CAPABILITY DATA**REFERENCE TO:
SECTION 8 FREQUENCY AND VOLTAGE MANAGEMENT**

Item	To be Submitted By
i. Generators shall submit to the Licensee up-to-date Capability Curves for all Generating Units .	On receipt of request by the Licensee

C.4 RESPONSE TO FREQUENCY CHANGE**REFERENCE TO:
SECTION 8 FREQUENCY AND VOLTAGE MANAGEMENT**

- i. Primary response in MW at different levels of loads ranging from minimum generation to registered capacity for frequency changes resulting in fully opening of governor valve.
- ii. Secondary response in MW to frequency changes.

Item	To be Submitted By
i. Generators shall provide hourly generation summation to LDC .	To be submitted by real time basis
ii. Logged readings of Generators to LDC .	As required
iii. Detailed report of GeneratingUnit tripping on monthly basis.	In the first week of the succeeding month

C.5 ESSENTIAL AND NON-ESSENTIAL LOAD DATA**REFERENCE TO:
SECTION 9 CONTINGENCY PLANNING**

Item	To be Submitted By
i. Schedule of essential and non-essential loads on each discrete load block for purposes of load shedding.	As soon as possible after Connection

APPENDIX- D**D. PROTECTION DATA****REFERENCE TO:
SECTION 12 PROTECTION**

Item	To be Submitted By
i. Generators shall submit details of protection requirement and schemes installed by them as referred to in B.1. Detailed Planning Data under sub- Section "Protection And Metering".	As applicable to Detailed Planning Data
ii. The Licensee shall submit details of protection equipment and schemes installed by them as referred to in B.2. Detailed System Data, Transmission under sub- Section "Relaying and Metering" in relation to Connection with any User .	As applicable to Detailed Planning Data

APPENDIX- E**E. METERING DATA****REFERENCE TO:
SECTION 13 METERING**

Item	To be Submitted By
i. Generators shall submit details of metering equipment and schemes installed by them in accordance with PPA as referred in B.1. Detailed Planning Data under sub-Section "Protection and Metering".	As applicable to Detailed Planning Data
ii. The Licensee shall submit details of metering equipment and schemes installed by them as referred in B.2. Detailed System Data, Transmission under sub-Section "Relaying and Metering" in relation to Connection with any User .	As applicable to Detailed Planning Data
iii. The Distribution Utilities shall submit details of metering equipment and schemes installed by them in accordance with PSA as referred in B.3. Detailed Planning Data , Distribution under sub-Section "Relaying and Metering" in relation to Connection with any User .	As applicable to Detailed Planning Data

17. PERFORMANCE STANDARDS FOR TRANSMISSION

17.1 PURPOSE AND SCOPE

17.1.1 Purpose

- (a) To ensure the quality of electric power in the **Grid**;
- (b) To ensure that the **Grid** will be operated in a safe and efficient manner and with a high degree of reliability; and
- (c) To specify safety standards for the protection of personnel in the work environment.

17.1.2 Scope of Application

This Chapter applies to all **Grid Users** including:

- (a) The **Licensee**;
- (b) **System Operator**;
- (c) **Generators**;
- (d) **Distribution Utilities**; and
- (e) Any other **Entity** (e.g. owners of HVDC converter, **Bulk Power Consumers**, large furnaces, etc.) with a **User System** connected to the **Grid**.

17.2 POWER QUALITY STANDARDS

17.2.1 Power Quality Problems

For the purpose of this Article, Power Quality shall be defined as the quality of the voltage, including its frequency and the resulting current, that are measured in the **Grid** during normal conditions.

A Power Quality problem exists when at least one of the following conditions is present and significantly affects the normal operation of the System:

- (a) The System Frequency has deviated from the nominal value of 50 Hz;
 - (b) Voltage magnitudes are outside their allowable range of variation;
 - (c) Harmonic Frequencies are present in the System;
 - (d) There is imbalance in the magnitude of the phase voltages;
 - (e) The phase displacement between the voltages is not equal to 120 degrees;
 - (f) Voltage Fluctuations cause Flicker that is outside the allowable Flicker Severity limits;
- or

(g) High-frequency Over-voltages are present in the **Grid**.

17.2.2 Frequency Variations

The nominal fundamental frequency shall be 50 Hz.

The control of System frequency shall be the responsibility of the **System Operator**. The **System Operator** shall maintain the fundamental frequency within the limits of 49.5 Hz and 50.5 Hz during normal conditions.

17.2.3 Voltage Variations

For the purpose of this **Section**, Voltage Variation shall be defined as the deviation of the root-mean-square (RMS) value of the voltage from its nominal value, expressed inpercent. Voltage Variation will either be of short duration or long duration.

A Short Duration Voltage Variation shall be defined as a variation of the RMS value of the voltage from nominal voltage for a time greater than one-half cycle of the power frequency but not exceeding one minute. A Short Duration Voltage Variation is a Voltage Swell if the RMS value of the voltage increases to between 110 percent and 180 percent of the nominal value. A Short Duration Voltage Variation is a Voltage Sag (or Voltage Dip) if the RMS value of the voltage decreases to between 10 percent and 90 percent of the nominal value.

A Long Duration Voltage Variation shall be defined as a variation of the RMS value of the voltage from nominal voltage for a time greater than one minute. A Long Duration Voltage Variation is an Under-voltage if the RMS value of the voltage is less than or equal to 90 percent of the nominal voltage. A Long Duration Voltage Variation is an Overvoltage if the RMS value of the voltage is greater than or equal to 110 percent of the nominal value.

The **Licensee** and the **System Operator** shall ensure that the Long Duration Voltage Variations result in RMS values of the voltages that are greater than 95 percent but less than 105 percent of the nominal voltage at any **Connection Point** during normal conditions.

17.2.4 Harmonics

For the purpose of this **Section**, Harmonics shall be defined as sinusoidal voltages and currents having frequencies that are integral multiples of the fundamental frequency. The Total Harmonic Distortion (THD) shall be defined as the ratio of the RMS value of the harmonic content to the RMS value of the fundamental quantity, expressed in percent.

The Total Demand Distortion (TDD) shall be defined as the ratio of the RMS value of the harmonic content to the RMS value of the rated or maximum fundamental quantity, expressed inpercent.

The Total Harmonic Distortion of the voltage and the Total Demand Distortion of the current at any **Connection Point** shall not exceed the limits given in Tables 17-1 and 17-2,

respectively.

Table 17-1 : Maximum Harmonic Distortion Factor

Harmonic Voltage Distortion			
Voltage Level	THD *	Individual	
		Odd	Even
400 kV	1.5%	1.0%	0.5%
132-230 kV	2.5%	1.5%	1.0%
66 kV	3.0%	2.0%	2.0%

* Total Harmonic Distortion

Table 17-2 : Maximum Harmonic Distortion Factor

Harmonic Current Distortion			
Voltage Level	TDD *	Individual	
		Odd	Even
400 kV	1.5%	1.0%	0.5%
132-230 kV	2.5%	2.0%	0.5%
66 kV	5.0%	4.0%	1.0%

* Total Demand Distortion

17.2.5 Voltage Unbalance

For the purpose of this **Section**, the Negative Sequence Unbalance Factor shall be defined as the ratio of the magnitude of the negative sequence component of the voltages to the magnitude of the positive sequence component of the voltages, expressed in percent. For the purpose of this **Section**, the Zero Sequence Unbalance Factor shall be defined as the ratio of the magnitude of the zero sequence component of the voltages to the magnitude of the positive sequence component of the voltages, expressed in percent.

The maximum Negative Sequence Unbalance Factor at the **Connection Point** of any **User** shall not exceed one (1) percent during normal operating conditions.

The maximum Zero Sequence Unbalance Factor at the **Connection Point** of any **User** shall not exceed one (1) percent during normal operating conditions.

17.2.6 Voltage Fluctuation and Flicker Severity

For the purpose of this **Section**, Voltage Fluctuations shall be defined as systematic variations of the voltage envelope or random amplitude changes where the RMS value of the voltage is between 90 percent and 110 percent of the nominal voltage.

For the purpose of this **Section**, Flicker shall be defined as the impression of unsteadiness of visual sensation induced by a light stimulus whose luminance or spectral distribution fluctuates with time.

In the assessment of the disturbance caused by a Flicker source with a short duty cycle, the Short Term Flicker Severity shall be computed over a 10-minute period.

In the assessment of the disturbance caused by a Flicker source with a long and variable duty cycle, the Long Term Flicker Severity shall be derived from the Short Term Flicker Severity levels.

The Voltage Fluctuation at any **Connection Point** with a fluctuating demand shall not exceed one percent (1%) of the nominal voltage for every step change, which may occur repetitively. Any large Voltage Fluctuation other than a step change may be allowed up to a level of three percent (3%) provided that this does not constitute a risk to the **Grid** or to the System of any **User**.

The Flicker Severity at any **Connection Point** in the **Grid** shall not exceed the values given in Table 17-3.

Table 17-3 : MAXIMUM FLICKER SEVERITY

	Short Term	Long Term
132 kV and above	0.8 unit	0.6 unit
below 132 kV	1.0 unit	0.8 unit

17.2.7 Transient Voltage Variations

For the purpose of this **Section**, Transient Voltages shall be defined as the high- frequency Over-voltages that are generally shorter in duration compared to the Short Duration Voltage Variations.

Infrequent short-duration peaks may be permitted to exceed the levels specified in **Section** 17.2.4 for harmonic distortions provided that such increases do not compromise service to other End-users or cause damage to any **Grid** equipment.

Infrequent short-duration peaks with a maximum value of two (2) percent may be permitted for Voltage Unbalance, subject to the terms of the **Connection Agreement** or Amended

Connection Agreement.**17.3 RELIABILITY STANDARDS****17.3.1 Criteria for Establishing Transmission Reliability Standards**

The **Commission** shall impose a uniform system of recording and reporting of **Grid** reliability performance.

The numerical levels of performance (or targets) shall be unique and shall be based initially on the **Grid**'s historical performance.

The **Grid** shall be evaluated annually to compare its actual performance with the targets

17.3.2 Transmission Reliability Indices

The **Commission** shall prescribe a reliability index that will measure the total number of sustained power interruptions in the **Grid**. Initially the following indices will be applicable:

- (a) Availability Factor
- (b) AACIR - Average Annual Customer Interruption Rate
- (c) MTTR - Mean Time to Repair
- (d) MTBF - Mean Time Between Failures.

The **Commission** shall prescribe a reliability index that will measure the total duration of sustained power interruptions in the **Grid**.

After due notice and hearing, the **Commission** may impose other indices that will monitor the reliability performance of the **Grid**.

17.3.3 Inclusions and Exclusions of Interruption Events

A power Interruption shall include any Outage in the **Grid** which may be due to the tripping action of protective devices during faults or the failure of transmission lines and/or power transformers, and which results in the loss of service to a **Grid User** or a group of **Users**.

The following events shall be excluded in the calculation of the reliability indices:

- (a) Outages that occur outside the **Grid**;
- (b) Outages due to generation deficit;
- (c) Planned Outages where the **Users** have been notified at least seven (7) days prior to the loss of power;

- (d) Outages that are initiated by the **System Operator** or Market Operator during the occurrence of Significant Incidents or the failure of their facilities;
- (e) Outages caused by Adverse Weather or Major Storm Disasters which result in the declaration by the government of a state of calamity; and
- (f) Outages due to other events that the **Commission** shall approve after due notice and hearing.

17.3.4 Submission of Transmission Reliability Reports and Performance Targets

The **Licensee** and the **System Operator** shall submit every three (3) months the monthly interruption reports using the standard format prescribed by the **Commission**.

The **Commission** shall set the performance targets after due notice and hearing.

17.4 SYSTEM LOSS STANDARDS

17.4.1 System Loss Classifications

System Loss shall be classified into three categories: Technical Loss, Non-Technical Loss, and Administrative Loss.

The Technical Loss shall be the aggregate of conductor loss, the core and copper loss in transformers, and any loss due to technical metering error.

The Non-Technical Loss shall be the aggregate of the Energy loss due to under billing, meter-reading errors etc..

The Administrative Loss shall include the Energy that is required for the proper operation of the **Grid** such as station use, consumption by auxiliaries, etc..

17.4.2 System Loss Cap

The **Commission** shall, after due notice and hearing, prescribe a cap on the System Loss that can be passed on to the **Grid Users**.

17.5 SAFETY STANDARDS

17.5.1 Safety Compliance

The **Licensee** and the **System Operator** shall develop, operate, and maintain the **Grid** in a safe manner and shall always ensure a safe work environment for their employees. The **Electricity Rules 1937** and revisions thereof govern the safety requirements for electrical installation, operation, and maintenance which covers electrical equipment and associated

work practices employed by the electric utility. Compliance with these **Codes** is mandatory. Hence, the **Licensee** and the **System Operator** shall at all times ensure that all provisions of these safety codes are not violated.

17.5.2 Measurement of Performance for Personnel Safety

Following pertinent matters are to be ensured for the measurement of performance for personnel safety that shall be applied to the **Licensee** and the **System Operator**:

- (a) Exposure to work injuries shall be measured by the total number of hours of employment of all employees in each establishment or reporting unit.
- (b) Employee-hours of exposure for calculating work injury rates are intended to be the actual hours worked. When actual hours are not available, estimated hours may be used.
- (c) The Disabling Injury/ Illness Frequency Rate shall be based upon the total number of deaths, permanent total, permanent partial, and temporary total disabilities, which occur during the period covered by the rate. The rate relates those injuries/ illnesses to the employee-hours worked during the period and expresses the number of such injuries in terms of a million man-hour units.
- (d) The Disabling Injury/ Illness Severity Rate shall be based on the total of all scheduled charges for all deaths, permanent total, and permanent partial disabilities, plus the total actual days of the disabilities of all temporary total disabilities, which occur during the period covered by the rate. The rate relates these days to the total employee-hours worked during the period and expresses the loss in terms of million man-hour units.

17.5.3 Submission of Safety Records and Reports

The **Licensee** and **System Operator** shall submit copies of records and reports to the **Commission**. These shall include the measurement of performance specified in sub-Section 17.5.2.

17.6 Electric and Magnetic Field (EMF)

The **Licensee** shall calculate the intensity of Electric and Magnetic Field (EMF) at the edge of right of way for different line configuration and operating voltages. The values of Electric Field shall be determined in V/m and that of Magnetic Field in mT (milli-Tesla) or mG (milli-Gauss). Actual intensity shall practically be measured in accordance with IEEE Standard-644 (latest revision) and the finding shall be submitted to the **Commission**. Safety level with respect to human exposure to electromagnetic field shall also be determined and maintained in accordance with IEEE C95.1 thru IEEE C95.6 (2002 or latest revision).

17.7 Noise Level

Noise level having its source at **Grid** substations and Noise level around the transmission lines shall be in accordance with the Environmental laws of Bangladesh. International standards shall be followed if boundary conditions are missing in the pertinent laws of the country.

18. FINANCIAL STANDARDS

18.1 PURPOSE AND SCOPE

18.1.1 Purpose

- (a) To specify the financial capability standards for the **Entities** listed in sub-Section 18.1.2;
- (b) To safeguard against the risk of financial non-performance;
- (c) To ensure the affordability of electric power supply while maintaining the required quality and reliability; and
- (d) To protect the public interest.

18.1.2 Scope of Application

This Chapter applies to the **Entities** listed below:

- (a) The **Licensee**;
- (b) The **System Operator**;
- (c) The **Single Buyer**; and
- (d) **Distribution Utilities**.

18.2 FINANCIAL STANDARDS FOR THE ENTITIES

18.2.1 Financial Ratios

The following Financial Ratios shall be used to evaluate the Financial Capability of the **Entity**:

- (a) Leverage Ratios;
- (b) Liquidity Ratios;
- (c) Financial Efficiency Ratios; and
- (d) Profitability Ratios.

18.2.2 Leverage Ratios

Leverage Ratios for the **Entity** shall include the following:

- (a) Debt Ratio;
- (b) Debt-Equity Ratio; and
- (c) Interest Cover.

The Debt Ratio shall measure the degree of indebtedness of the **Entity**. The Debt Ratio shall be calculated as the ratio of total liabilities to total assets.

The Debt Ratio shall be used to measure the proportion of assets financed by creditors. The risk addressed by the Debt Ratio is the possibility that the **Entity** cannot pay off interest and principal.

The Debt Ratio can also be calculated as the ratio of Long-Term Debt plus Value of Leases to Long-Term Debt plus Value of Leases plus Equity. Equity is the sum of Outstanding Capital Stock, Retained Earnings, and Revaluation Increment.

The Debt-Equity Ratio shall indicate the relationship between long-term funds provided by creditors and those provided by the **Entity**. The Debt-Equity Ratio shall be calculated as the ratio of the sum of Long-Term Debt plus Value of Leases to Equity. Equity shall be the sum of Outstanding Capital Stock, Retained Earnings, and Revaluation Increment.

The Debt-Equity Ratio shall be used to compare the financial commitments of creditors relative to those of the **Entity**.

The Debt-Equity Ratio shall be used as a measure of the degree of financial leverage of the **Entity**.

The Interest Cover shall measure the ability of the **Entity** to service its debts. The Interest Cover shall be computed as the ratio of Earnings Before Interest and Taxes (EBIT) plus Depreciation to Interest plus Principal Payments.

The Interest Cover shall also be used as a measure of financial leverage for the **Entity** that focuses on the extent to which contractual interest and principal payments are covered by earnings before interest and taxes plus depreciation. The Interest Cover is identical to Debt Service Coverage Ratio because principal payments due during the year are included in the denominator of the ratio.

18.2.3 Liquidity Ratios

Liquidity Ratios shall include the following:

- (a) Current Ratio; and
- (b) Quick Ratio.

The Current Ratio shall measure the ability of the **Entity** to meet short-term obligations. The Financial Current Ratio shall be calculated as the ratio of Current Assets including inventories to Current Liabilities. Current Assets shall consist of cash and assets that can readily be turned into cash by the **Entity**. Current Liabilities shall consist of payments that the **Entity** is expected to make in the near future.

The Financial Current Ratio shall be used as a measure of the margin of liquidity of the **Entity**.

The Quick Ratio shall measure the ability of the **Entity** to satisfy its short-term obligations as they become due. The Quick Ratio shall be calculated as the ratio of the sum of Cash, Marketable Securities, and Receivables to the Current Liabilities.

The Quick Ratio shall be used to measure the safety margin for the payment of current debt of the **Entity** if there is shrinkage in the value of cash and receivables.

18.2.4 Financial Efficiency Ratios

Financial Efficiency Ratios shall include the following:

- (a) Sales-to-Assets Ratio; and
- (b) Average Collection Period.

The Sales-to-Assets Ratio shall measure the efficiency with which the **Entity** uses all its assets to generate sales. The Sales-to-Assets Ratio shall be calculated as the ratio of Sales to Average Total Assets. The Average Total Assets shall be determined using the average of the assets at the beginning and end of the year. The higher the Sales-to-Assets Ratio, the more efficiently the **Entity**'s assets have been used.

The Average Collection Period (ACP) shall measure how quickly other entities pay their bills to the **Entity**. The Average Collection Period shall be calculated as the ratio of Average Receivables to Daily Sales. The Average Receivables shall be determined using the average of the receivables at the beginning and end of the year. Daily Sales shall be computed by dividing Annual Sales by 365 days.

The Average Collection Period shall be used to evaluate the credit and collection policies of the **Entity**.

Two computations of the Average Collection Period shall be made:

- (a) ACP with government accounts and accounts under litigation; and
- (b) ACP without government accounts and accounts under litigation.

18.2.5 Profitability Ratios

Profitability Ratios shall include the following: (a) Net Profit Margin; and (b) Return on Assets.

The Net Profit Margin shall measure the productivity of sales effort. The Net Profit Margin shall be calculated as the ratio of Net Profits After Taxes to Sales. The Net Profits After Taxes shall be computed as Earnings Before Interest and Taxes minus Tax (EBIT – Tax). The Average Total Assets shall be computed as the average of the assets at the beginning and end of the year.

The Net Profit Margin shall be used to measure the percentage of sales that remain after all costs and expenses have been deducted.

The Return on Assets shall measure the overall effectiveness of the **Entity** in generating profits from its available assets. The Return on Assets shall be calculated as the ratio of Earnings Before Interest and Taxes minus Tax to the Average Total Assets. The Average Total Assets shall be computed as the average of the assets at the beginning and end of the year.

18.2.6 Submission and Evaluation

The **Entity** shall submit to the **Commission** true copies of audited balance sheet and financial statement for the preceding financial year on or before October 15 of the current year.

The **Entity** shall submit to the **Commission** the average power consumption and revenue income for each class of customers for the preceding financial year. This requirement is due on or before September 30 of the current year.

Failure to submit to the **Commission** the requirements shall serve as grounds for the imposition of appropriate sanctions, fines, penalties, or adverse evaluation.

All submissions are to be certified by a duly authorized officer.

18.3 UNIFORM SYSTEM OF ACCOUNTS (USOAC)

The **Entity** shall follow the accounting procedures of the **Commission** namely the Uniform System of Accounts (USoAC) in fulfilling the requirements of Financial Standard of Transmission stated in this **Grid Code**.

Anything of the Financial Standard of Transmission contradictory to the provisions/ procedures of the USoAC then the provisions/ system of the later shall prevail.

Bangladesh

Miscellaneous Regulations

রেজিস্টার্ড নং ডি এ-১

বাংলাদেশ



গেজেট

অতিরিক্ত সংখ্যা
কর্তৃপক্ষ কর্তৃক প্রকাশিত

বুধবার, মে ৭, ২০১৪

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH

Ministry of Law, Justice and Parliamentary Affairs
Legislative and Parliamentary Affairs Division

NOTIFICATION

Dated : 28 April, 2014/15th Boishakh, 1421

S. R. O. No. 69-Law/2014.—In exercise of the powers conferred by section 29 of the Sustainable and Renewable Energy Development Authority Act, 2012 (Act No. 48 of 2012), the Government is pleased to publish the following authentic English Text of the Act and it shall be effective from the date on which the Bangla Text of the Act came into force under section 2 of the Act :

**The Sustainable and Renewable Energy Development Authority Act, 2012
(Act No. 48 of 2012)**

[10th December, 2012]

An Act to make provisions for the establishment of the Sustainable and Renewable Energy Development Authority to ensure energy security

WHEREAS it is expedient to control global warming, to mitigate the risk of natural calamity and gradually to lessen dependence on fossil fuel for energy security by promoting the use of renewable energy; and

WHEREAS energy conservation and efficient use thereof may play a role to prevent misuse of energy and reduce global warming; and

(১৩৩৪১)

মূল্য : টাকা ১৬.০০

WHEREAS it is expedient and necessary to make provisions for the establishment of Sustainable and Renewable Energy Development Authority and matters connected therewith to ensure energy security;

THEREFORE, it is hereby enacted as follows:—

CHAPTER 1

Preliminary

1. Short title and commencement.—(1) This Act may be called the Sustainable and Renewable Energy Development Authority Act, 2012.

(2) It shall come into force on such date as the Government may, by notification in the *official Gazette*, appoint.

2. Definitions.—In this Act, unless there is anything repugnant in the subject or context—

- (1) **“non-renewable energy”** means energy derived from natural gas, coal, peat coal, mineral oil, other fossil fuel and energy derived from electricity and nuclear power and any other energy and power derived from any other sources as may be declared by the Government as non-renewable energy, by notification in the *official Gazette*, from time to time;
- (2) **“Authority”** means the Sustainable and Renewable Energy Development Authority established under section 4;
- (3) **“Clean Development Mechanism (CDM)”** means the Clean Development Mechanism set out in rules made under this Act;
- (4) **“Chairman”** means the Chairman of the Board;
- (5) **“energy”** means renewable energy and non-renewable energy and power produced from the use of energy;
- (6) **“energy audit”** means determination of energy efficiency through verification, monitoring and analysis of machinery and appliances of designated consumer and utilization process of energy, and shall also include the account of cost benefit related to comparative energy expenses and technical report containing action plan to reduce energy consumption identifying possible areas of replacement by renewable energy;

- (7) **“Energy Auditor”** means any person or firm, having such qualification as may be determined by the Authority, who or which is capable of conducting energy audit activities of different industrial and business organizations, large buildings and other energy using establishments, in such manner as may be prescribed by regulations;
- (8) **“Energy Manager”** means any person having such qualification as may be determined by the Authority to perform duty as an Energy Manager, who continuously monitors the activities of using energy of the establishment, identified by the Authority, reduces its inefficient and dissipative use of energy, prepares and maintains reports thereof and submit it to the competent authority;
- (9) **“energy resources”** means all types of primary and commercial energy or converted energy, natural gas, mineral oil, coal, peat coal, electricity, other fossil fuel, bio-gas, bio mass, bio fuel, hydrogen cell, geothermal, energy derived from low and high tide and wave, solar energy, wind energy, hydro power, nuclear power etc. produced in the country or imported from abroad;
- (10) **“energy conservation”** means energy conserved by taking steps such as improvement of energy burning efficiency, prevention of misuse of energy, recovery and use of waste heat, use of more efficient and environment friendly alternate energy in place of energy being used, efficient use of energy etc;
- (11) **“sustainable energy”** means the development of renewable energy and activities relating to energy efficiency and its conservation;
- (12) **“designated consumer”** means a consumer declared as designated consumer prescribed by rules;
- (13) **“fund”** means the Sustainable and Renewable Energy Development Authority Fund mentioned in section 19;
- (14) **“renewable energy”** means bio-mass (fire wood, paddy husk, sugar cane bagasse, waste etc.), bio-fuel, bio gas, hydro power, solar energy, wind energy, hydrogen cell, geothermal, low and high tide energy and energy derived from any other source as may be declared by the Government, from time to time, by notification in the *official gazette*;

- (15) “**prescribed**” means prescribed by rules or regulations;
- (16) “**Board**” means the Board constituted under section 9;
- (17) “**regulations**” means regulations made under this Act;
- (18) “**fuel**” means energy products;
- (19) “**rules**” means rules made under this Act;
- (20) “**member**” means any member of the Board.

3. Overriding effect of the Act.—Notwithstanding anything contained in any other law for the time being in force, for carrying out the purposes of this Act, the provisions of this Act shall prevail.

CHAPTER 2

Establishment, and functions of the Authority, etc.

4. Establishment of the Authority.—(1) After the commencement of this Act, the Government shall, by notification in the *official Gazette*, establish an Authority to be called the Sustainable and Renewable Energy Development Authority.

(2) The Authority shall be a body corporate, having perpetual succession, and a common seal, with power, subject to the prior approval of the Government, to acquire, hold and dispose of property, both movable and immovable, and shall by the said name sue and be sued.

5. Office of the Authority.—(1) The head office of the Authority shall be at Dhaka.

(2) The Authority may, with the prior approval of Government, set up its branch office at any place of Bangladesh.

6. Responsibilities and Functions of the Authority.—Responsibilities and Functions of the Authority shall be as follows, namely :—

- (1) to take necessary measures to create public awareness and motivation for efficient use of power and energy and its conservation;
- (2) to encourage the use of power and energy efficient equipment and take necessary steps for standardization and labeling of power and energy using equipment and appliances;

- (3) to establish testing laboratories or provide assistance in establishing laboratories in order to test and certify on standard equipments of using energy;
- (4) to encourage energy efficiency and conservation related research and development and to identify innovative financing for implementation of projects or associated works relating thereto, and arrange necessary training in this behalf;
- (5) to assist the Government in making and implementation of energy efficient building code;
- (6) to make regulation for qualification and competency of energy manager and energy auditors and selection of accredited energy auditor firm;
- (7) to coordinate the implementation activities of energy efficiency and conservation in government, semi-government and autonomous bodies and create commercial market for sustainable energy in private sector through demonstration;
- (8) to assist the Government in making necessary laws, rules, regulations for sustainable energy development;
- (9) to identify energy inefficient equipment and take necessary measures to stop its production, import and sales;
- (10) to take necessary measures to declare designated consumers of different energy consumers or category of consumers;
- (11) to prepare and update inventory of renewable energy resources and associated technologies, indicating its geographical location of sites and verify its suitability for commercial use after assessing possibilities of its exploitation;
- (12) to provide necessary technical assistance in preparing CDM or similar type of activities;
- (13) to prepare short, medium and long term development project to extend the use of renewable energy with specific targets and take necessary steps to implement it;

- (14) to provide technical and financial assistance in research, development, demonstration and training on renewable energy;
- (15) to take necessary steps for creating public awareness and motivation in order to encourage the use of renewable energy in public and private sector;
- (16) to assist to identify sources of financing and make necessary arrangement to provide financial incentives to attract and encourage private investment in renewable energy sector;
- (17) to send tariff proposal of renewable energy to Bangladesh Energy Regulatory Commission established under section 4 of Bangladesh Energy Regulatory Commission Act, 2003 (Act No. 13 of 2003), upon discussion with the Government;
- (18) to assist the Government to coordinate the implementation of renewable energy development related activities in government, semi-government and autonomous bodies;
- (19) to encourage commercialization of renewable energy and energy efficiency activities in private sector through implementation of pilot project;
- (20) to assist the Government to formulate, update and implementation of policies made under this Act, including revision of Renewable Energy policy;
- (21) to coordinate with different Ministries, Divisions and organizations in matters related to sustainable energy;
- (22) to establish linkage with regional and international organizations on sustainable energy;
- (23) to perform such other functions as may be prescribed by rules or by the Government, from time to time.

7. Power of the Authority to impose fee.—The authority may, with the prior approval of the Government, impose appropriate fee for any act done under this Act.

CHAPTER 3

Matters relating to management

8. **Management.**—The general direction and management of the Authority shall vest in a Board and the Board of Directors may exercise such powers and perform such functions as may be exercised and performed by the Authority.

9. **Constitution of the Board of Directors.**—(1) The Board of Directors of the Authority shall consist of a Chairman and members not more than 16(sixteen).

(2) The Chairmen and 5(five) members shall be the fulltime members and other members shall be the honorary members of the Board of Directors.

(3) The Chairman and the fulltime members of the Board of Directors shall be appointed by the Government and the terms and conditions of their service shall be determined by the Government.

(4) The Chairman shall be the Chief executive of the Authority.

(5) 6(six) representatives from different Ministries/Divisions, and 5 (five) members to be nominated by the Government from academicians, professionals, technical experts, business representatives or representative from non-government development organization to be included as the honorary members of the Board of Directors.

(6) The member, nominated under sub-section (5) shall hold his office for a period of 2 (two) years from the date of his nomination :

Provided that nominated member shall resign from his office upon the request of the Government or any such member may resign from his office by a letter in writing under his signature addressed to the Chairman.

(7) The Government may re-nominate any member nominated under sub-section (5).

10. **Meeting of the Board of Directors.**—(1) The Board of Directors shall subject to the provisions of this section, determine the procedures of its meeting.

(2) The meeting of the Board shall be held at as such times and places as may be determined by the Chairman:

Provided that the Board of Directors shall hold its meeting at least once in every 3 (three) months.

(3) All the meetings of the Board of Directors shall be presided over by the Chairman, and, in his absence, the person in the charge of the Chairman or any member empowered by him shall preside over the meeting.

(4) To constitute a quorum at a meeting of the Board of Directors not less than half of the total members including its chairman shall be present.

(5) The matters placed at the meetings of the Board of Directors, shall be resolved on the basis of the majority of votes.

(6) Each member present at the meeting of the Board of Directors shall have one vote, and in the event of equality of votes, the person presiding over the meeting shall have a second or a casting vote.

(7) No act or proceeding of the Board of Directors shall be invalid or be called in question merely on the ground of any vacancy in, or any defect in the constitution of the Board of Directors.

(8) The honorary members shall be entitled to receive honorarium, in such manner as may be prescribed by rules, to attend the meetings of the Board of Directors.

11. Constitution of Committee.—The Board of Directors may, for giving assistance to discharge its duties, constitute one or more committees and the duties and functions of such committees shall be determined by the Board of Directors.

12. Consultancy services.—The Authority may take consultancy services from any person or firm to carry out any of its special task.

CHAPTER 4

Establishment

13. Appointment of employees.—(1) The Authority shall have a secretary, who is not below the rank of Deputy Secretary to the Government and he shall be appointed on such terms and conditions as may be prescribed by the Government.

(2) Subject to the organogram approved by the Government, the Authority may appoint such number of officers and employees as it considers necessary for the efficient performance of its functions, and the terms and conditions of their services shall be determined by regulations.

14. Deemed to be public servant.—The Chairman, fulltime members, and the officers and employees of the Authority shall be deemed to be public servants within the meaning of section 21 of the Penal Code, 1860 (Act No. XLV of 1860).

15. Delegation of powers.—The Authority may, by general or special order, delegate any of its powers or functions, subject to such conditions as may be specified, to the Chairman or a full-time member or an officer of the Authority.

CHAPTER 5

Contract, Report, Borrowing, etc.

16. Performance of Contract.—(1) The Authority may, for the performance of its function, enter into any contract with any individual or organization.

Provided that the Authority shall take prior approval of the Government before entering into any contract with any foreign government or international organization.

(2) Such contract on behalf of the Authority shall be signed by the Chairman, or by any fulltime member or any other officer empowered by him in this behalf.

17. Reports.—(1) The Authority shall, after the end of every financial year, submit to the Government a report containing the functions taken and performed by it for that year.

(2) The Government may, at any time, if it considers necessary, require the Authority to furnish any report, statement, accounts, statistics or other information regarding any matter of the Authority and the Authority shall furnish such report to the Government.

18. Power to borrow.—For carrying out the purposes of this Act, the Authority may, with the prior approval of the Government, borrow money from any commercial bank, financial institution, or any domestic or foreign source.

CHAPTER 6

Fund, budget, and accounts and audit

19. Fund of the Authority—(1) There shall be a fund of the Authority to be called the Sustainable and Renewable Energy Development Authority Fund.

(2) Moneys received from the following sources shall be credited to the fund, namely :

- (a) grants made by the Government;
- (b) loan obtained from the Government;
- (c) grants made by the local Authority;
- (d) grants or loans obtained from any other source;
- (e) sums received from CDM or any such similar projects implemented under any other activities;
- (f) sums acquired for providing consultancy services;
- (g) sums received from the fee imposed for any act done under this Act; and
- (h) sums received from any other source.

(3) The fund shall be deposited to any scheduled bank :

Provided that, in absence of scheduled bank, the fund may be deposited to any commercial bank approved by the Bangladesh Bank.

(4) All expenses of the Authority shall be met up from the fund.

(5) The surplus fund, if any, after meeting up the expenses of the Authority for that financial year, the whole or any part thereof, shall be refunded to the Treasury of the Government.

20. Budget.—The Authority shall, in such time as may be specified by the Government, submit to the Government an annual budget statement for every financial year showing the estimated receipt and expenditure and the sums which are likely to be required from the Government during that financial year.

21. Accounts and audit.—(1) The Authority shall maintain its accounts in such manner as may be prescribed by the Government.

(2) The comptroller and Auditor-General of Bangladesh shall audit the accounts of the Authority for every year and shall furnish a copy of the audit report to the Government and the Authority.

(3) Besides the audit mentioned in sub-section (2), the Authority may get its account audited by Chartered Accountants as defined in the Article 2(1)(b) of the Bangladesh Chartered Accountants Order, 1973(P.O. No. 2 of 1973), and the Authority may appoint one or more Chartered Accountants in this behalf and such appointed Chartered Accountants shall be entitled to have such remuneration as may be fixed by the Government.

(4). For the purpose of audit of the Accounts of the Authority, the Auditor-General or any person empowered by him in this behalf of Chartered Accountant appointed under sub-section (3), shall have access to all records, documents, annual balance sheet, cash or deposit in the banks, securities, stores and other property of the Authority and may examine any member or any officer or employee of the Authority.

CHAPTER 7

Miscellaneous

22. General Powers of the Government for giving directions.—For carrying out the purposes of this Act, the Government may, from time to time, to take necessary steps as it thinks fit, give direction to the Authority and the Authority shall comply with all such directions.

23. Power to inspect.—For carrying out the purposes of this Act, the Authority may inspect the premises of designated consumers.

24. Protection of acts done in good faith.—No suit or prosecution or any other legal proceeding shall lie against the Authority or its Chairman, any member, officer or employee of the Authority for any damage caused or likely to be caused to any person as a result of any act done in good faith under this Act.

25. Removal of difficulties.—If any difficulty arises in giving effect to any provision of this Act, the Government may, by order, take necessary steps for removing such difficulties.

26. Power to make rules.—The Government may, upon consultation with the Authority, by notification in the *Official Gazette*, make rules for carrying out the purpose of this Act.

27. Power to make regulations.—The Authority may, with the prior approval of the Government, by notification in the *official Gazette*, make regulations for carrying out the purposes of this Act.

28. Abolition of Energy Audit Cell, etc.—(1) Upon the establishment of the Authority, the Energy Audit Cell, hereinafter referred to as the abolished cell, shall stand dissolved.

(2) All assets, rights, powers, authorities, debts, liabilities and all movable and immovable properties, cash and bank balance, reserved fund, investment and all other rights, and all interests and rights arising out of these assets and all books, registers, records and all documents of the abolished cell shall be transferred to, and vest in the Authority.

(3) Any act done measures taken, order passed, notice issued by the abolished cell, and shall be deemed to have been done, taken, passed or issued by the Authority under the provisions of this Act.

29. Publication of translation in English.—(1) The Government may, after the commencement of this Act, by notification in the *official Gazette*, publish an authentic text of translation in English of the Bangla text of the Act.

(2) In the event of conflict between the Bangla and the English Text, the Bangla text shall prevail.

On behalf of the President

MOHAMMAD SHAHIDUL HAQUE
Secretary.

মোঃ নজরুল ইসলাম (উপসচিব), উপপরিচালক, বাংলাদেশ সরকারি মুদ্রণালয়, তেজগাঁও, ঢাকা কর্তৃক মুদ্রিত।
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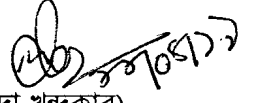
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তারিখঃ ১১-০৪-২০১৯ খ্রি:

বিষয়: Policy Guidelines for Power Purchase from Captive Power Plant- 2007 হালনাগাদকরণ।

উপর্যুক্ত বিষয়ে সদয় অবগতির জন্য জানানো যাচ্ছে যে, ক্যাপটিভ পাওয়ার প্লান্টে উৎপাদিত বিদ্যুৎ জাতীয় গ্রিড ব্যবহার করে এক স্থান হতে অন্য স্থানে ব্যবহারের জন্য Policy Guidelines for Power Purchase from Captive Power Plant- 2007 যোগ্য কর্তৃপক্ষের অনুমোদনক্রমে সংশোধন ও হালনাগাদ করা হয়েছে। সংশোধিত গাইডলাইনস এর কপি প্রয়োজনীয় ব্যবস্থা গ্রহণের জন্য নির্দেশক্রমে এসাথে প্রেরণ করা হলো।

সংযুক্তি: Policy Guidelines for Power Purchase from Captive Power Plant-2007 (Revised up to March 2019) ৫ (পাঁচ) পাতা।


(মাকসুদা খন্দকার)
সিনিয়র সহকারী সচিব
ফোন: ৯৫৭৪৪০৮

কার্যার্থে বিতরণ (জ্যেষ্ঠতার ক্রমানুসারে নয়)

- ১। চেয়ারম্যান, বাংলাদেশ এনার্জি রেগুলেটরি কমিশন, টিসিবি ভবন (৪র্থ তলা), ১ কারওয়ান বাজার, ঢাকা।
- ২। চেয়ারম্যান, বাংলাদেশ বিদ্যুৎ উন্নয়ন বোর্ড, ওয়াপদা ভবন, মতিঝিল বা/এ, ঢাকা।
- ৩। চেয়ারম্যান, বাংলাদেশ পল্লী বিদ্যুতায়ন বোর্ড, জোয়ার সাহারা, নিকুঞ্জ-২, খিলক্ষেত, ঢাকা।
- ৪। মহাপরিচালক, পাওয়ার সেল, বিদ্যুৎ ভবন, ১ নং আব্দুল গণি রোড, ঢাকা।
- ৫। ব্যবস্থাপনা পরিচালক, পাওয়ার গ্রিড কোম্পানি অব বাংলাদেশ লিঃ, আফতাব নগর, রামপুরা, ঢাকা।
- ৬। ব্যবস্থাপনা পরিচালক, ডিপিডিসি/ডেসকো/ওজোপাডিকো/নেসকো, ঢাকা/খুলনা/রাজশাহী।
- ৭। প্রোগ্রামার, বিদ্যুৎ বিভাগ (বিদ্যুৎ বিভাগের ওয়েবসাইটে গাইডলাইনসটি আপলোডের অনুরোধসহ)।

অনুলিপি : সদয় অবগতির জন্য

- ১। মাননীয় প্রতিমন্ত্রীর একান্ত সচিব, বিদ্যুৎ, জ্বালানি ও খনিজ সম্পদ মন্ত্রণালয়।
- ২। সিনিয়র সচিব মহোদয়ের একান্ত সচিব, বিদ্যুৎ বিভাগ, বাংলাদেশ সচিবালয়, ঢাকা।
- ৩। অফিস কপি।

বিদ্যুৎ বিভাগ
উন্নয়ন-১ অধিশাখা

বিষয়ঃ Policy Guidelines for Power Purchase from Captive Power Plant-2007 জারির ব্যবস্থা
গ্রহণ।

সূত্র- ইউ ও নোট নং ২৭.০০.০০০০.০৯০.২২.০৪২.১৮.১৬৬, তারিখঃ ২৭/০৩/২০১৯ খ্রিঃ।

উপর্যুক্ত বিষয় ও সূত্রের পরিপ্রেক্ষিতে, সংশোধিত Policy Guidelines for Power Purchase from Captive Power Plant-2007 জারির প্রয়োজনীয় ব্যবস্থা গ্রহণের জন্য নির্দেশক্রমে অনুরোধ করা হলো।

সংযুক্তিঃ বর্ণনামতে।


(মোহাম্মদ নাজমুল আবেদীন)
উপসচিব

সিনিয়র সহকারী সচিব
বিধি ও পলিসি শাখা
বিদ্যুৎ বিভাগ।

ইউও নোট নং- ২৭.০০.০০০০.০৭১.১৪.০২১.২০১৮. ২২২

তারিখঃ ০৮/০৪/২০১৯ খ্রিঃ।

**POLICY GUIDELINES
FOR
FOR POWER PURCHASE FROM
CAPTIVE POWER PLANT**



**POWER DIVISION
MINISTRY OF POWER, ENERGY AND MINERAL RESOURCES
PEOPLE'S REPUBLIC OF BANGLADESH.**

**February-2007
(Revised up to March 2019)**

POLICY GUIDELINES FOR POWER PURCHASE FROM CAPTIVE POWER PLANT

1. Objective

Adequate electricity supply plays a central role in development and realisation of the country's economic goals. Economic growth is being impeded both by poor electricity supply quality and by electricity supply interruptions, particularly in the peak period. To reduce the gap between supply and demand for electricity, and to make best use of energy resources, the Government of Bangladesh, pursuant to its powers under section 24(1) of BERC Act, and having consulted with the Commission pursuant to section 24(2) of BERC Act, hereby declares following Guidelines to (a) harness the surplus capacity of captive power plants, and (b) permit electric utilities to purchase electricity from captive power plants.

2. Definitions

- 2.1 *Bangladesh Energy Regulatory Commission (BERC)* is the commission established under Act 13 of 2003 titled BERC Act 2003. The terms *Commission*, *BERC* and *Bangladesh Energy Regulatory Commission* are synonymous.
- 2.2 *Captive Power Plant (CPP)* is a plant which produces electricity for its own use or for a group for their own use.
- 2.3 *Customer* means any person/entity who is supplied with electrical energy by any *Distribution Licensee*.
- 2.4 *Delivery Point* means the receiving end/point/terminal of power purchaser.
- 2.5 *Distribution Licensee* means an entity licensed to undertake distribution business under the BERC Act 2003.
- 2.6 *Export* means the gross quantum of electrical energy in KWh delivered from the Captive Power Plant at the *Delivery Point*.
- 2.7 *Host Distribution Licensee* of a CPP, or a prospective CPP, means the Distribution Licensee who owns the network to which the CPP is connected or to which the prospective CPP intends to connect.

- 2.8 *Network* means the electrical network of the Entities in 230KV/ 132KV/ 33 KV/ 11KV/ 0.4KV transmission or distribution line.
- 2.9 *Non-Utility Consumer* means a user of electricity receiving electrical energy from either a *Small Power Plant* or a *Captive Power Plant* but not a consumer of an electric utility.
- 2.10 *Off-peak Period* means all hours other than those in the Peak Period.
- 2.11 *Owner of Captive Power Plant* means a person or a group or an entity who establishes such generation for own use.
- 2.12 *Peak Period* means 17.00 to 23.00 hours of each day or such other hours as the Commission may notify.
- 2.13 *Small Power Plant* means power plant established under policy guidelines for Small Power Plant (SPP), 2000.
- 2.14 *Undertaking* means any entity relating to generation of electricity, transmission, transportation, storage, distribution or any installation for supply of commercial energy. The terms *Undertaking*, *Entity* and *Utility* are synonymous.

3. Opening of the Power Market to CPPs

- 3.1 Each CPP will be able to sell electricity at tariffs approved by the BERC:
 - (a) to its Host Distribution Licensee,
 - (b) to any other Distribution Licensee.

4. Approvals and License Requirement

- 4.1 For selling electricity, the Captive Power Plants shall have to obtain license from the Bangladesh Energy Regulatory Commission (BERC).
- 4.2 Any Captive Power Plant licensee may sell power to a Distribution Licensee at rates established by the BERC pursuant to tariff criteria outlined in the Policy Guidelines. Such sale of power to the utilities shall be by an Agreement approved by the BERC.
- 4.3 The Captive Power Plant will need to comply with all relevant laws of Bangladesh including Environmental Standards.
- 4.4 All statutory clearances for selling power by the Captive Power Plant have to be obtained by the owner of the Captive Power Plant on his own accord.
- 4.5 Permission from the concerned Entities will be required to synchronize and operate a Captive Power Plant with the network.

5. **Tariff for Power Purchase from Captive Power Plant**

- 5.1 The power purchase tariff shall have a structure that reflects the components of underlying costs to the extent reasonable, and can also vary by peak and off-peak period.
- 5.2 The power purchase tariff shall be expressed in Taka/kWh.
- 5.3 Notwithstanding the methodology described in 5.1 and 5.2 above, the tariff for purchasing power from a Captive Power Plant by the Utility shall not exceed the published tariff (effective from 1st March 2007) by which BPDB sells power at 132 KV (Category G1) excluding wheeling charges; Provided that for increase of price of fuel, the fuel component of the tariff for purchase of power from the CPP may be adjusted.
- 5.4 In case of access to the national grid, the CPP shall bear transmission loss and pay wheeling charge to the transmission entity (PGCB).
- 5.5 The tariff proposal by the CPP shall contain break up of all components including fuel cost component. The Tariff shall be approved by the BERC.

6. **Power Off-take**

CPP will have to enter into an Agreement with the electric utility for the sale of electricity on terms mutually agreed upon and such Agreement shall be approved by the BERC. The electric Utility power purchaser shall have the option not to purchase electricity from CPP during off- peak hours.

The interconnection network required for the supply of electricity to the contracted electric utility shall be built by the Owner of Captive Power Plant. The cost of inter-connection with network including switchgear, metering, protection, etc. will be borne by the Owner of Captive Power Plant.

7. **Transmission Charges**

For selling electricity to any Distribution Licensee other than the Host Distribution Licensee, the CPP may transmit power through existing transmission and distribution network subject to availability of adequate network capacity. In that case the CPP will have to pay the wheeling charges, as fixed by the BERC, to the owner of the network.

7.2 Electricity produced in the CPP may be transmitted on real time basis using the national grid to the destination of his own use. The energy transaction will be settled on monthly basis. BPDB will not purchase any excess wheeled energy from CPP. For this purpose a tripartite agreement should be signed among PGCB, BPDB and the concerned CPP owner.

7.3⁸ For exchange of electricity by national grid, the minimum installed capacity of CPP will be 20 megawatts and at 132 kV or higher voltage levels.

8. Conditions of Supply

8.1 Voltage Level

The Voltage of supply during steady flow of power to the network of the Entities from Captive Power Plant shall be subject to approval by the Entities, but shall normally be as under:

<u>Plant Surplus Capacity</u>	<u>Voltage Level</u>
Less than 1 MW	0.4 kV/ 11 kV
Over 1 MW to 5MW	11 kV/ 33 kV
Over 5 MW to 10 MW	33 kV
More than 10 MW	33 kV or above

8.2 Frequency and Voltage fluctuations

Frequency for power supply will be 50 Hertz. Variation of frequency and voltage shall be in accordance with the Grid Code of Bangladesh. The Captive Power Plant must have arrangements for handling, absorbing and suppressing abnormal fluctuations in respect of voltage and frequency.

8.3 Grid connected CPP shall be operated under the control of National Load Despatch Centre (NLDC) like other power plants connected to the national grid of Bangladesh. To ensure Grid stability CPP shall make arrangements for operation of plant in Primary Frequency Control (FGMO), Secondary Frequency Control (LFC) and maintaining system frequency within operating range.

8.4 Power Factor

The Power Factor of power delivered by the power plant shall normally be 0.8 (Lagging).

8.5 Protection

Appropriate protections are to be installed by the CPP to protect its own plant as well as the Grid or other voltage level network depending on the Delivery Point and associated equipment of the Utility.

8.6 Synchronization

Proper synchronization shall be responsibility of owner of power plant and any damage to the property of the purchaser for improper handling by the CPP will be compensated as per decision of BERC.

8.7 Metering Arrangements

3(Three) element programmable Energy Meters having accuracy Class 0.2 and Time of Day (TOD) feature will be installed by the Owner of the Captive Power Plant at Delivery Point for measurement of energy. Such meter will be jointly tested, calibrated and sealed by the Utility and the CPP. Separate metering shall be installed for Import and Export recording.

8.8 Control and Communication

Captive Power Plant having capacity exceeding the limit as set by the Government from time to time shall have communication with the Central Load Dispatch Centre (CLDC) and the CPP will follow instruction of the Dispatch Centre. The capacity limit will be set by GOB from time to time.

8.9 Inadvertent Flow of Energy to the Entities

The CPP will take appropriate measures to prevent inadvertent power flow. For any undue net flow of energy to the Utility, the Utility shall not pay for such power.

8.10 Banking of Energy

No banking of energy will be permitted during the period of electricity supply to the Utility by the CPP.

8.11 Billing Methods

Separate billing can be carried out for Export and Import of energy by the Captive Power Plants. Import of energy may be billed according to the tariff notifications issued by the BERC from time to time.

9. Period of Supply

9.1 The period of supply of power from the Captive Power Plants shall be mutually determined by the plant owner and the electric Utility.

9.2 The period of supply of Captive Power Plant to a utility shall normally be during the peak hour. However, power may be purchased during other period, provided a utility opt for the same.

- 9.3 Period of supply as mutually agreed upon shall be by an Agreement approved by the BERC.

10. Agreement

- 10.1 The utility will generally publish notifications expressing its intention to purchase power from the CPP and may enter into an Agreement observing the guidelines. However, if there is any precedence of such agreement the utility may use that benchmark for negotiation with any interested CPP.
- 10.2 Agreement will be executed between the Entities and owner of the Captive Power Plant for any sale of electricity by them.
- 10.3 Agreement for utilizing the network of the Utility will be executed among the owner of the Captive Power Plant and the concerned Utilities.

11. Custom Duty, Vat and Income Tax

Unless otherwise decided, the following provisions in respect of Custom Duties, VAT (Value Added Tax) and Income Tax shall be applicable:

- 11.1 The Imported project materials shall be subject to payment of Customs Duty and IDSC at clearance stage.
- 11.2 Machinery, tools and equipment imported for sales of electricity on re-exportable basis will be allowed temporary importation facilities under Sections 35 & 36 of the Customs Act, 1969 and rules framed thereunder.
- 11.3 The materials imported for this purpose shall be subject to payment of Value Added Tax (VAT) and Supplementary Duty (if any) at clearance stage as per provisions of the Value Added Tax Act, 1991 and the rules made thereunder.
- 11.4 Any goods supplied or services received or provided locally for this purpose will be subject to VAT and Supplementary Duty (if any) as per provisions of the VAT Act and the Rules.
- 11.5 For this purpose there will be no tax holiday or exemptions for the Captive Power Plant (CPP).

12. Miscellaneous

- 12.1 Any disputes or differences over the provisions of the Policy Guidelines shall be settled by mutual discussions or as per provisions of Bangladesh Energy Regulatory Commission (BERC).

- 12.2 Necessary advice and other assistance will be provided by the BERC to the Captive Power Plants.
- 12.3 Electric Utility will have no obligation to purchase power from the Captive Power Plants under the Policy Guidelines.

13. **Provisional Power Purchase Agreement**

An out line of Provisional Power Purchase Agreement is attached hereto at Annexure-1

PROVISIONAL POWER PURCHASE AGREEMENT

This POWER PURCHASE AGREEMENT (hereinafter referred to as "Agreement" or "PPA") is made and entered into effect as of ---- day -----, 200 at Dhaka between:

1. _____ with its registered office located at _____ (hereinafter referred to as "Captive Power Producer", which expression shall, unless repugnant to the context or meaning thereof, include its successors and assignees) as the Party of the First Part,

AND

2. _____ with its registered office at _____ hereinafter referred to as "Power Purchaser" (which expression shall, unless repugnant to the context or meaning thereof include their successor and assigns") as the Party of the Second Part,

WHEREAS the Captive Power Producer desires to sell electrical energy (minimum ____ MW but not exceeding ____ MW at any time) from its Captive Power Plant to the Purchaser, in accordance with the Policy Guidelines for Captive Power Purchase from Captive Power Plant.

AND, WHEREAS the Purchaser agrees to purchase such power.

NOW, THEREFORE, in consideration of the matters described above and the covenants in this Agreement, the Captive Power Producer and the Purchaser intending to be legally bound, agree as follows:

1. The Purchaser will permit the Captive Power Producer's Plant connect to and operate in synchronization with its network, provided that the interfacing system (including transformers, panels, kiosks, protection, main and back-up metering, service line) is provided and maintained by the Captive Power Producer. The Purchaser will undertake, at its cost, augmentation of its sub-station capacity and/or sub-transmission lines (except service line), if required, to receive the power generated by Captive Power Producer.
2. The Purchaser may direct the Captive Power Producer to temporarily curtail or stop its electricity delivery in emergency situations or when technically necessary for inspection, repair or maintenance of Purchaser's network.
3. The Captive Power Producer shall supply a minimum of ____ MW but not exceeding ____ MW. The Captive Power Producer shall schedule its generation from the power plant according to the requirement and direction of the Power Purchaser. The Power Purchaser shall have the option not to take any power during off-peak period.
4. The Purchaser and Captive Power Producer shall jointly read the meters at the delivery point on the first (1st) day of every month. In the event that the main metering system is not in service as a result of maintenance, repairs or testing, then the backup metering system shall be used. The representatives of each party will sign the meter reading taken jointly at the appointed date and time.
5. Billing will be on monthly basis in arrears and as per the power purchase price determined by Bangladesh Energy Regulatory Commission (BERC) for power purchase from CPPs, and as amended from time to time. The Purchaser will be billed by the Power Producer based on joint meter reading, promptly following the end of each month for the energy supplied, and billing will be due on the fifth working day following the joint meter reading.
6. The Purchaser shall make payment of the amounts due within a period of 15 days from the date of submission of the bill.

7. Disputed Payments: If any sum or part of sum shown on invoice rendered by Captive Power Producer is disputed in good faith by the Purchaser then the parties shall use their best efforts to resolve the dispute. The payment of undisputed sums or parts shall not be withheld on those grounds and shall be paid to the Captive Power Producer when due; and upon the resolution of dispute, Purchaser shall release to the Captive Power Producer the payments of the sums determined to be due to the Captive Power Producer. The Purchaser shall release to the Power Producer the payments determined to be due, together with the interest at the Bank Rate.
8. Each party will be responsible for compliance with the laws of Bangladesh. Each party will ensure compliance with Government of Bangladesh's "Policy Guidelines for Power Purchase from Captive Power Plants", all relevant regulations of BERC, and the Grid Code / Distribution Code, metering specifications, etc, as applicable.
9. The Party rendered unable to perform by reason of Force Majeure Event (A Force Majeure Event means any event(s) or combination of events or circumstances that is beyond the reasonable control of a Party) shall notify the other Party of such circumstance and shall exercise due diligence to end the inability as promptly as practicable. Non performance of any obligations during the period of Force Majeure shall not be considered a default under the Agreement. In case of sustained Force Majeure, the Agreement would be terminated. Neither Party shall be entitled for claiming compensation for damages or loss in the event of Force Majeure.
10. Settlement of disputes: Any matter of dispute between the Parties shall be resolved by mutual agreement or through some mechanism such as reference to an expert that may be mutually agreed upon in the future. If the matter is not resolved in 15 days or such extended period mutually agreed, it will be resolved by such person or persons as the BERC may nominate in that behalf on the application of either Party. The Courts in Bangladesh alone shall have jurisdiction.
11. Each Party shall keep complete and accurate records and all other data required by each of them for the purposes of proper administration of this Agreement.
12. Term of the Agreement: The term of the Agreement shall be six months from date of this agreement, unless terminated earlier by either party (by giving notice of 15 days) in case of sustained default by the other party. The term of the Agreement may be extended upon mutually agreed by the parties.
13. The expiry or termination of this Agreement shall not affect any right or obligation which may have accrued prior to such expiry or termination and shall not affect obligations of each of the Parties under this Agreement which are expressed to continue after such expiry or termination.

IN WITNESS WHEREOF, THE PARTIES HAVE ENTERED INTO AGREEMENT AS OF THE DAY AND YEAR FIRST WRITTEN ABOVE.

CAPTIVE POWER PRODUCER

POWER PURCHASER

By: _____

By: _____

Witness: _____

Witness: _____

রেজিস্টার্ড নং ডি এ-১

বাংলাদেশ



গেজেট

অতিরিক্ত সংখ্যা
কর্তৃপক্ষ কর্তৃক প্রকাশিত

বুধবার, এপ্রিল ২০, ২০১৬

[অর্থের বিনিময়ে জারীকৃত বিজ্ঞাপন ও নোটিশসমূহ]

Government of the People's Republic of Bangladesh
BANGLADESH ENERGY REGULATORY COMMISSION
NOTIFICATION

Dated: 13 April 2016

BERC Regulations (with amendments) No-2 /2016.—In exercise of the powers conferred by sections 59 and 60 of the Bangladesh Energy Regulatory Commission Act, 2003 (Act No. 13 of 2003), read with section 40 thereof, and in consultation with the Law and Justice Division, Ministry of Law, Justice and Parliamentary Affairs, Government of the Peoples Republic of Bangladesh, the Bangladesh Energy Regulatory Commission is pleased to make the following regulations, namely:—

1. Short title.—These regulations may be called the Bangladesh Energy Regulatory Commission Dispute Settlement Regulations, 2014.

2. Definitions.—In these regulations, unless there is anything repugnant in the subject or context,—

- (a) “Act” means the Bangladesh Energy Regulatory Commission Act, 2003 (Act No. 13 of 2003);
- (b) “Arbitral Tribunal” means the Arbitral Tribunal constituted under regulation 12;

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- (ba) “Arbitration” means any arbitration which is administered under the provision of these Regulations;
- (c) "award" means an award made by the BERC Tribunal or Arbitral Tribunal, as the case may be;
- (ca) "Bangladesh Energy Regulatory Commission Tribunal" or "BERC Tribunal" means the Tribunal constituted under regulation 3A;
- (d) “claimant” means a person who refers any dispute to the Commission for settlement;
- (da) “Code of Civil Procedure” means Code of Civil Procedure, 1908 (Act V of 1908);
- (e) “Commission” means the Bangladesh Energy Regulatory Commission established under the Act;
- (f) “consumer” means a person who receives electricity, gas or petroleum product supplied by a licensee in the premises or installation owned or possessed by that person under any rules, regulations, by laws or other instruments having the force of law;
- (fa) “energy” means the electricity, gas and petroleum product;
- (g) “licensee” means a person who has obtained a licence under the Act for generation of electricity or transmission, marketing, distribution, storage and supply of energy;
- (ga) “Member” means any member of the BERC Tribunal or Arbitral Tribunal as the case may be, and it shall include the Chairman of the BERC Tribunal or Arbitral Tribunal;
- (gb) "misconduct" means any unlawful conduct on the part of a person concerned in the administration of justice which is prejudicial to the rights of parties to the disputes or to the right determination of the cause, or any act of an office-holder in an official capacity for personal gain, and shall include bribery, gross negligence and any other unlawful act in respect of a person's official responsibility;

- (h) “party” means any party to a dispute;
- (i) “respondent” means the opposite party to the claimant;
- (ia) “Right to Information Act” means the Right to Information Act, 2009 (Act. No. XX of 2009);
- (ib) “Search Committee” means the Search Committee constituted under Regulation 3A(3);
- (j) “statement of claim” includes the reply to a counter claim and any amendment thereto; and
- (k) “statement of defence” includes any counter claim and any amendment thereto.

3. Interpretation of regulations.—The decision of the Commission on any question relating to interpretation of these regulations or any procedural matter thereunder shall be final and binding on the parties.

3A. Establishment of Bangladesh Energy Regulatory Commission Tribunal or BERC Tribunal.—(1) A Tribunal to be called Bangladesh Energy Regulatory Commission Tribunal (hereinafter termed as BERC Tribunal) shall be established as soon as these Regulations come into force, consisting of not more than seven members of which two members shall be of legal background, two members shall be of general background with experiences as magistrates, and the other three members shall be technical experts—one member with background of electricity sector, one member with background of natural gas sector and the other with background of petroleum sector.

(2)(a) The Chairman of the Tribunal shall have at least a post graduate degree in Energy Law and Policy or Energy and Infrastructure Law or Competition Law or Investment Law or Economic Law or Development Law or Business Regulation, Litigation and Arbitration from a reputed University and shall have at least twenty years work experiences in the respective field including experiences in dispute settlement through arbitration and other mechanisms. Provided that if the Commission cannot find any suitable person with the abovementioned academic qualification, the former Chairmen or Members of the Commission may be deemed to be qualified for appointment as Chairman of the BERC Tribunal considering the fact that they have acquired adequate experiences and expertise in the dispute settlement in the energy sector.

(b) The Member with legal background shall have at least a post graduate degree in Law from a reputed University and shall have at least twenty years work experiences in the respective field including experiences in dispute settlement through arbitration and other mechanisms.

Provided that a Judicial Officer not below the rank of a District Judge may be appointed as a Member on deputation at the nomination of the Law and Justice Division, Ministry of Law, Justice and Parliamentary Affairs, Government of the Peoples Republic of Bangladesh.

Provided further that if a District Judge is not nominated for appointment on deputation by the Law and Justice Division, Ministry of Law, Justice and Parliamentary Affairs within a reasonable time, the Commission shall appoint a Member of the Tribunal in light of qualifications mentioned in sub-regulation 2(b).

(c) The Members with general background who shall have experiences as Magistrates 1st class at least for five years, shall have a post graduate degree in any academic discipline from a reputed university and shall have at least twenty years service experiences.

(d) (i) Among the Members with technical background, two Members shall have at least bachelor's engineering degree either in the field of Chemical or Mechanical or Petroleum or Mineral Resources studies, or at least post graduate degree either in the field of Geology or Geoscience or Chemistry or Applied Chemistry from a reputed university.

(ii) Among the two Members with technical background as mentioned in sub-regulation 2(d)(i), one Member shall have at least twenty years practical work experiences in natural gas sector and the other Member shall have at least twenty years practical work experiences in petroleum sector.

(iii) One Member with technical background shall have at least bachelor's engineering degree in the field of Electrical studies and shall have at least twenty years practical work experiences in the power sector.

(3) The Commission shall, at the recommendation of a Search Committee constituted by the Commission, appoint the Chairman and Members of the Tribunal for a tenure of three years from the date of assumption of office.

The Chairman or any Member of the Tribunal on completion of his respective tenure is eligible for reappointment, if the Commission deems fit and proper.

(4) The Commission shall appoint the Chairman and two Members of the Tribunal as soon as these Regulations come into force and the rest of the members shall be appointed within a reasonable time.

(5) A person shall not be qualified for appointment as the Chairman or a Member if he is-(a) not a citizen of Bangladesh; (b) declared a loan defaulter by a bank or any financial institution; (c) declared bankrupt by a competent Court; (d) has been convicted for a criminal offence involving moral turpitude and sentenced to imprisonment for a term not less than two years or more and a period of five years has elapsed since his release.

(6) If the post of the Chairman or any Member of the Tribunal falls vacant due to expiry of the tenure or any other reason, the Commission may appoint an acting Chairman or a Member temporarily for a period determined by the Commission not exceeding three months from the date of such appointment.

(7) The Chairman or a Member of the Tribunal before the completion of the tenure as mentioned in sub-regulation (3) may resign from the post by giving one month's notice in writing under his hand addressed to the Chairman of the Commission.

(8) The Chairman or any Member of the Tribunal shall not be removed except on the ground of proved misconduct or physical or mental incapacity.

(9) Persons having business interest in any matter within the scope of the Tribunal shall not be eligible to be appointed as Chairman or Member of the Tribunal.

(10) On being appointed as Chairman or Member, a person cannot engage himself in a business in energy sector either in his own name or in the name of any other person.

(11) The Commission shall pay the Chairman and Members of the Tribunal such honorariums, and extend benefits and facilities as may be determined by the Commission from time to time. Provided that the honorariums, benefits and facilities of the Chairman and Members of the Tribunal shall be determined considering their past appointments.

(12) For the purpose of carrying out the functions of the Tribunal effectively, the Commission shall appoint required number of officers and staffs for the Tribunal.

(13) The salaries and other benefits of the officers and staffs of the Tribunal shall be regulated under Bangladesh Energy Regulatory Commission Employees Service Regulations, 2008.

(14) All expenditures of the BERC Tribunal including expenditures for the personnel of the BERC Tribunal shall be paid from the source under Regulation 24 and the Bangladesh Energy Regulatory Commission Fund Regulations 2004.

(15) The Commission may, for the cause of public interest and ends of justice, establish such number of Tribunals as Commission deems fit.

3B. Functions of the BERC Tribunal.—Subject to the BERC Act 2003 and these Regulations, the BERC Tribunal shall act as a judicial wing of the Commission and the functions of the BERC Tribunal shall be as follows:—

- (a) The Tribunal shall be responsible to adjudicate the disputes between licensees or between licensees and consumers that are placed before it under these Regulations and place their awards to the Commission for decision;
- (b) The Tribunal shall conduct hearing of the parties to settle the disputes that are placed before it under these Regulations;
- (c) The Tribunal shall have all those powers for the purposes of an investigation or proceedings exercisable by a Civil Court at the time of trial under the Code of Civil Procedure, which are exercisable by the Commission under the Act such as:—
 - (i) to summon a witness and ensure his presence and examination of the witness on oath;
 - (ii) to detect and present any important document which may be submitted as a document or evidence;
 - (iii) to collect evidence through an affidavit;
 - (iv) to call for public record from any court or office;
 - (v) to adjourn hearing;
 - (vi) to ensure presence and absence of the parties.

- (d) The Tribunal shall, on request of the Commission, provide legal opinion to the Commission on matters relating to the Act and other laws, rules, regulations policies, contracts, and licensing, tariff, and other regulatory issues.
- (e) The Tribunal shall, on request of the Commission, conduct hearing on legal issues of tariff applications and other issues. The Tribunal shall submit its findings to the Commission on matters as mentioned in this sub-regulation.
- (f) The Tribunal shall perform any other functions considered appropriate by it for the fulfillment of the objectives of these Regulations.

4. Reference of dispute to the Commission.—(1) Any dispute arising between the licensees or between the licensees and consumers shall, by application in writing, be referred to the Commission for settlement.

(2) The application shall be accompanied by-

- (a) the names and full addresses of the parties to the dispute,
- (b) a statement of claim and facts supporting the claim, points at issue and relief or remedy sought, with other details of the claimant's case,
- (c) original or duly certified copies of all documents and other evidences relied upon or referred to in the application.

4A. Reference of dispute to the BERC Tribunal.—The Commission shall refer any dispute to the BERC Tribunal for processing which is referred to the Commission under Regulation 4.

5. Acceptance or rejection of application.—(1) The BERC Tribunal shall, after examination of the application made under Regulation 4, decide to accept or reject such application and shall give reasons for its decision.

(2) The BERC Tribunal may, before it decides on the acceptability of an application, ask the applicant to furnish additional information and other particulars of his claim.

(3) If any application is rejected under sub-regulation 1, the Claimant may file an appeal before the Commission challenging the decision of such rejection and the Commission shall give its decision on such appeal.

(4) The decision of the Commission taken under sub-regulation 3 is final.

6. Statement of defence.—On the acceptance of an application, the BERC Tribunal shall send to the respondent a copy of the statement of claim and the documents accompanied therewith and ask the respondent to furnish, within such period as may be determined by the BERC Tribunal, a statement of defence setting out his case including a statement of facts supporting the defence, the points at issue, the relief or remedy sought, the legal grounds or arguments supporting the defence accompanied by all documents and other evidences relied upon or referred to in those statements.

7. Counter claim and reply to counter claim.—(1) The respondent may make a counter claim stating in details against the claim made by the claimant supported by all relevant documents and information within such period as may be determined by the BERC Tribunal.

(2) A copy of the counter claim and all documents, if any, appended thereto shall be sent to the claimant for information.

(3) The claimant may also submit a statement in reply to the counter claim within such period as may be determined by the BERC Tribunal.

(4) A copy of the reply of the claimant to the counter claim and all documents, if any, appended thereto shall be sent to the respondent for information.

8. Copies of statements, etc.—All statements, replies and other documents and papers submitted to the BERC Tribunal by the parties to a dispute and all documents appended thereto shall be in seven copies.

9. Amendment of statements, etc.—Any amendment to a statement of claim, statement of defence, counter claim or reply to counter claim shall be in writing and shall be submitted to the BERC Tribunal at the earliest possible time. The BERC Tribunal shall decide whether such amendment shall be allowed or rejected.

Provided that any party aggrieved by the decision of the BERC Tribunal at this stage may file an appeal before the Commission challenging such decision. The decision of the Commission under this Regulation is final.

10. Preliminary hearing and amicable settlement.—(1) When the statement of defence is filed, the Commission shall hold a preliminary hearing of the parties to the dispute at the earliest possible opportunity, and in any event, not later than fifteen days following the submission of the statement of defence.

(2) If the Commission finds it necessary for any reason, the Commission may refer the dispute to the BERC Tribunal for preliminary hearing under sub-regulation (1).

(3) On the date fixed for preliminary hearing, the Commission or the BERC Tribunal, as the case may be, shall examine the statement of claim and statement of defence and documents filed by the parties and shall also hear them.

(4) At the preliminary hearing, the Commission or the BERC Tribunal, as the case may be, shall ascertain the points at issue between the parties and shall attempt to settle the dispute by compromise or reconciliation between them.

(5) The Commission or the BERC Tribunal, as the case may be, may direct the parties to try to resolve the dispute through amicable settlement within such period as may be fixed by the Commission or the BERC Tribunal, as the case may be.

(6) Where a dispute is settled by compromise or reconciliation or amicable settlement, the Commission or the BERC Tribunal, as the case may be, shall give its decision in accordance with the compromise or reconciliation or amicable settlement agreed upon by the parties.

(7) Where a dispute is settled by the BERC Tribunal under sub-regulation 5, the BERC Tribunal shall submit its decision to the Commission for approval and the decision of the Commission is final.

11. Reference of dispute to the BERC Tribunal or Arbitral Tribunal.—(1) Where a dispute could not be settled at the preliminary hearing by compromise or reconciliation or amicable settlement, the BERC Tribunal shall inform the Commission about the matter with its opinion whether the matter can be referred before the BERC Tribunal for full hearing for settlement or the matter can be referred to an Arbitral Tribunal for settlement.

(2) Where there are two or more applications for settlement of disputes and the issues involved in the disputes have arisen out of the same transaction, the Commission may, if it thinks fit to do so, refer all the applications to the same Tribunal for disposal. The award, on such applications, shall be given separately in each case.

(3) Where a dispute has not been settled through methods under sub-regulations (5) and (6) of Regulation 10, the Commission shall decide whether the dispute shall be referred to the BERC Tribunal or an Arbitral Tribunal for settlement.

(4) Where the Commission decides to refer a dispute to the BERC Tribunal under sub-regulation (3), the Commission shall, in consultation with the Chairman of the BERC Tribunal, constitute a bench of the BERC Tribunal comprising those Members of the Tribunal who are found to be relevant for settlement of the dispute.

Provided that every bench of the Tribunal shall consist of odd number of Members of the Tribunal.

Notwithstanding any provision of these Regulations, the Commission, in consultation with the Chairman of the Tribunal, may, because of the experiences and expertise in dispute settlement in the energy sector, co-opt as Chairman or a Member of a bench of the Tribunal a former Chairman or a former Member of the Commission or any person who is qualified to be appointed as a member of the Tribunal under sub-regulations (2)(a), (2)(b), (2)(c) and 2(d) of Regulation 3A. The co-opted Chairman or Member of a bench of the Tribunal shall be paid such honorariums and other facilities as may be determined by the Commission from time to time.

Provided that the honorariums, benefits and facilities of the co-opted Chairmen and Members of the benches of Tribunal shall be determined considering their past appointments.

(5) The orders, decisions or awards of every bench of the BERC Tribunal shall be regarded as orders, decisions or awards of the BERC Tribunal.

(6) The decisions of the BERC Tribunal or Arbitral Tribunal, as the case may be, shall be taken by a majority of decisions of the Members of the Tribunal present.

(7) The benches of the BERC Tribunal may sit on circuit basis in locations outside Dhaka.

12. Constitution of Arbitral Tribunal and appointment of arbitrators.—(1) An Arbitral Tribunal shall consist of such odd number of arbitrators as may be determined by the Commission from time to time. Where the Commission appoints more than one arbitrator, one of the arbitrators shall be designated as the Chairman of the Tribunal.

(2) The Commission shall, in consultation with the Chairman of the BERC Tribunal, appoint any arbitrator from amongst former Chairmen or Members of the Commission or the Members of BERC Tribunal or any other person as it deems suitable to perform the functions of an arbitrator:

Provided that where the Tribunal consists of three or more arbitrators, at least one arbitrator shall be appointed from each of the following groups: (a) the Members of BERC Tribunal; (b) legal experts; and (c) technical experts having specialization on the subject matter in question.

Provided further that considering the experiences and expertise in the dispute settlement in the energy sector, the former Chairmen or Members of the Commission are deemed to be qualified to be appointed as Chairmen or Members of Arbitral Tribunals constituted under this Regulation.

(3) Before accepting the appointment, a prospective arbitrator shall disclose any circumstances, such as financial or personal interest in the outcome of the award, likely to disqualify him as an impartial arbitrator.

(4) Any party may make objection to the appointment of an arbitrator, if—

- (a) the circumstances exist that give rise to a reasonable doubt as to the independence or impartiality of such arbitrator, or
- (b) such arbitrator does not possess the qualifications to be an arbitrator:

Provided that such objection shall be made within seven working days from the date the appointment of such arbitrator was communicated to the party or within seven working days of its becoming aware of the reasons for which the objection is sought to be made.

(5) The Commission may, after examining the arguments put forward in favour of such objection, accept or reject the objection and the decision of the Commission in this regard shall be final and binding on the parties.

(6) If an arbitrator resigns or dies, he ceases to be an arbitrator, or if he becomes incapable of performing his functions or neglects or fails to act expeditiously, prior to or during the arbitration hearings, or fails to make the award within the prescribed time, the Commission may terminate his appointment.

(7) In the case of resignation or death or termination of appointment of an arbitrator under sub-regulation (6), a new arbitrator shall be appointed in his place by the Commission.

(8) The newly appointed arbitrator shall proceed with the arbitration as the record of evidence and proceedings then exist and shall make the award expeditiously within the time prescribed by the Commission.

13. Time limit for dispute settlement proceedings.—The Commission may prescribe the time limit for completion of dispute settlement proceedings of the BERC Tribunal or arbitration proceedings, as the case may be, and may also extend the time considering the complexity and technicality of the matter in question.

14. Place of dispute settlement proceedings.—The place of proceedings of the BERC Tribunal and arbitration shall be at the office of the Commission or any such other place as may be determined by the Commission.

15. Hearing of the BERC Tribunal proceedings and arbitration proceedings.—(1) The parties shall be entitled to appear at the hearing before the BERC Tribunal or Arbitral Tribunal, as the case may be, in person or through their duly appointed lawyers or duly authorised representatives.

(2) The BERC Tribunal or Arbitral Tribunal, as the case may be, may proceed with the BERC Tribunal proceedings or arbitration notwithstanding any failure by a party to comply with any of the directions of the BERC Tribunal or Arbitral Tribunal, as the case may be, and may also proceed with the BERC Tribunal proceedings or arbitration proceedings, as the case may be, in the absence of any or both of the parties who fail or neglect to attend at the time and place fixed by the BERC Tribunal or Arbitral Tribunal, as the case may be, in spite of a notice duly served on it or them.

(3) The parties shall do everything necessary to enable the BERC Tribunal or Arbitral Tribunal, as the case may be, to make an award expeditiously and shall not do or cause or allow to be done anything which may delay the proceedings and if any party does, causes or allows to be done any such thing, that party shall pay such costs as the BERC Tribunal or Arbitral Tribunal, as the case may be, may deem reasonable.

(4) The BERC Tribunal proceedings or arbitration session, as the case may be, shall, as far as possible, continue on a day-to-day basis once the hearing begins. The BERC Tribunal or Arbitral Tribunal, as the case may be, shall not ordinarily adjourn a hearing at the request of any party, except where the circumstances are beyond the control of the party and the BERC Tribunal or Arbitral Tribunal, as the case may be, is satisfied that reasons and circumstances for the adjournment are justified. While granting an adjournment, the BERC Tribunal or Arbitral Tribunal, as the case may be, may make such order regarding payment of costs by one or both of the parties, as it may deem fit and reasonable.

(5) The BERC Tribunal or Arbitral Tribunal, as the case may be, may, at its discretion at any time before making the award and at the expenses of the party or parties concerned, consult any person having special knowledge relating to the particular subject matter, industry, commodity, produce or branch of trade concerned in the reference or any expert or qualified accountant and may also at the like expenses of the party or parties, consult legal experts upon any technical question of law, evidence, practice or procedure arising in the course of the reference. If the parties agree, the Tribunal may, at the expenses of the parties, appoint any expert, accountant or lawyer to sit with it as an assessor and take into account the advice of such assessor.

(6) The parties and any witness on their behalf shall—

- (a) produce before the BERC Tribunal or Arbitral Tribunal, as the case may be, all books, deeds, papers, accounts, writings and documents in their possession or power which may be required or called for by the Tribunal;
- (b) comply with the requirements of the Tribunal as to the production or selection of samples; and
- (c) generally do all other things which, during the pendency of the reference, the BERC Tribunal or Arbitral Tribunal, as the case may be, may require.

(7) In presenting evidences before the BERC Tribunal or Arbitral Tribunal, as the case may be, the following principles shall be followed, namely:—

- (a) the evidence may be given before the BERC Tribunal or Arbitral Tribunal, as the case may be, orally or in writing or by affidavit;
- (b) the BERC Tribunal or Arbitral Tribunal, as the case may be, may administer an oath or affirmation to a witness;
- (c) each party shall have the burden of proving the facts relied on to support its claim or defence; parties shall have a full and equal opportunity to present relevant and reliable evidence and oral and written arguments in support of their propositions;
- (d) the BERC Tribunal or Arbitral Tribunal, as the case may be, shall determine the admissibility, relevance and weight of evidence and shall not be bound by formal rules of evidence applicable in court proceedings;

- (e) the BERC Tribunal or Arbitral Tribunal, as the case may be, may administer the parties to the dispute such interrogatories as it may consider necessary;
- (f) the BERC Tribunal or Arbitral Tribunal, as the case may be, has the objective discretion to allow, limit, or refuse to allow the appearance of a witness, whether a witness of fact or an expert witness;
- (g) any witness who gives oral evidence may be questioned by each party or its representative under the control of the BERC Tribunal or Arbitral Tribunal, as the case may be, and may be required by the BERC Tribunal or Arbitral Tribunal, as the case may be, to testify under oath or affirmation; the BERC Tribunal or Arbitral Tribunal, as the case may be, may question the witnesses at any stage of the examination;
- (h) the testimony of witnesses may be presented in written form, either as signed statements or by duly sworn affidavits, and the BERC Tribunal or Arbitral Tribunal, as the case may be, may order that such statements or affidavits shall stand as evidence-in-chief.

(8) The BERC Tribunal or Arbitral Tribunal, as the case may be, may, by award, dismiss the application or claim if the claimant does not appear before the BERC Tribunal or arbitration proceedings or fails to file the requisite papers within the time granted, or neglects or refuses to pay the dues or deposits ordered to be paid, by the BERC Tribunal or Arbitral Tribunal, as the case may be.

(9) The BERC Tribunal or Arbitral Tribunal, as the case may be, may make an ex-parte award if the respondent neglects or refuses to appear before the Tribunal and make his defence or fails to file the requisite papers within the time granted, or neglects or refuses to pay the dues or deposits ordered to be paid, by the BERC Tribunal or Arbitral Tribunal, as the case may be.

(10) The BERC Tribunal or Arbitral Tribunal, as the case may be, may issue such orders or directions as it may deem necessary for safeguarding, interim custody, preservation, protection, storage, sale or disposal of the whole or part of the subject matter of the dispute or for its inspection or sampling or for ensuring justice to any or all of the parties without prejudice to the rights of the parties on the final determination of the dispute.

16. Language.—The official languages of the BERC Tribunal proceedings or arbitration proceedings, as the case may be, shall be either Bangla or English.

17. Representation and assistance.—(1) Each party shall advise, in writing, the other party and the BERC Tribunal or Arbitral Tribunal, as the case may be, of—

- (a) the names and addresses of persons who shall represent or assist it;
- (b) the capacity in which those persons shall act; and
- (c) any changes in clauses (a) and (b) above.

(2) Each party shall provide—

- (a) proof of authorization of persons that shall represent it;
- (b) proof of authority to refer dispute to Commission.

18. Applicable law.—(1) The BERC Tribunal or Arbitral Tribunal, as the case may be, shall apply the rules of law designated by the parties as applicable to the substance of the dispute, failing which the Tribunal shall apply the law which it determines to be appropriate.

(2) The BERC Tribunal or Arbitral Tribunal, as the case may be, may decide a case amiable compositeur or *ex aequo et bono* only if the parties have expressly authorised the Tribunal to do so through a special declaration.

(3) In all cases, the BERC Tribunal or Arbitral Tribunal, as the case may be, shall decide in accordance with the terms of the contract, if any, to the extent they are consistent with the existing laws, rules, regulations and orders having the force of law.

19. Award of the Tribunal.—(1) Where the parties to a dispute arrive at a settlement of the dispute by common agreement before the BERC Tribunal or Arbitral Tribunal, as the case may be, and the Tribunal is satisfied that such agreement is genuine and does not defeat the purposes of any law, the Tribunal shall make an award as per agreement of the parties, otherwise, the Tribunal shall make the award on the basis of the documents, evidence, etc. filed before it by the parties.

(2) The award shall state the reasons upon which it is based, unless it is an award on the agreed terms of the parties.

(3) The award shall state the date and place of the BERC Tribunal proceedings or the arbitration, as the case may be, and the award shall be deemed to have been made at that place.

(4) The BERC Tribunal or Arbitral Tribunal, as the case may be, may make an interim award, and may, by such an award, determine and order what shall be done by either or any of the parties, respecting the matters referred to it.

(5) Every member of the BERC Tribunal or Arbitral Tribunal, as the case may be, shall sign the award.

(6) The BERC Tribunal or Arbitral Tribunal, as the case may be, shall submit their awards to the Commission within two months of the completion of the hearings of the dispute.

20. Confirmation and implementation of the award.—(1) The BERC Tribunal or Arbitral Tribunal, as the case may be, shall submit its award to the Commission and the Commission may pass appropriate order on its basis as to—

(a) the approval and implementation of the award;

(b) the cancellation or amendment of the award; or

(c) sending the award to the Tribunal for review.

(2) An order given by the Commission under sub-regulation (1) shall be deemed to be final and be implemented as if it is a decree of a civil court.

(3) The Commission may require either party to notify the Commission of the compliance with the award.

21. Power to make interim order by the Commission.—At any time during the continuance of the proceedings under these regulations or at any time before its commencement, the Commission may make any such interim order as it may consider appropriate.

Provided that where the Commission needs to make any such interim order in response to an urgent matter or a matter of emergency, the Chairman, or in the absence of the Chairman, any Member, in consultation with other available Members of the Commission, may make such an interim order.

22. Review.—Any party aggrieved by any decision of the Commission may file an application to it for review within fifteen days of making such decision and the decision of the Commission thereon shall be final and conclusive.

23. Correction and interpretation of award and additional award.—(1) Within fourteen days from the receipt of the award, any party may, with notice to the other party, request the Commission—

- (a) to correct any computation, clerical or typographical error or any other errors of a similar nature occurring in the award; and/or
- (b) to give an interpretation of a specific point in the award.

(2) If the Commission considers the request made under sub-regulation (1) to be justified it shall make the correction and/or give the interpretation within fourteen days from the receipt of the request and the interpretation shall form part of the award.

(3) The Commission may correct any error as referred in sub-regulation (1), on its own initiative, within fourteen days from the date of the award.

(4) A party may, with notice to the other party, request the Commission, within fourteen days from the receipt of the award, to make an additional award as to claims presented in the BERC Tribunal or arbitration proceedings but omitted from the award. If the Commission considers the request to be justified, it shall make the additional award within fourteen days from the receipt of such request.

(5) The Commission may, if it thinks necessary, extend the period within which it shall make a correction, give an interpretation or make an additional award.

24. Deposits and expenses.—(1) The Commission may require the parties to deposit, in advance, in one or more installments, such sums of money as it deems necessary to defray expenses of the BERC Tribunal proceedings or arbitration, as the case may be, including the administrative charges and BERC Tribunal members' honorariums and other benefits and arbitrators' fees.

(2) The deposits shall be in equal shares from the claimant and the respondent.

(3) Where one of the parties neglects or refuses to make the deposit as may be required under sub- regulation (1), the Commission may require such deposit, whether in relation to a claim or a counter claim, to be made by the other party to the dispute (claimant or respondent, as the case may be) and where the whole or any part of the deposit remains unpaid, the Commission shall be under no obligation to place the dispute before the BERC Tribunal or Arbitral Tribunal, as the case may be, for settlement.

(4) All deposits towards costs and expenses shall be made with the Commission and no payment shall be made to the members of the Tribunal by the parties.

(5) The Commission shall pay the members of the arbitral Tribunal such fees and other expenses as may be determined by it from time to time.

24A. Tribunal to act independently.—The BERC Tribunal or Arbitral Tribunal, as the case may be, shall be independent in the exercise of their judicial functions.

24B. Arbitral Tribunal members to continue until disposal of the case.—Members of the Arbitral Tribunal shall continue to perform as members of the Tribunal until the final disposal of the case.

24C. Enforcement of the order.—If any party or parties, without a valid reason, refuses or fails to enforce any order or directive given by the Commission or BERC Tribunal or Arbitral Tribunal under these Regulations,

- (a) the Commission may impose upon such party or parties administrative fines determined by the Commission and such fines shall be liable to be realized as Public Demand; or
- (b) it will be treated as an offence and for such offence the said person shall be liable to be sentenced with imprisonment for a term not exceeding 3 (three) months or with fine not less than Taka 2000 (two thousand) or with both; and in case of continuation of the offence he shall be liable to be fined with an amount not exceeding Taka 500 (five hundred) for each day.

25. Return of documents.—Unless required to be filed in a court of law, the Commission shall have full discretion to retain or return all books, documents or papers produced before it by the parties and may at any time return any or all of them to the parties producing them on such terms and conditions as the Commission may impose.

26. Confidentiality.—(1) Subject to the provisions of the Right to Information Act, all matters relating to the proceedings under these regulations except final award or decision of the Commission shall be treated as confidential and no person including the Tribunals, without the prior written consent of the Commission, shall disclose them to the third party.

(2) The Commission may print, publish or otherwise circulate any award or decision made under these regulations, in any journal, magazine, report or in any publication authorized by the Commission for the cause of academic and professional development and no party to the dispute shall have any objection to such printing, publication or circulation.

(3) Additional copies of the award or decision certified by the Commission shall be made available to the parties and to any person on request and on payment of such fees as may be fixed by the Commission.

27. Indemnity.—The Chairman, any member, officer or employee of the Commission or the Chairman or any member, officer or staff of the BERC Tribunal or Arbitral Tribunal, or any expert connected therewith, shall not be liable for anything done or omitted to be done in good faith in connection with, or in relation to, dispute settlement proceedings under these regulations.

27A. Establishment of Tribunals outside Dhaka.—(1) The Commission may establish such number of Tribunals in different locations outside Dhaka as it determines from time to time in order to resolve disputes between licensees or between licensees and consumers in the manner the Commission determines.

(2) The pecuniary jurisdiction of such tribunals shall be determined by the Commission from time to time.

Provided that the fees of the members of such Tribunals and other expenses thereof shall be determined by the Commission from time to time.

28. Disputes already referred to the Commission.—Any dispute already referred to the Commission for settlement before the commencement of these regulations and is pending for disposal before the Commission or the Tribunal constituted therefor shall be deemed to have been referred under these regulations and shall be disposed of accordingly.

By the order of the Commission,

Md. Faizur Rahman
Secretary

মোঃ আব্দুল মালেক, উপপরিচালক, বাংলাদেশ সরকারি মুদ্রণালয়, তেজগাঁও, ঢাকা কর্তৃক মুদ্রিত।
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রেজিস্টার্ড নং ডি এ-১

বাংলাদেশ



গেজেট

অতিরিক্ত সংখ্যা
কর্তৃপক্ষ কর্তৃক প্রকাশিত

বুধবার, এপ্রিল ২০, ২০১৬

[অর্থের বিনিময়ে জারীকৃত বিজ্ঞাপন ও নোটিশসমূহ]

গণপ্রজাতন্ত্রী বাংলাদেশ সরকার

বাংলাদেশ এনার্জি রেগুলেটরী কমিশন

প্রজ্ঞাপন

তারিখ: ৩০ চৈত্র ১৪২২ বঙ্গাব্দ / ১৩ এপ্রিল ২০১৬ খ্রিস্টাব্দ

বিইআরসি (সংশোধন) প্রবিধানমালা নং-২/২০১৬।—বাংলাদেশ এনার্জি রেগুলেটরী কমিশন আইন, ২০০৩ (২০০৩ সনের ১৩ নং আইন) এর ধারা ৫৯ ও ৬০ এ, উক্ত আইনের ধারা ৪০ এর সহিত পঠিতব্য, প্রদত্ত ক্ষমতাবলে, আইন ও বিচার বিভাগ, আইন, বিচার ও সংসদ বিষয়ক মন্ত্রণালয়, গণপ্রজাতন্ত্রী বাংলাদেশ সরকারের সহিত আলোচনাক্রমে, বাংলাদেশ এনার্জি রেগুলেটরী কমিশন, Bangladesh Energy Regulatory Commission Dispute Settlement Regulations, 2014 এর নিম্নরূপ সংশোধন করিল, যথাঃ—

১। **Short title.**—(1) These regulations may be called the Bangladesh Energy Regulatory Commission Dispute Settlement (Amendment) Regulations, 2016.

২। **Bangladesh Energy Regulatory Commission Dispute Settlement Regulations, 2014** এর প্রবিধান ২ এর সংশোধন।—উক্ত প্রবিধানমালার প্রবিধান ২ এর—

(ক) উপ-প্রবিধান (b) এর পরিবর্তে নিম্নরূপ উপ-প্রবিধান (b) প্রতিস্থাপিত হইবে, যথাঃ—

“(b) “Arbitral Tribunal” means the Arbitral Tribunal constituted under regulation 12;”

(৪৯৭৩)

মূল্য : টাকা ২০.০০

- (খ) উপ-প্রবিধান (b) এর পর নিম্নরূপ নূতন উপ-প্রবিধান (ba) সংযোজিত হইবে, যথাঃ—

“(ba) “Arbitration” means any arbitration which is administered under the provision of these Regulations.”

- (গ) উপ-প্রবিধান (c) এর পরিবর্তে নিম্নরূপ উপ-প্রবিধান (c) প্রতিস্থাপিত হইবে এবং উপ-প্রবিধান (c) এর পর নিম্নরূপ নূতন উপ-প্রবিধান (ca) সংযোজিত হইবে, যথাঃ—

“(c) “award” means an award made by the BERC Tribunal or Arbitral Tribunal, as the case may be;

(ca) “Bangladesh Energy Regulatory Commission Tribunal” or “BERC Tribunal” means the Tribunal constituted under regulation 3A.”

- (ঘ) উপ-প্রবিধান (d) এর পর নিম্নরূপ নূতন উপ-প্রবিধান (da) সংযোজিত হইবে, যথাঃ—

“(da) “Code of Civil Procedure” means Code of Civil Procedure, 1908(Act V of 1908);”

- (ঙ) উপ-প্রবিধান (f) এর পর নিম্নরূপ নূতন উপ-প্রবিধান (fa) সংযোজিত হইবে, যথাঃ—

“(fa) “energy” means the electricity, gas and petroleum product;”

- (চ) উপ-প্রবিধান (g) এর পর নিম্নরূপ দুইটি নূতন উপ-প্রবিধান যথাক্রমে (ga) ও (gb) সংযোজিত হইবে, যথাঃ—

“(ga) “Member” means any member of the BERC Tribunal or Arbitral Tribunal as the case may be, and it shall include the Chairman of the BERC Tribunal or Arbitral Tribunal.

(gb) “misconduct” means any unlawful conduct on the part of a person concerned in the administration of justice which is prejudicial to the rights of parties to the disputes or to the right determination of the cause, or any act of an office-holder in an official capacity for personal gain, and shall include bribery, gross negligence and any other unlawful act in respect of a person's official responsibility.”

- (ছ) উপ-প্রবিধান (i) এর পর নিম্নরূপ নূতন উপ-প্রবিধান (ia) এবং (ib) সংযোজিত হইবে, যথাঃ—

“(ia) “Right to Information Act” means the Right to Information Act, 2009 (Act. No. XX of 2009);

(ib) “Search Committee” means the Search Committee constituted under Regulation 3A(3);”

৩। Bangladesh Energy Regulatory Commission Dispute Settlement Regulations, 2014 এ নূতন প্রবিধান 3A এবং 3B এর সন্নিবেশ।—উক্ত প্রবিধানমালার প্রবিধান 3 এর পর নিম্নরূপ দুইটি নূতন প্রবিধান যথাক্রমে 3A এবং 3B সন্নিবেশিত হইবে, যথাঃ—

“3A. Establishment of Bangladesh Energy Regulatory Commission Tribunal or BERC Tribunal.—(1) A Tribunal to be called Bangladesh Energy Regulatory Commission Tribunal (hereinafter termed as BERC Tribunal) shall be established as soon as these Regulations come into force, consisting of not more than seven members of which two members shall be of legal background, two members shall be of general background with experiences as magistrates, and the other three members shall be technical experts- one member with background of electricity sector, one member with background of natural gas sector and the other with background of petroleum sector.

(2)(a) The Chairman of the Tribunal shall have at least a post graduate degree in Energy Law and Policy or Energy and Infrastructure Law or Competition Law or Investment Law or Economic Law or Development Law or Business Regulation, Litigation and Arbitration from a reputed University and shall have at least twenty years work experiences in the respective field including experiences in dispute settlement through arbitration and other mechanisms. Provided that if the Commission cannot find any suitable person with the abovementioned academic qualification, the former Chairmen or Members of the Commission may be deemed to be qualified for appointment as Chairman of the BERC Tribunal considering the fact that they have acquired adequate experiences and expertise in the dispute settlement in the energy sector.

(b) The Member with legal background shall have at least a post graduate degree in Law from a reputed University and shall have at least twenty years work experiences in the respective field including experiences in dispute settlement through arbitration and other mechanisms:

Provided that a Judicial Officer not below the rank of a District Judge may be appointed as a Member on deputation at the nomination of the Law and Justice Division, Ministry of Law, Justice and Parliamentary Affairs, Government of the Peoples Republic of Bangladesh:

Provided further that if a District Judge is not nominated for appointment on deputation by the Law and Justice Division, Ministry of Law, Justice and Parliamentary Affairs within a reasonable time, the Commission shall appoint a Member of the Tribunal in light of qualifications mentioned in sub-regulation 2(b).

- (c) The Members with general background who shall have experiences as Magistrates 1st class at least for five years, shall have a post graduate degree in any academic discipline from a reputed university and shall have at least twenty years service experiences.
- (d)
 - (i) Among the Members with technical background, two Members shall have at least bachelor's engineering degree either in the field of Chemical or Mechanical or Petroleum or Mineral Resources studies, or at least post graduate degree either in the field of Geology or Geoscience or Chemistry or Applied Chemistry from a reputed university.
 - (ii) Among the two Members with technical background as mentioned in sub-regulation 2(d)(i), one Member shall have at least twenty years practical work experiences in natural gas sector and the other Member shall have at least twenty years practical work experiences in petroleum sector.
 - (iii) One Member with technical background shall have at least bachelor's engineering degree in the field of Electrical studies and shall have at least twenty years practical work experiences in the power sector.
- (3) The Commission shall, at the recommendation of a Search Committee constituted by the Commission, appoint the Chairman and Members of the Tribunal for a tenure of three years from the date of assumption of office.
 The Chairman or any Member of the Tribunal on completion of his respective tenure is eligible for reappointment, if the Commission deems fit and proper.
- (4) The Commission shall appoint the Chairman and two Members of the Tribunal as soon as these Regulations come into force and the rest of the members shall be appointed within a reasonable time.
- (5) A person shall not be qualified for appointment as the Chairman or a Member if he is-- (a) not a citizen of Bangladesh; (b) declared a loan defaulter by a bank or any financial institution; (c) declared bankrupt by a competent Court; (d) has been convicted for a criminal offence involving moral turpitude and sentenced to imprisonment for a term not less than two years or more and a period of five years has elapsed since his release.
- (6) If the post of the Chairman or any Member of the Tribunal falls vacant due to expiry of the tenure or any other reason, the Commission may appoint an acting Chairman or a Member temporarily for a period determined by the Commission not exceeding three months from the date of such appointment.

- (7) The Chairman or a Member of the Tribunal before the completion of the tenure as mentioned in sub-regulation (3) may resign from the post by giving one month's notice in writing under his hand addressed to the Chairman of the Commission.
 - (8) The Chairman or any Member of the Tribunal shall not be removed except on the ground of proved misconduct or physical or mental incapacity.
 - (9) Persons having business interest in any matter within the scope of the Tribunal shall not be eligible to be appointed as Chairman or Member of the Tribunal.
 - (10) On being appointed as Chairman or Member, a person cannot engage himself in a business in energy sector either in his own name or in the name of any other person.
 - (11) The Commission shall pay the Chairman and Members of the Tribunal such honorariums, and extend benefits and facilities as may be determined by the Commission from time to time. Provided that the honorariums, benefits and facilities of the Chairman and Members of the Tribunal shall be determined considering their past appointments.
 - (12) For the purpose of carrying out the functions of the Tribunal effectively, the Commission shall appoint required number of officers and staffs for the Tribunal.
 - (13) The salaries and other benefits of the officers and staffs of the Tribunal shall be regulated under Bangladesh Energy Regulatory Commission Employees Service Regulations, 2008.
 - (14) All expenditures of the BERC Tribunal including expenditures for the personnel of the BERC Tribunal shall be paid from the source under Regulation 24 and the Bangladesh Energy Regulatory Commission Fund Regulations 2004.
 - (15) The Commission may, for the cause of public interest and ends of justice, establish such number of Tribunals as Commission deems fit.
- 3B. **Functions of the BERC Tribunal.**—Subject to the BERC Act 2003 and these Regulations, the BERC Tribunal shall act as a judicial wing of the Commission and the functions of the BERC Tribunal shall be as follows:—
- (a) The Tribunal shall be responsible to adjudicate the disputes between licensees or between licensees and consumers that are placed before it under these Regulations and place their awards to the Commission for decision;

- (b) The Tribunal shall conduct hearing of the parties to settle the disputes that are placed before it under these Regulations;
- (c) The Tribunal shall have all those powers for the purposes of an investigation or proceedings exercisable by a Civil Court at the time of trial under the Code of Civil Procedure, which are exercisable by the Commission under the Act such as:—
 - (i) to summon a witness and ensure his presence and examination of the witness on oath;
 - (ii) to detect and present any important document which may be submitted as a document or evidence;
 - (iii) to collect evidence through an affidavit;
 - (iv) to call for public record from any court or office;
 - (v) to adjourn hearing;
 - (vi) to ensure presence and absence of the parties.
- (d) The Tribunal shall, on request of the Commission, provide legal opinion to the Commission on matters relating to the Act and other laws, rules, regulations policies, contracts, and licensing, tariff, and other regulatory issues.
- (e) The Tribunal shall, on request of the Commission, conduct hearing on legal issues of tariff applications and other issues. The Tribunal shall submit its findings to the Commission on matters as mentioned in this sub-regulation.
- (f) The Tribunal shall perform any other functions considered appropriate by it for the fulfillment of the objectives of these Regulations.”

8 | Bangladesh Energy Regulatory Commission Dispute Settlement Regulations, 2014 এ নূতন প্রবিধান 4A এর সন্নিবেশ।—উক্ত প্রবিধানমালার প্রবিধান 4 এর পর নিম্নরূপ নূতন প্রবিধান 4A সন্নিবেশিত হইবে, যথাঃ—

“4A. **Reference of dispute to the BERC Tribunal.**—The Commission shall refer any dispute to the BERC Tribunal for processing which is referred to the Commission under Regulation 4.”

৫। Bangladesh Energy Regulatory Commission Dispute Settlement Regulations, 2014 এর প্রবিধান 5 এর প্রতিস্থাপন।—উক্ত প্রবিধানমালার প্রবিধান 5 এর পরিবর্তে নিম্নরূপ প্রবিধান 5 প্রতিস্থাপিত হইবে, যথাঃ—

- “5. Acceptance or rejection of application.—**(1) The BERC Tribunal shall, after examination of the application made under Regulation 4, decide to accept or reject such application and shall give reasons for its decision.
- (2) The BERC Tribunal may, before it decides on the acceptability of an application, ask the applicant to furnish additional information and other particulars of his claim.
- (3) If any application is rejected under sub-regulation 1, the Claimant may file an appeal before the Commission challenging the decision of such rejection and the Commission shall give its decision on such appeal.
- (4) The decision of the Commission taken under sub-regulation 3 is final.”

৬। Bangladesh Energy Regulatory Commission Dispute Settlement Regulations, 2014 এর প্রবিধান 6 এর সংশোধন।—উক্ত প্রবিধানমালার প্রবিধান 6 এর দ্বিতীয় লাইন ও চতুর্থ লাইনে “Commission” শব্দটির পরিবর্তে “BERC Tribunal” শব্দগুলি প্রতিস্থাপিত হইবে।

৭। Bangladesh Energy Regulatory Commission Dispute Settlement Regulations, 2014 এর প্রবিধান 7 এর সংশোধন।—উক্ত প্রবিধানমালার প্রবিধান 7 এর—

- (ক) উপ-প্রবিধান (1) এর চতুর্থ লাইনে “Commission” শব্দটির পরিবর্তে “BERC Tribunal” শব্দগুলি প্রতিস্থাপিত হইবে;
- (খ) উপ-প্রবিধান (3) এর দ্বিতীয় লাইনে “Commission” শব্দটির পরিবর্তে “BERC Tribunal” শব্দগুলি প্রতিস্থাপিত হইবে।

৮। Bangladesh Energy Regulatory Commission Dispute Settlement Regulations, 2014 এর প্রবিধান 8 এর সংশোধন।—উক্ত প্রবিধানমালার প্রবিধান 8 এর দ্বিতীয় লাইনে “Commission ” শব্দটির পরিবর্তে “BERC Tribunal” শব্দগুলি এবং তৃতীয় লাইনে “triplicate” শব্দটির পরিবর্তে “seven copies” শব্দগুলি প্রতিস্থাপিত হইবে।

৯। Bangladesh Energy Regulatory Commission Dispute Settlement Regulations, 2014 এর প্রবিধান 9 এর সংশোধন।—উক্ত প্রবিধানমালার প্রবিধান 9 এর তৃতীয় লাইন ও চতুর্থ লাইনে “Commission” শব্দটির পরিবর্তে “BERC Tribunal” শব্দগুলি প্রতিস্থাপিত এবং উক্ত প্রবিধান এ নিম্নরূপ শর্তাংশ সংযোজিত হইবে, যথাঃ—

“Provided that any party aggrieved by the decision of the BERC Tribunal at this stage may file an appeal before the Commission challenging such decision. The decision of the Commission under this Regulation is final.”

১০। Bangladesh Energy Regulatory Commission Dispute Settlement Regulations, 2014 এর প্রবিধান 10 এর সংশোধন।—উক্ত প্রবিধানমালার প্রবিধান 10 এর পরিবর্তে নিম্নরূপ প্রবিধান 10 প্রতিস্থাপিত হইবে, যথাঃ—

- “10. **Preliminary hearing and amicable settlement.**—(1) When the statement of defence is filed, the Commission shall hold a preliminary hearing of the parties to the dispute at the earliest possible opportunity, and in any event, not later than fifteen days following the submission of the statement of defence.
- (2) If the Commission finds it necessary for any reason, the Commission may refer the dispute to the BERC Tribunal for preliminary hearing under sub-regulation (1).
- (3) On the date fixed for preliminary hearing, the Commission or the BERC Tribunal, as the case may be, shall examine the statement of claim and statement of defence and documents filed by the parties and shall also hear them.
- (4) At the preliminary hearing, the Commission or the BERC Tribunal, as the case may be, shall ascertain the points at issue between the parties and shall attempt to settle the dispute by compromise or reconciliation between them.
- (5) The Commission or the BERC Tribunal, as the case may be, may direct the parties to try to resolve the dispute through amicable settlement within such period as may be fixed by the Commission or the BERC Tribunal, as the case may be.
- (6) Where a dispute is settled by compromise or reconciliation or amicable settlement, the Commission or the BERC Tribunal, as the case may be, shall give its decision in accordance with the compromise or reconciliation or amicable settlement agreed upon by the parties.
- (7) Where a dispute is settled by the BERC Tribunal under sub-regulation 5, the BERC Tribunal shall submit its decision to the Commission for approval and the decision of the Commission is final.”

১১। Bangladesh Energy Regulatory Commission Dispute Settlement Regulations, 2014 এর প্রবিধান 11 এর প্রতিস্থাপন।—উক্ত প্রবিধানমালার প্রবিধান 11 এর পরিবর্তে নিম্নরূপ প্রবিধান 11 প্রতিস্থাপিত হইবে, যথাঃ—

- “11. **Reference of dispute to the BERC Tribunal or Arbitral Tribunal.**—(1) Where a dispute could not be settled at the preliminary hearing by compromise or reconciliation or amicable settlement, the BERC Tribunal shall inform the Commission about the matter with its opinion whether the matter can be referred before the BERC Tribunal for full hearing for settlement or the matter can be referred to an Arbitral Tribunal for settlement.

- (2) Where there are two or more applications for settlement of disputes and the issues involved in the disputes have arisen out of the same transaction, the Commission may, if it thinks fit to do so, refer all the applications to the same Tribunal for disposal. The award, on such applications, shall be given separately in each case.
- (3) Where a dispute has not been settled through methods under sub-regulations (5) and (6) of Regulation 10, the Commission shall decide whether the dispute shall be referred to the BERC Tribunal or an Arbitral Tribunal for settlement.
- (4) Where the Commission decides to refer a dispute to the BERC Tribunal under sub-regulation (3), the Commission shall, in consultation with the Chairman of the BERC Tribunal, constitute a bench of the BERC Tribunal comprising those Members of the Tribunal who are found to be relevant for settlement of the dispute.

Provided that every bench of the Tribunal shall consist of odd number of Members of the Tribunal.

Notwithstanding any provision of these Regulations, the Commission, in consultation with the Chairman of the Tribunal, may, because of the experiences and expertise in dispute settlement in the energy sector, co-opt as Chairman or a Member of a bench of the Tribunal a former Chairman or a former Member of the Commission or any person who is qualified to be appointed as a member of the Tribunal under sub-regulations (2)(a), (2)(b), (2)(c) and (2)(d) of Regulation 3A. The co-opted Chairman or Member of a bench of the Tribunal shall be paid such honorariums and other facilities as may be determined by the Commission from time to time.

Provided that the honorariums, benefits and facilities of the co-opted Chairmen and Members of the benches of Tribunal shall be determined considering their past appointments.

- (5) The orders, decisions or awards of every bench of the BERC Tribunal shall be regarded as orders, decisions or awards of the BERC Tribunal.
- (6) The decisions of the BERC Tribunal or Arbitral Tribunal, as the case may be, shall be taken by a majority of decisions of the Members of the Tribunal present.
- (7) The benches of the BERC Tribunal may sit on circuit basis in locations outside Dhaka.”

১২। Bangladesh Energy Regulatory Commission Dispute Settlement Regulations, 2014 এর প্রবিধান 12 এর সংশোধন।—উক্ত প্রবিধানমালার প্রবিধান 12 এর—

- (ক) শিরোনামে “Arbitration” শব্দটির পরিবর্তে “Arbitral” শব্দটি প্রতিস্থাপিত হইবে;
- (খ) উপ-প্রবিধান (1) এর প্রথম লাইনে “Arbitration” শব্দটির পরিবর্তে “Arbitral” শব্দটি প্রতিস্থাপিত হইবে;

(গ) উপ-প্রবিধান (2) এর পরিবর্তে নিম্নরূপ উপ-প্রবিধান (2) প্রতিস্থাপিত হইবে, যথাঃ—

“(2) The Commission shall, in consultation with the Chairman of the BERC Tribunal, appoint any arbitrator from amongst former Chairmen or Members of the Commission or the Members of BERC Tribunal or any other person as it deems suitable to perform the functions of an arbitrator:

Provided that where the Tribunal consists of three or more arbitrators, at least one arbitrator shall be appointed from each of the following groups: (a) the Members of BERC Tribunal; (b) legal experts; and (c) technical experts having specialization on the subject matter in question.

Provided further that considering the experiences and expertise in the dispute settlement in the energy sector, the former Chairmen or Members of the Commission are deemed to be qualified to be appointed as Chairmen or Members of Arbitral Tribunals constituted under this Regulation.”

(গ) উপ-প্রবিধান 4 এর শর্তাংশের প্রথম ও তৃতীয় লাইনে “five” শব্দটির পরিবর্তে “seven wroking” শব্দগুলি প্রতিস্থাপিত হইবে।

১৩। Bangladesh Energy Regulatory Commission Dispute Settlement Regulations, 2014 এর প্রবিধান 13 এর সংশোধন।—উক্ত প্রবিধানমালার 13 এর শিরোনামে “arbitration” শব্দটির পরিবর্তে “dispute settlement” শব্দগুলি এবং দ্বিতীয় লাইনে “arbitration proceedings” শব্দগুলির পরিবর্তে “dispute settlement proceedings of the BERC Tribunal or arbitration proceedings, as the case may be,” শব্দগুলি ও কমাগুলি প্রতিস্থাপিত হইবে।

১৪। Bangladesh Energy Regulatory Commission Dispute Settlement Regulations, 2014 এর প্রবিধান 14 এর সংশোধন।—উক্ত প্রবিধানমালার প্রবিধান 14 এর শিরোনামে “arbitration” শব্দটির পরিবর্তে “dispute settlement” শব্দগুলি প্রতিস্থাপিত এবং উক্ত প্রবিধানের প্রথম লাইনে “place of ” শব্দগুলির পর “proceedings of the BERC Tribunal and” শব্দগুলি সন্নিবেশিত হইবে।

১৫। Bangladesh Energy Regulatory Commission Dispute Settlement Regulations, 2014 এর প্রবিধান 15 এর প্রতিস্থাপন।—উক্ত প্রবিধানমালার প্রবিধান 15 এর পরিবর্তে নিম্নরূপ প্রবিধান 15 প্রতিস্থাপিত হইবে, যথাঃ—

“15. Hearing of the BERC Tribunal proceedings and arbitration proceedings.—(1) The parties shall be entitled to appear at the hearing before the BERC Tribunal or Arbitral Tribunal, as the case may be, in person or through their duly appointed lawyers or duly authorised representatives.

- (2) The BERC Tribunal or Arbitral Tribunal, as the case may be, may proceed with the BERC Tribunal proceedings or arbitration notwithstanding any failure by a party to comply with any of the directions of the BERC Tribunal or Arbitral Tribunal, as the case may be, and may also proceed with the BERC Tribunal proceedings or arbitration proceedings, as the case may be, in the absence of any or both of the parties who fail or neglect to attend at the time and place fixed by the BERC Tribunal or Arbitral Tribunal, as the case may be, in spite of a notice duly served on it or them.
- (3) The parties shall do everything necessary to enable the BERC Tribunal or Arbitral Tribunal, as the case may be, to make an award expeditiously and shall not do or cause or allow to be done anything which may delay the proceedings and if any party does, causes or allows to be done any such thing, that party shall pay such costs as the BERC Tribunal or Arbitral Tribunal, as the case may be, may deem reasonable.
- (4) The BERC Tribunal proceedings or arbitration session, as the case may be, shall, as far as possible, continue on a day-to-day basis once the hearing begins. The BERC Tribunal or Arbitral Tribunal, as the case may be, shall not ordinarily adjourn a hearing at the request of any party, except where the circumstances are beyond the control of the party and the BERC Tribunal or Arbitral Tribunal, as the case may be, is satisfied that reasons and circumstances for the adjournment are justified. While granting an adjournment, the BERC Tribunal or Arbitral Tribunal, as the case may be, may make such order regarding payment of costs by one or both of the parties, as it may deem fit and reasonable.
- (5) The BERC Tribunal or Arbitral Tribunal, as the case may be, may, at its discretion at any time before making the award and at the expenses of the party or parties concerned, consult any person having special knowledge relating to the particular subject matter, industry, commodity, produce or branch of trade concerned in the reference or any expert or qualified accountant and may also at the like expenses of the party or parties, consult legal experts upon any technical question of law, evidence, practice or procedure arising in the course of the reference. If the parties agree, the Tribunal may, at the expenses of the parties, appoint any expert, accountant or lawyer to sit with it as an assessor and take into account the advice of such assessor.
- (6) The parties and any witness on their behalf shall—
 - (a) produce before the BERC Tribunal or Arbitral Tribunal, as the case may be, all books, deeds, papers, accounts, writings and documents in their possession or power which may be required or called for by the Tribunal;
 - (b) comply with the requirements of the Tribunal as to the production or selection of samples; and
 - (c) generally do all other things which, during the pendency of the reference, the BERC Tribunal or Arbitral Tribunal, as the case may be, may require.

- (7) In presenting evidences before the BERC Tribunal or Arbitral Tribunal, as the case may be, the following principles shall be followed, namely:—
- (a) the evidence may be given before the BERC Tribunal or Arbitral Tribunal, as the case may be, orally or in writing or by affidavit;
 - (b) the BERC Tribunal or Arbitral Tribunal, as the case may be, may administer an oath or affirmation to a witness;
 - (c) each party shall have the burden of proving the facts relied on to support its claim or defence; parties shall have a full and equal opportunity to present relevant and reliable evidence and oral and written arguments in support of their propositions;
 - (d) the BERC Tribunal or Arbitral Tribunal, as the case may be, shall determine the admissibility, relevance and weight of evidence and shall not be bound by formal rules of evidence applicable in court proceedings;
 - (e) the BERC Tribunal or Arbitral Tribunal, as the case may be, may administer the parties to the dispute such interrogatories as it may consider necessary;
 - (f) the BERC Tribunal or Arbitral Tribunal, as the case may be, has the objective discretion to allow, limit, or refuse to allow the appearance of a witness, whether a witness of fact or an expert witness;
 - (g) any witness who gives oral evidence may be questioned by each party or its representative under the control of the BERC Tribunal or Arbitral Tribunal, as the case may be, and may be required by the BERC Tribunal or Arbitral Tribunal, as the case may be, to testify under oath or affirmation; the BERC Tribunal or Arbitral Tribunal, as the case may be, may question the witnesses at any stage of the examination;
 - (h) the testimony of witnesses may be presented in written form, either as signed statements or by duly sworn affidavits, and the BERC Tribunal or Arbitral Tribunal, as the case may be, may order that such statements or affidavits shall stand as evidence-in-chief.
- (8) The BERC Tribunal or Arbitral Tribunal, as the case may be, may, by award, dismiss the application or claim if the claimant does not appear before the BERC Tribunal or arbitration proceedings or fails to file the requisite papers within the time granted, or neglects or refuses to pay the dues or deposits ordered to be paid, by the BERC Tribunal or Arbitral Tribunal, as the case may be.

- (9) The BERC Tribunal or Arbitral Tribunal, as the case may be, may make an ex-parte award if the respondent neglects or refuses to appear before the Tribunal and make his defence or fails to file the requisite papers within the time granted, or neglects or refuses to pay the dues or deposits ordered to be paid, by the BERC Tribunal or Arbitral Tribunal, as the case may be.
- (10) The BERC Tribunal or Arbitral Tribunal, as the case may be, may issue such orders or directions as it may deem necessary for safeguarding, interim custody, preservation, protection, storage, sale or disposal of the whole or part of the subject matter of the dispute or for its inspection or sampling or for ensuring justice to any or all of the parties without prejudice to the rights of the parties on the final determination of the dispute.”

১৬। Bangladesh Energy Regulatory Commission Dispute Settlement Regulations, 2014 এর প্রবিধান 16 এর সংশোধন।—উক্ত প্রবিধানমালার প্রবিধান 16 এর প্রথম লাইন ও দ্বিতীয় লাইনে “arbitration proceedings shall be Bangla and English” শব্দগুলির পরিবর্তে “BERC Tribunal proceedings or arbitration proceedings, as the case may be, shall be either Bangla or English” শব্দগুলি ও কমাগুলি প্রতিস্থাপিত হইবে।

১৭। Bangladesh Energy Regulatory Commission Dispute Settlement Regulations, 2014 এর প্রবিধান 17 এর সংশোধন।—উক্ত প্রবিধানমালার প্রবিধান 17 এর দ্বিতীয় লাইনে “Arbitration Tribunal” শব্দগুলির পরিবর্তে “BERC Tribunal or Arbitral Tribunal, as the case may be,” শব্দগুলি ও কমাগুলি প্রতিস্থাপিত হইবে।

১৮। Bangladesh Energy Regulatory Commission Dispute Settlement Regulations, 2014 এর প্রবিধান 18 এর সংশোধন।—উক্ত প্রবিধানমালার প্রবিধান 18 এর—

- (ক) উপ-প্রবিধান (1) এর প্রথম লাইনে “Arbitration Tribunal” শব্দগুলির পরিবর্তে “BERC Tribunal or Arbitral Tribunal, as the case may be,” শব্দগুলি ও কমাগুলি প্রতিস্থাপিত হইবে;
- (খ) উপ-প্রবিধান (2) এর প্রথম লাইনে “Arbitration Tribunal” শব্দগুলির পরিবর্তে “BERC Tribunal or Arbitral Tribunal, as the case may be,” শব্দগুলি ও কমাগুলি প্রতিস্থাপিত হইবে এবং
- (গ) উপ-প্রবিধান (3) এর প্রথম লাইনে “Arbitration Tribunal” শব্দগুলির পরিবর্তে “BERC Tribunal or Arbitral Tribunal, as the case may be,” শব্দগুলি ও কমাগুলি প্রতিস্থাপিত হইবে।

১৯। Bangladesh Energy Regulatory Commission Dispute Settlement Regulations, 2014 এর প্রবিধান 19 এর সংশোধন।—উক্ত প্রবিধানমালার প্রবিধান 19 এর—

- (ক) উপ-প্রবিধান (1) এর দ্বিতীয় লাইনে “Tribunal” শব্দটির পরিবর্তে “BERC Tribunal or Arbitral Tribunal, as the case may be,” শব্দগুলি ও কমাগুলি প্রতিস্থাপিত হইবে;

- (খ) উপ-প্রবিধান (3) এর প্রথম লাইনে “Tribunal” শব্দটির পরিবর্তে “the BERC Tribunal proceedings or the arbitration, as the case may be,” শব্দগুলি ও কমাগুলি প্রতিস্থাপিত হইবে;
- (গ) উপ-প্রবিধান (4) এর প্রথম লাইনে “Tribunal” শব্দটির পরিবর্তে “BERC Tribunal or Arbitral Tribunal, as the case may be,” শব্দগুলি ও কমাগুলি প্রতিস্থাপিত হইবে; এবং
- (ঘ) উপ-প্রবিধান (5) এর প্রথম লাইনে “Every arbitrator” শব্দগুলির পরিবর্তে “Every member of the BERC Tribunal or Arbitral Tribunal, as the case may be,” শব্দগুলি ও কমাগুলি প্রতিস্থাপিত হইবে এবং উপ-প্রবিধান (5) এর পর নিম্নরূপ নূতন উপ-প্রবিধান (6) সংযোজিত হইবে, যথাঃ—

“(6) The BERC Tribunal or Arbitral Tribunal, as the case may be, shall submit their awards to the Commission within two months of the completion of the hearings of the dispute.”

২০। Bangladesh Energy Regulatory Commission Dispute Settlement Regulations, 2014 এর প্রবিধান 20 এর সংশোধন।—উক্ত প্রবিধানমালার প্রবিধান 20 এর উপ-প্রবিধান (1) এর প্রথম লাইনে “The Tribunal” শব্দগুলির পরিবর্তে “The BERC Tribunal or Arbitral Tribunal, as the case may be,” শব্দগুলি ও কমাগুলি প্রতিস্থাপিত হইবে।

২১। Bangladesh Energy Regulatory Commission Dispute Settlement Regulations, 2014 এর প্রবিধান 21 এর সংশোধন।—উক্ত প্রবিধানমালার প্রবিধান 21 এর দ্বিতীয় লাইনে “arbitration proceedings” শব্দগুলির পরিবর্তে “proceedings” শব্দটি প্রতিস্থাপিত হইবে এবং উক্ত প্রবিধান এ নিম্নরূপ শর্তাংশ সংযোজিত হইবে, যথাঃ—

“Provided that where the Commission needs to make any such interim order in response to an urgent matter or a matter of emergency, the Chairman, or in the absence of the Chairman, any Member, in consultation with other available Members of the Commission, may make such an interim order.”

২২। Bangladesh Energy Regulatory Commission Dispute Settlement Regulations, 2014 এর প্রবিধান 23 এর সংশোধন।—উক্ত প্রবিধানমালার প্রবিধান 23 এর—

- (ক) উপ-প্রবিধান (1) এর দ্বিতীয় লাইনে “Arbitration Tribunal” শব্দগুলির পরিবর্তে “Commission” শব্দটি প্রতিস্থাপিত হইবে;
- (খ) উপ-প্রবিধান (2) এর প্রথম লাইনে “Arbitration Tribunal” শব্দগুলির পরিবর্তে “Commission” শব্দটি প্রতিস্থাপিত হইবে;
- (গ) উপ-প্রবিধান (3) এর প্রথম লাইনে “Arbitration Tribunal” শব্দগুলির পরিবর্তে “Commission” শব্দটি প্রতিস্থাপিত হইবে এবং “any error of the type referred to above” শব্দগুলির পরিবর্তে “any error as referred in sub-regulation (1),” শব্দগুলি ও কমা প্রতিস্থাপিত হইবে;

- (ঘ) উপ-প্রবিধান (4) এর প্রথম লাইনে “Arbitration Tribunal” শব্দগুলির পরিবর্তে “Commission” শব্দটি প্রতিস্থাপিত হইবে, তৃতীয় লাইনে “claims presented in the” শব্দগুলির পর “BERC Tribunal or” শব্দগুলি সন্নিবেশিত হইবে এবং চতুর্থ লাইনে “Arbitration Tribunal” শব্দগুলির পরিবর্তে “Commission” শব্দটি প্রতিস্থাপিত হইবে এবং
- (ঙ) উপ-প্রবিধান (5) এর প্রথম লাইনে “Arbitration Tribunal” শব্দগুলির পরিবর্তে “Commission” শব্দটি প্রতিস্থাপিত হইবে।

২৩। Bangladesh Energy Regulatory Commission Dispute Settlement Regulations, 2014 এর প্রবিধান 24 এর প্রতিস্থাপন।—উক্ত প্রবিধানমালার প্রবিধান 24 এর পরিবর্তে নিম্নরূপ প্রবিধান 24 প্রতিস্থাপিত হইবে, যথাঃ—

- “24. Deposits and expenses.—**(1) The Commission may require the parties to deposit, in advance, in one or more installments, such sums of money as it deems necessary to defray expenses of the BERC Tribunal proceedings or arbitration, as the case may be, including the administrative charges and BERC Tribunal members' honorariums and other benefits and arbitrators' fees.
- (2) The deposits shall be in equal shares from the claimant and the respondent.
- (3) Where one of the parties neglects or refuses to make the deposit as may be required under sub- regulation (1), the Commission may require such deposit, whether in relation to a claim or a counter claim, to be made by the other party to the dispute (claimant or respondent, as the case may be) and where the whole or any part of the deposit remains unpaid, the Commission shall be under no obligation to place the dispute before the BERC Tribunal or Arbitral Tribunal, as the case may be, for settlement.
- (4) All deposits towards costs and expenses shall be made with the Commission and no payment shall be made to the members of the Tribunal by the parties.
- (5) The Commission shall pay the members of the Arbitral Tribunal such fees and other expenses as may be determined by it from time to time.”

২৪। Bangladesh Energy Regulatory Commission Dispute Settlement Regulations, 2014 এ নূতন প্রবিধান 24A, 24B এবং 24C এর সন্নিবেশ।—উক্ত প্রবিধানমালার প্রবিধান 24 এর পর নিম্নরূপ নূতন তিনটি প্রবিধান যথাক্রমে প্রবিধান 24A, 24B এবং 24C সন্নিবেশিত হইবে, যথাঃ—

- “24A. Tribunal to act independently.—**The BERC Tribunal or Arbitral Tribunal, as the case may be, shall be independent in the exercise of their judicial functions.
- 24B. Arbitral Tribunal members to continue until disposal of the case.—**Members of the Arbitral Tribunal shall continue to perform as members of the Tribunal until the final disposal of the case.

24C. **Enforcement of the order.**—If any party or parties, without a valid reason, refuses or fails to enforce any order or directive given by the Commission or BERC Tribunal or Arbitral Tribunal under these Regulations,

- (a) the Commission may impose upon such party or parties administrative fines determined by the Commission and such fines shall be liable to be realized as Public Demand; or
- (b) it will be treated as an offence and for such offence the said person shall be liable to be sentenced with imprisonment for a term not exceeding 3 (three) months or with fine not less than Taka 2000 (two thousand) or with both; and in case of continuation of the offence he shall be liable to be fined with an amount not exceeding Taka 500 (five hundred) for each day.”

২৫। **Bangladesh Energy Regulatory Commission Dispute Settlement Regulations, 2014** এর প্রবিধান 26 এর সংশোধন।—উক্ত প্রবিধানমালার প্রবিধান 26 এর উপ-প্রবিধান (1) এর প্রথম লাইনের শুরুতে “Subject to the provisions of the Right to Information Act,” শব্দগুলি ও কমা সন্নিবেশিত হইবে।

২৬। **Bangladesh Energy Regulatory Commission Dispute Settlement Regulations, 2014** এর প্রবিধান 27 এর সংশোধন।—উক্ত প্রবিধানমালার প্রবিধান 27 এর দ্বিতীয় লাইনে “any arbitrator of the Arbitration Tribunal” শব্দগুলির পরিবর্তে “the Chairman or any member, officer or staff of the BERC Tribunal or Arbitral Tribunal,” শব্দগুলি ও কমাগুলি প্রতিস্থাপিত হইবে।

২৭। **Bangladesh Energy Regulatory Commission Dispute Settlement Regulations, 2014** এ নূতন প্রবিধান 27A এর সন্নিবেশ।—উক্ত প্রবিধানমালার প্রবিধান 27 এর পর নিম্নরূপ নূতন প্রবিধান 27A সন্নিবেশিত হইবে, যথাঃ—

“27A. **Establishment of Tribunals outside Dhaka.**—(1)The Commission may establish such number of Tribunals in different locations outside Dhaka as it determines from time to time in order to resolve disputes between licensees or between licensees and consumers in the manner the Commission determines.

- (2) The pecuniary jurisdiction of such tribunals shall be determined by the Commission from time to time.

Provided that the fees of the members of such Tribunals and other expenses thereof shall be determined by the Commission from time to time.”

কমিশনের আদেশক্রমে

মোঃ ফয়জুর রহমান

সচিব

মোঃ আব্দুল মালেক, উপপরিচালক, বাংলাদেশ সরকারি মুদ্রণালয়, তেজগাঁও, ঢাকা কর্তৃক মুদ্রিত।

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BHUTAN



Bhutan

Primary Legislation, Key Policies and Guidelines



ELECTRICITY ACT

OF

BHUTAN

YEAR 2001

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THE ELECTRICITY ACT OF BHUTAN, 2001.

Preamble

The Electricity Act enables the restructuring of the power supply industry and the possible participation of the private sector, by providing mechanisms for licensing and regulating the operations of power companies. The establishment of the Bhutan Electricity Authority as an autonomous body will ensure a transparent regulatory regime; the Authority also has the role of laying down the standards, codes, and specifications of the Electricity Supply Industry. By this means the Electricity Act will define the roles and responsibilities of suppliers and protect the interests of the general public.

Now, therefore, be it enacted by the National Assembly of Bhutan as follows:

PART 1

PRELIMINARY

1 Title

1.1 This Act shall be cited as the Electricity Act of Bhutan, 2001.

2 Purpose

2.1 The purpose of this Act is to provide for:

- i) the restructuring of the electricity supply industry;
- ii) the establishment of the Bhutan Electricity Authority;
- iii) the technical regulation of the electricity supply industry;
- iv) the private sector participation in the electricity supply industry; and
- v) to empower the Government to participate in the formation of any company for the purpose of carrying out all or any of the purpose of the Act.

3 Objectives

3.1 The objectives of this Act include, but are not limited to the following:

- i) to promote a safe and reliable supply of electricity throughout the country;
- ii) to enhance revenue generation through export of

electricity;

- iii) to develop the socio-economic welfare of the people;
- iv) to promote economic self reliance of the country through the development of a financially viable and reliable electricity industry;
- v) to promote development of renewable energy resources;
- vi) to take environmental considerations into account when developing the electricity supply industry; and
- vii) to promote efficiency in management and service delivery.

4 Commencement

4.1 This Act shall come into force from such date as the Minister may appoint by notification in a National Newspaper.

5 Application

5.1 This Act shall extend to the whole of the Kingdom.

6 Definitions

In this Act unless a contrary intention appears:

6.1 a reference to a Part, Section, or Subsection is a reference to a Part, Section, or Subsection in this Act;

6.2 meanings to words are as follows:

- i) **"Bhutan Electricity Authority"** or **"Authority"** means the authority of that name established pursuant to Part 2;
- ii) **"corporation"** has the same meaning as "body corporate" defined in the Companies Act of the Kingdom of Bhutan, 2000;
- iii) **"distribution"** means the conveyance of electricity through a distribution system and which distributes electricity at voltages below 66 kilovolt or as is deemed by the Authority to be a part of the distribution network;
- iv) **"distribution system"** means a network which is not a transmission system, together with the connection assets association with the network, which is connected to another transmission or distribution system;
- v) **"generation"** means the conversion of another form of energy into electricity;
- vi) **"generation facilities"** means the generating plant and all related equipment essential to the generation of electricity;
- vii) **"Government"** means the Royal Government;
- viii) **"levy"** means an amount to be paid by any person

in respect of electricity supply or usage pursuant to Part 7;

- ix) **"licence"** means a licence issued under the provisions of Part 3;
- x) **"Licensee"** means any person issued with a licence pursuant to Part 3;
- xi) **"Minister"** means the Minister who is the Head of the Ministry;
- xii) **"Ministry"** means the Ministry, which is assigned the responsibility of the electricity sector;
- xiii) **"network"** means apparatus, equipment, plant and infrastructures used to convey and control the conveyance of electricity to customers;
- xiv) **"person"** includes any individual, firm, company, association, partnership or body of persons, whether incorporated or not;
- xv) **"power supply"** means the supply of electricity by way of the power system in accordance with system security;
- xvi) **"power system"** means the total system relating to power supply including associated generation, transmission and distribution network;
- xvii) **"private participant"** means any person from the private sector in electricity business either for bulk supply or retail sale under certain conditions;
- xviii) **"sale"** means the sale of electricity to a customer or for resale to third parties;

- xix) **"supply"** means the generation, transmission or distribution of electricity by way of the generation, transmission or distribution system, respectively;
- xx) **"system security"** means the operation and control of the power system to maintain a safe and reliable supply of electricity;
- xxi) **"transmission"** means activities pertaining to a transmission system including the conveyance of electricity at voltages above 66 kilovolt or as is deemed by the Authority to be a part of the transmission network; and
- xxii) **"transmission System"** means a network operating at nominal voltages of 66 kilovolt and above or as is deemed by the Authority to be a part of the transmission network.

6.3 Words importing the masculine gender also include the feminine gender.

6.4 Words importing the singular number also include the plural number and vice versa.

PART 2

BHUTAN ELECTRICITY AUTHORITY

7 Establishment of the Bhutan Electricity Authority

7.1 There is hereby established the Bhutan Electricity Authority.

7.2 The Authority:

- i) is a body corporate with perpetual succession;
- ii) shall have an official seal and such seal may be changed, altered and made anew as the Board deems fit;
- iii) may sue and be sued in its own name;
- iv) may acquire, hold and dispose of real and personal property; and
- v) may do and suffer all acts and things that a body corporate may do and suffer by law.

7.3 The Authority shall have the functions and duties, which are conferred and imposed on it by virtue of this Act.

8 Authority

8.1 The Authority shall consist of:

- i) a Chairman;

- ii) not less than three members; and
- iii) a Chief Executive Officer of the Authority

all of whom shall be appointed by the Minister on such terms and conditions as he may determine for a period not exceeding five years.

- 8.2 No member of the Authority appointed by the Minister shall be eligible to serve more than two consecutive terms as chairperson or ordinary member of the Authority;
- 8.3 The Minister may appoint any member of the Authority to be the Deputy Chairman of the Authority, and if for any reason the Chairman is unable to act, or the office of Chairman is vacant, the deputy Chairman may exercise all or any of the functions conferred, or the duties imposed, on the Chairman.
- 8.4 The Minister may appoint any person to be a temporary member of the Authority during the incapacity owing to illness or otherwise of any member of the Authority.
- 8.5 Where it appears to the Minister to be necessary in the interests of the efficient performance of the functions and duties of the Authority, he may revoke any appointment.
- 8.6 A member of the Authority may resign his seat at any time

by giving one month's notice in writing to the Minister.

8.7 The seat of a member shall become vacant.

- i) on his death;
- ii) if he, without sufficient cause, which is to be decided by the Authority, fails to attend three consecutive meetings of the Authority;
- iii) if he becomes in any manner disqualified for membership of the Authority, including if he breaches the code of conduct;
- iv) if he is an undischarged insolvent; or
- v) if he resigns his seat.

8.8 If a vacancy occurs in the membership of the Authority, the Minister may appoint a person to fill the vacancy, and any person so appointed shall hold office for so long as the member in whose place he is appointed would have held office.

9 Secretariat

9.1 The Authority shall have a secretariat headed by a Chief Executive Officer.

9.2 The Chief Executive Officer shall:

- i) be *ex-officio* secretary of the Authority;

- ii) carry out such functions as the Authority or the Chairman may assign to him;
- iii) record and keep the minutes of all proceedings of the Authority and other records of the Authority;
- iv) have custody of the seal of the Authority; and
- v) in the performance of his duties, be responsible to the Chairman.

9.3 The Chief Executive Officer may appoint staff as he may think fit, subject to the approval of the Authority as to the numbers and terms and conditions of service.

10 Meeting, quorum and decisions of the Authority

10.1 The Authority shall meet for the discharge of business at least four times in a year or upon a request in writing to the members by the Chairman.

10.2 The Authority shall meet at such time and place as the Chairman may appoint.

10.3 The Chairman may also call a special meeting of the Authority.

10.4 A meeting of the Authority shall be convened by a notice to each member issued and signed by the Secretary at least fourteen days before the meeting, except that a

shorter notice may be given for a special meeting.

10.5 The quorum at a meeting of the Authority shall be a simple majority.

10.6 The decisions of the Authority shall be made by a majority vote of the members present and voting.

10.7 Each member shall have one vote, and the Chairman shall have a casting vote in the event of a tie.

10.8 The Secretary shall cause to be recorded and kept, minutes of all meetings of the Authority in a form approved by the Authority.

10.9 The minutes recorded under subsection 10.8 shall be submitted to the Authority for confirmation to which the minutes relate and when so confirmed, shall be signed by the Chairman and the Secretary.

10.10 Subject to subsection 10.11, a decision of the Authority may be made by circulation of the relevant papers among members of the Authority and the expression of their views in writing; except that any member is entitled to require that the decision be deferred until the subject-matter has been considered at a meeting of the Authority.

10.11A decision made by circulation of papers under subsection 10.10 is not valid unless it is supported by majority members of the Authority.

10.12The validity of any proceeding of the Authority shall not be affected by any vacancy among its members or by any defect in the appointment of any of them.

10.13A member of the Authority who is in any way directly or indirectly interested in a matter being considered at a meeting of the Authority or in which his spouse is interested in a private capacity, shall, as soon as practicable after the commencement of the meeting disclose the nature of his interest to the meeting.

10.14A member making a disclosure under subsection 10.13 shall not take part in any consideration or discussion of, or vote on any question relating to the matter.

10.15A disclosure of interest made under subsection 10.14 shall be recorded in the minutes of the meeting at which it is made.

10.16A notice or other document may be served on the Authority by delivering it to the office of the Secretary or by sending it by prepaid registered post addressed to the Secretary.

10.17 Except as otherwise provided under this Act, the Authority may regulate its own procedure.

11 Functions of the Authority

11.1 Functions of the Authority are:

- i) to develop regulations, standards, codes, principles and procedures, which include, but are not limited to the following;
 - a. performance standards, including minimum technical and safety requirements for construction, operation and maintenance of generation, transmission and distribution facilities;
 - b. tariff-setting, including tariffs for generation not regulated by power purchase agreement, transmission, distribution and retail sale. These regulations should also comprise terms and conditions for connection fees and investment contribution from customers, and for provision of access to the transmission grid and distribution networks;
 - c. subsidies to entities carrying out non-economic viable electricity supply based on the policies and planning executed by the

Minister;

- d. requirements for Licensees' reporting, accounting and issuance of information to the Authority;
 - e. system operation, including dispatch of generation; and
 - f. levies, charges or royalties to be paid by Licensees.
-
- ii) to process applications and issue, modify and revoke licences for generation, transmission, system operation, export, import, distribution and sale of electricity;
 - iii) to monitor the performance of Licensees and their compliance with provision of this Act, regulations, standards, codes, licences and contracts approved by the Authority and concession agreements entered into between the Minister and Licensees;
 - iv) to determine, or approve tariffs proposed by the Licensees, and review existing tariffs;
 - v) to prescribe and collect fees, charges or royalties from Licensees;
 - vi) to impose any fines, sanctions or penalties for any breach of provisions of this Act, regulations, standards, codes, licences or contracts to be approved by the Authority, and concession agreements entered into between Licensees and

the Government;

- vii) to establish a dispute resolution process and settle disputes between Licensees and between Licensees and customers relating to the enforcement of this Act, regulations, codes, standards and licences issued under this Act, contracts approved by the Authority and concession agreements entered into between the Minister and Licensees, or otherwise any other arrangement for settlement of disputes which are not determined by the mentioned legal instruments; and
- viii) any other duties or responsibilities delegated by the Minister.

11.2 The Authority shall, in the performance of his functions:

- i) ensure the reliability, quality, security and efficiency of electricity supply;
- ii) encourage competition in electricity generation, transmission and supply;
- iii) ensure non-discriminatory access to the transmission and distribution system;
- iv) ensure a fair balance of the interests of the public, customers and participants in the electricity sector;
- v) facilitate the development of generation, transmission and distribution of electricity throughout the country; and
- vi) ensure the protection of the natural resources, the

environment and other public interests affected by the development of electricity supply.

12 Code of conduct

12.1 The Authority shall perform his functions in a manner that:

- i) is transparent and objective;
- ii) is fair, reasonable and efficient;
- iii) is non-discriminatory; and
- iv) promotes fair competition.

13 Finance

13.1 The activities of the Authority shall be funded from:

- i) levies, fees and other charges payable to the Authority in his performance of functions under this Act, including but not limited to licence fees; and
- ii) budgetary support from the Government.

14 Tariff regulation

14.1 The Authority may regulate:

- i) tariffs for the sale of electricity to customers by Licensees;
- ii) charges for connection to, and the use of any distribution system;
- iii) charges for connection to, and the use of any transmission system;

- iv) tariffs for generation not regulated by power purchase agreement; and
- v) other such prices and charges in respect of goods and services provided by Licensees.

in accordance with the following principles:

- a. fairness to both service customers and service providers;
- b. there shall be no unjust discrimination against service customers or those who wish to use the services;
- c. the tariffs should reflect the actual cost of efficient business operation;
- d. guidelines on the tariffs determination must be conducive to efficiency improvement in the business operation;
- e. the tariffs should be at the levels enhancing efficient and adequate energy supply to satisfy the domestic demand;
- f. there must be a public announcement and dissemination of the accountable and transparent tariffs; and
- g. the calculation from which the tariffs are derived must be explicit and made publicly available, promptly upon any determination thereof by the Authority.

14.2 The manner of such price regulation by the Authority may include:

- i) fixing the price or the rate of increase or decrease in price for transmission, distribution and retail charges;
- ii) fixing a maximum price or maximum rate of increase or decrease in maximum price for transmission, distribution and retail charges;
- iii) fixing an average price for transmission, distribution and retail charges;
- iv) specifying the cost of production and a rate of return on assets employed in production; and
- v) fixing a maximum revenue for transmission, distribution and generation companies.

15 Advisory bodies

15.1 The Authority may establish such advisory bodies as he thinks fit consisting in each case of members as he may from time to time appoint.

15.2 It shall be the duty of an advisory body, established under subsection 15.1 to advise the Authority on any matter:

- i) in respect of which any of the Authority's functions are exercisable; and
- ii) which is referred to it by the Authority,

each advisory body established pursuant to subsection 15.1 shall report as required to the Authority on the activities, the advisory body has undertaken.

16 Separation of regulatory and operational activities

16.1 Regulation of the power sector shall be carried out independently of the operation of the power sector and the provision of services related to the power system and power supply.

17 Powers and function of the Minister

17.1 The powers and function of the Minister under this Act are:

- i) to determine general policies, targets and strategies of the electricity industry operation;
- ii) to approve power system expansion plans;
- iii) to set general policies on tariff determination and service provision of Licensee;
- iv) to provide the policy on customer service standards and Licensee standards;
- v) to set the policy encouraging energy service extensions and providing electricity services for the underprivileged;
- vi) to approve the licence fee and the fee for the Licensee;

- vii) to approve the operational plan and the budget of the Authority;
- viii) to provide the policy on the protection against and solution to energy shortage;
- ix) to approve the rules and codes of conduct of the Authority;
- x) to provide policy in respect of private participation;
- xi) to grant Licensees permissions for compulsory acquisition of ownership or rights to land and water necessary for implementation and operation of licensed activities; and
- xii) to perform other duties as stipulated under this Act.

PART 3

LICENCES

18 Duty to obtain a licence

18.1 No person or entity shall engage in, construction, generation, transmission, system operation, distribution, sale, export or import of electricity without a licence issued under this Act.

19 Exemptions

19.1 The Authority may exempt any person from the requirement to obtain a licence under section 18 where such exemption may include, but is not limited to, the generation of electricity below 500 kilowatt.

19.2 An exemption may be of general or specific application.

19.3 An exemption is subject to such terms, conditions and limitations as are specified by the Authority.

20 Notice of intended application

20.1 A person or entity that intends to establish a project or operation for which a licence is required under this Act

shall notify the Authority of the intended project or operation.

20.2 Notice given under subsection 20.1, shall as far as possible contain the same information as described under section 22 relating to applications, which is available at the time of issuance of the notice.

21 Permit to survey

21.1 Based on a notice received, the Authority may issue a permit allowing the intended applicant to carry out assessments, studies and any other activity that may be necessary to enable the intended applicant to prepare an application for a licence.

22 Application for licence

22.1 A corporation may apply to the Authority for the issue of a licence authorizing one or more of the following activities as are specified in the licence:

- i) to generate electricity;
- ii) to transmit electricity;
- iii) to bulk supply;
- iv) to distribute electricity;
- v) to supply electricity;
- vi) to trade in electricity; and

- vii) to acquire a licence from another party.

22.2 An application for a licence must be submitted to the Authority in the prescribed form supplied by the Authority and accompanied by the following documents:

- i) the legal and financial status of the applicant;
- ii) a technical and economic description of the project;
- iii) a description of how the project fits in with the existing and planned electricity supply system;
- iv) the planned time of commencement and completion of the construction of the project;
- v) a view of the project's adaptation to the landscape, including necessary maps and drawing;
- vi) the impact of the project on public interests and possible mitigation;
- vii) a summary and conclusions of assessments and studies, including environmental impact assessment;
- viii) impacts of the project on private interests, including the interest of affected landowners and holders of other rights;
- ix) proposed tariff calculation;
- x) consents and permit required under any other law; and
- xi) any other documents required by the Authority.

22.3 An application shall be accompanied by the complete prepared reports relating to the assessments and studies carried out.

22.4 The Authority may specify the requirements of an application described under subsection 22.1, 22.2 and 22.3 according to the type and extent of impacts of the project or operation applied for.

22.5 An application shall be accompanied by the prescribed application fee as publicly announced by the Authority from time to time.

22.6 The Authority shall as soon as possible after receipt of an application either request additional information or confirm in writing to the applicant, that the application is complete in all aspects.

23 Advertisement of applications

23.1 The Authority shall, within a reasonable time after confirming that the application is complete in all aspects cause a notice of the application to be published in at least one national newspaper of wide circulation.

23.2 A notice published under subsection 23.1 shall:

- i) indicate the receipt of an application for a licence;

- ii) contain a description of the nature and location of the project applied for;
- iii) inform the members of the public that the application may, within the limits of commercial confidentiality, be inspected at the office of the Authority or at a public office in the area where the project applied for is supposed to be located; and
- iv) invite directly affected parties and local authorities in areas affected by the project who object to granting of the licence, whether on personal, environmental or other grounds, to lodge with the Authority an objection within a specified time, being not less than thirty days from the date of the notice.

24 Objection to grant of a licence

24.1 An affected party may lodge with the Authority an objection to the grant of a licence, setting out the grounds of the objection.

25 Factors to be considered for an application

25.1 When granting or rejecting applications, the Authority shall take into consideration, as far as adequate for the project applied for:

- i) the needs for electricity, or revenues for export of electricity, of the country, region or community;

- ii) the impact of the operation of the undertaking on the social, cultural and recreational life of the community;
- iii) the needs to protect the environment and to conserve the natural resources;
- iv) land use and siting or route of the project;
- v) the costs of the project;
- vi) the ability of the applicant to operate in a manner designed to protect the health and safety of users of the service for which the licence is required and other members of the public who would be affected by the operations of the applicant;
- vii) the technical, economic and financial capacity of the applicant to render the service for which the licence is required;
- viii) energy efficiency;
- ix) any representations and objections made under section 24;
- x) the price or tariff offered; and
- xi) other public and private interests affected by the operation for which the licence is required.

25.2 Notwithstanding subsection 25.1 the Authority shall when granting or rejecting an application, take into consideration the policies of the Government and any other matter that may be considered likely to have a bearing on the operations of the applicant.

26 Statement of reasons for a decision

26.1 The Authority shall after having decided whether to grant or reject an application for a licence, produce a statement of reasons within thirty days after making the decision.

26.2 The statement shall be issued to the applicant, and it shall be made available to interested parties on request.

27 Other Licences

27.1 Nothing in this Act shall prevent the holder of a licence who has fulfilled all the necessary obligations, from applying for and obtaining any other licence under this Act. The Authority shall take into consideration whether the grant of an additional licence will promote efficiency and fair competition in its review of the application.

28 Authority may order compliance

28.1 Where the Authority is of the opinion that a Licensee is in contravention of a condition of a licence or a requirement under this Act, or regulations, codes or standards made under this Act, it shall direct the Licensee to comply with that condition or requirement.

28.2 A notice containing the direction to comply under subsection 28.1 shall be sent to the Licensee at his registered address and other directly affected parties and shall:

- i) contain the relevant licence condition or requirement of legislation to which the breach is related;
- ii) contain the acts, omissions or other facts that which, in the opinion of the Authority, constitute a contravention of the condition or requirement;
- iii) specify a reasonable period within which the Licensee must rectify the breach or contravention; and
- iv) specify the period, not being less than twenty days from the date of receiving this notice, within which representations or objections may be made by the Licensee or directly affected parties.

28.3 All representations and objections received shall be considered before the Authority notifies the Licensee and the directly affected parties of its decision.

28.4 Where the Authority, following consultation with the relevant Licensee and directly affected parties, is satisfied that the Licensee is contravening or likely to contravene a condition of a licence or any requirement under this Act, regulations, codes or standards made under this Act, and

where the Authority is satisfied that immediate action is necessary:

- i) to protect public health, safety, the environment; or
- ii) to prevent the dissipation of property or assets,

it may direct the Licensee to take immediate action to discontinue or refrain from the practice.

28.5 Where the Licensee does not take action under subsection 28.4, the Authority may take action on behalf of the Licensee at the costs of the Licensee.

29 Modification of a licence

29.1 The Authority, may modify the terms and conditions of a licence:

- i) in accordance with the procedures specified in the licence conditions;
- ii) by agreement between the Authority and the Licensee; or
- iii) in accordance with the conditions of subsection 29.2 the procedures described in subsection 29.3.

29.2 The Authority may only modify the terms and conditions of a licence if the benefits of such modification for public interests significantly exceed the disadvantages of the Licensee.

29.3 The Authority shall before making modifications under subsection 29.2, give notice to the Licensee and other directly affected parties:

- i) stating that it intends to make modifications and setting out their effect;
- ii) stating the reasons for the modifications and why it is of the opinion that the grounds for modifications under subsection 29.2 are fulfilled; and
- iii) specifying the period within which representations or objections with respect to the intended modifications may be made and such period shall not be less than thirty days from the date of issue of notice.

29.4 The Authority shall take into account all representations and objections before notifying the Licensee and other directly affected parties of his decision.

29.5 The Licensee shall be compensated for financial losses as a result of modifications as laid down in the licence conditions.

30 Licensee's application for modification

30.1 Where, in the opinion of a Licensee, conditions of his licence have become unduly onerous and are impacting

on his ability to fulfil his obligations under the licence, he may apply to the Authority in writing requesting that the licence be modified, setting out:

- i) the conditions of the licence which he request to be modified;
- ii) the reason why these conditions have become unduly onerous;
- iii) the proposed modifications; and
- iv) any other evidence in support of the application.

30.2 The Authority shall submit a notice to parties affected by the modification enclosing a copy of the Licensee's application under subsection 30.1, specifying the period within which representations or objections with respect to the intended modifications may be made and such period shall not be less than thirty days from the date of issue of notice.

30.3 If the requested modifications are to the disadvantage of public or other affected privates interest, the Authority may not modify a licence under this section, unless such modification is in the overall national interest.

30.4 The Authority shall take all representations and objections into account before notifying the Licensee and the affected parties of his decision.

31 Duration of a licence

31.1 Subject to any current provision of this Act, a licence shall remain in force for the period specified in it, but shall not in any case exceed thirty years.

31.2 A Licensee may within three years before the expiry of a licence, apply for a renewal of the licence.

31.3 A licence may be renewed on such terms and conditions as determined by the Authority.

32 Transfer of a licence

32.1 A licence shall not be transferred without the written consent of the Authority.

32.2 A Licensee may apply to the Authority for the transfer of a licence.

32.3 An application under subsection 32.2 shall be accompanied by the application by the person to whom the Licensee intends to transfer the licence, and the prescribed transfer fee shall be paid as determined by the Authority.

32.4 The Authority shall satisfy itself of the legal, technical and financial competence of the transferee.

32.5 In this section “transfer of a licence” includes the acquisition of control by the licence holder, and “control” as used with respect to any person, means the possession, directly or indirectly, of the power to direct or cause the direction of management of that person, whether through the ownership of shares, voting, securities, partnership or other ownership interests, agreements or otherwise. The Authority shall not unreasonably withhold the consent to any application to transfer unless it has reason to believe that the public interest is likely to be prejudiced by the transfer.

33 Performance of activities

33.1 A Licensee shall carry out the licensed activities in accordance with the licence, this Act and regulations, standards and codes.

34 Licence conditions

34.1 The Authority may impose licence conditions relevant for the current activities not conflicting with this Act, or regulations, standards and codes.

34.2 The Authority may revoke a licence where he is satisfied that the Licensee is not operating in accordance with the terms and conditions of the licence or provisions of this Act or any regulations, codes or standards made under this Act if the breach;

- i) inflicts significant damage on public or private interest affected by the breach;
- ii) lasts for a considerable period of time;
- iii) takes place repeatedly; or
- iv) causes the Authority to have strong reasons to believe that the Licensee may not be able to fulfill his or her obligations under the licence or this Act.

34.3 The Authority shall give Licensee forty five days notice to show cause why the licence should not be revoked.

34.4 A notice under subsection 34.3 shall set out;

- i) the relevant condition of the licence or the requirement of legislation to which the breach is related;
- ii) the acts, omissions or other facts which, in the Authority's opinion constitute a contravention of the condition or legislation, and the reasons why the Authority is of the opinion that any of the circumstances mentioned under subsection 34.2; and

- iii) the period not being less than twenty eight days from the date of issuing of the notice within which representations or objections may be made by the Licensee.

34.5 A decision made by the Authority to revoke licence after considering all representations and objections received under this Act and other relevant factors may be appealed by the holder of the revoked licence to the Court of Law within thirty days after receipt of the decisions of the Authority.

34.6 Where a licence is revoked, the Authority shall take such action as is necessary to ensure that the supply of service to consumers is not unduly interrupted as a result of revocation.

35 Records and reports

35.1 A Licensee shall keep records and prepare reports relating to the Licensee's operations.

35.2 The Authority shall make regulations specifying the requirements for records and reports required under subsection 35.1.

35.3 A Licensee shall, at the request of the Authority and at the cost of the Licensee, provide all relevant available information about the technical, financial, hydrological or environmental issues and any other relevant information relating to the operations of the Licensee. The Authority shall make such request only as are required to perform his functions under the Act.

35.4 A Licensee shall keep accounts according to regulations of the Authority.

35.5 The Authority shall require Licensees undertaking more than one licensed operation to keep separate accounts for each operation.

36 Removal of installations

36.1 The Licensee shall, on the expiry of the licence, remove on his expense and to the satisfaction of the Authority, all installations considered by the Authority as inappropriate for further operation based on the objectives of the Authority.

37 Reversion of hydropower plants

37.1 On the expiry of a licence for a hydropower plant, the ownership of the plant including all existing installations,

property and rights needed for power generation shall be transferred to the Government without any compensation to the Licensee.

37.2 The power plant and installations transferred under subsection 37.1 shall be operational and well maintained at the time of transfer.

37.3 After transfer of ownership under subsection 37.1, the power plant, including all installations, property and rights required for power generation shall be dealt with by the Government in any manner it deems appropriate.

38 Transmission licence

38.1 A holder of a transmission licence shall provide access to all existing and potential users of the transmission grid on the payment of fees and other charges for grid services as may be approved by the Authority.

38.2 Transmission Licensee shall provide the Authority with such information as the Authority may prescribe to enable the Authority to approve the fees and charges under subsection 38.1

39 System operator

39.1 The Authority may designate a person to be a system operator, and licence the person:

- i) to co-ordinate the power supply system to obtain instantaneous balance between generation and consumption of electricity;
- ii) to be responsible for dispatching generation installations;
- iii) to co-ordinate transmission outages;
- iv) to monitor the import and export of electricity;
- v) to prepare forecasts of generation requirements;
- vi) to prepare regulations, with the approval of the Authority, for the dispatch of generation installations; and
- vii) to perform such other functions as may be prescribed by the Authority in the licence or by regulations.

39.2 The system operator shall not, in the performance of its functions, show undue preferences or discriminate against any person.

39.3 The system operator may recover all reasonable costs incurred in the performance of his functions.

39.4 All Licensees shall comply with the decisions of the system operator in connection with the execution of his functions under this Act or regulations.

40 Bulk supplier

40.1 The Authority shall designate a bulk supplier who will be responsible for the wholesale supply, including import and export, of electricity.

40.2 The terms and operating conditions of the bulk supplier shall be specified in its sale licence or prescribed by regulations.

41 Distribution licence

41.1 The area of the Licensee's distribution of electricity shall be defined in the licence.

41.2 A holder of a distribution licence shall provide access to all existing and potential users of the distribution network on the payment of tariffs, terms and conditions for network services as may be approved by the Authority.

41.3 A Licensee shall provide the Authority with such information as the Authority may prescribe to enable the

Authority to approve the tariffs, fees and charges under subsection 41.2.

41.4 A Licensee shall give a notice specifying the tariffs, terms and conditions for supply of electricity. The tariffs, terms and conditions of which notice has been given by distribution Licensee shall have affect as specified in the notice which shall be announced through the national newspaper shall be binding on the Licensee and the customers to which they apply.

41.5 The quality of distribution services shall be in accordance with standards prescribed by the Authority.

42 Supply of electricity

42.1 A Licensee shall, upon being required to do so by the owner or occupier of any premises, supply electricity to those premises, and as far as may be necessary for that purpose, provide supply lines or any electrical installation or equipment.

42.2 Where a person requires supply of electricity under subsection 42.1, he shall give to the Licensee a notice specifying his requirements of electricity supply.

42.3 Where a Licensee receives from any person a notice under subsection 42.2 requiring the Licensee to supply electricity to any premises, the Licensee shall as soon as practicable after receiving the notice, give to that person a notice specifying all terms and conditions relevant for the electricity supply.

42.4 Where a Licensee defaults in supplying electricity to a customer to whom the Licensee is required to supply, the customer may appeal to the Authority. The Authority may take such actions as are permitted under this Act or prescribed by regulations.

43 Rights and duties of customer

43.1 A customer shall comply with safety regulations made by the Authority.

43.2 A customer who fails to comply with regulation made under subsection 43.1 commits an offence.

43.3 Where a Licensee defaults in supplying electricity to a customer to whom the Licensee is required to give a supply of electricity, the customer may appeal to the Authority.

- 43.4 Notwithstanding subsection 43.3, a Licensee may interrupt the supply of electricity to a customer for such periods as may be necessary for carrying out inspections, tests, repairs, alterations, reconstruction or making of new connections, and the Licensee shall, except in the case of emergency, give prior notice by advertisement in the national newspaper or other media appropriate to reach the customers or by writing a notice to a customer whose supply it intends to interrupt and who may reasonably be expected to require a supply during the period of interruption.
- 43.5 Where damage or loss is caused to the customer by the negligence of the Licensee in the course of its operations, the customer is entitled to prompt payment of fair and adequate compensation by the Licensee for damage or loss sustained as a result of the course of its operations.
- 43.6 Compensation shall not be paid under subsection 43.5 unless a written claim for compensation has been lodged with the Licensee within six months after either customer learning of the act giving rise to claim, or the completion of any works in respect of which compensation is sought whichever is later.

43.7 A dispute as to the liability of the Licensee to pay compensation under subsection 43.5 or the amount of that compensation shall be determined by the Authority.

44 Licensee's fees

44.1 Where a supply line or electrical installations or equipment is provided to a customer by a Licensee, the licensee may require the customer to pay connection fees or other charges as an investment contribution as may be approved by the Authority.

45 Security

45.1 A Licensee may require a person who requires supply of electricity under section 42 to give the Licensee reasonable security for all monies that become due to the Licensee in respect of the electricity supply.

45.2 Where a person fails to give security required under subsection 45.1, the Licensee may refuse to give the supply or install required installations or equipment until the security has been given.

46 Reduction of supply

46.1 A Licensee may without incurring any liability, for so doing, reduce as he thinks fit the quantity of electricity

supplied, if at any time he is of the opinion that his supply of electricity is insufficient for the purpose of normal supply to his customers.

46.2 A Licensee may in cases of emergency, repairs to main or in connection with construction of new works, alteration to existing works or the installation, changing or removal of meters, stop or redirect in part or whole, the electricity under its control or management, notwithstanding any agreement made with any person for the supply of electricity.

47 Disconnection of supply

47.1 Where a customer fails to pay for the electricity supply in due time, or fulfil other obligations towards the Licensee, the Licensee may disconnect that customer according to procedures prescribed by the Authority.

47.2 Where a customer is found indulging in unauthorized tapping of electricity or supplying electricity shall without prejudice to his other rights, cause the supply of electricity to such customer to be disconnected without prior notice. The customer however shall have the right to appeal such action to the Authority.

47.3 The Licensee however shall notify the customer in writing of his action under subsection 47.2.

PART 4

PRIVATE PARTICIPATION

48 Private participants

48.1 Private participants in the electricity supply industry must be licensed as prescribed under Part 3.

49 Principles governing the participation of private parties

49.1 In the event, the Government decides for private participation in the electricity industry, the Authority shall prepare and promulgate regulations in relation to the establishment, ownership, operations and activities of private participants. These regulations and the Government's policy shall comply with the following principles:

- i) the energy policy of the Government shall be clear and published;
- ii) the regulations prepared and promulgated by the Authority shall be clear, consistent and published;
- iii) the regulations shall be consistently and transparently applied;
- iv) solicitation of, and bids for, construction of electricity supply facilities by private parties are competitively sourced and contested in accordance with a

published timetable and shall be reviewed independently;

- v) information shall be made available to bidders in relation to preferred sites and technical parameters; and
- vi) clear mechanisms for currency convertibility and remittances shall be prepared and published.

49.2 The bidding procedures shall be managed by the Authority, which shall give his recommendations to the Minister for final decision regarding the selection of the successful bidder.

49.3 With respect to any unsolicited bids that the Authority may receive, the Authority will deal with these in a manner consistent, where relevant, with the principles set out in subsection 49.1.

PART 5

POWER TO ACQUIRE LAND AND WATER

50 In this Part to the extent there is a conflict between this Act and the Forest and Nature Conservation Act of Bhutan, the Forest and Nature conservation Act prevails to the extent of the inconsistency.

51 Rights to acquire land

51.1 Where any land under private ownership is required to be acquired for setting up a project under licence pursuant to Part 3, the land may be acquired under the prevailing Land Act on approval of the Minister and such acquisition shall be deemed for a public or national purpose.

51.2 Where the Minister is satisfied that the land under subsection 51.1 is required for the purpose of providing or maintaining electricity supply services to the public, and that it is required in the public or national interest, regardless of whether the Licensee is a public or private entity, the Minister shall pursue the acquisition of the land on behalf of the Licensee in accordance with the Land Act.

51.3 A Licensee may submit an application to the Minister for acquisition of any land required for a project.

51.4 A Licensee shall make all efforts to enter into voluntary agreement with the affected landholder for purchase of land prior to submitting an application to the Minister for acquisition.

51.5 Once a right of way has been granted to a Licensee by the Authority, no person shall build any structures or do any activity on land within the proximity of the area covered under the right of way without the prior approval of the Authority.

51.6 When considering the acquisition of land and water and seeking the right of way, the Minister shall give due consideration to antecedent rights over land and water and shall insofar as practicable and in the general interest of the affected persons see that private and public property and life are not placed in jeopardy.

52 Right over public, private and government land and premises

52.1 A Licensee has the right over private, public and government land and premises:

- i) to enter upon any lands and sinks bores and make surveys and do any other acts or things necessary for sinking bores or making surveys;
- ii) to draw, erect and maintain power lines and clearances on either side;
- iii) to enter with any equipment or devices, receive, store, transmit, or supply electricity, water, on, near or under, any land and may enter any land and fell or remove any tree or part of a tree or any obstruction which in the opinion of the Licensee is necessary to fell or remove;
- iv) to divert any waterway, lake, swamp or marsh, or alter the bed, course or channel of any waterway;
- v) to enter upon any public or private land or roads and construct any works or place on under or over any such land or road any structure or equipment and may repair, alter or remove any such structure or equipment or any works under its control; and
- vi) to do all other things necessary for constructing, maintaining, altering, or using any works or undertakings of, or under the control of, the Licensee,

for the purpose of this Act.

52.2 In the exercise of the rights under subsection 52.1 a Licensee shall observe the environmental guideline or

regulation in force and must do as little damage as possible and must, if required, make full compensation to the owner of the land for any loss of income derived from such land or damage caused to the land in consequence of the exercise of the rights.

52.3 Compensation under subsection 52.2 shall be applicable as per the prevailing rates notified by the Government.

52.4 A Licensee may exercise its power under this section by its officers or employees or by any other person authorized in writing by it or the officers or employees of any such person.

52.5 A Licensee shall, except for the maintenance or repair of an electric supply line, before entering any private land for the purposes specified in 52.1, give sixty days notice to the owner of the land, stating as fully and accurately as possible the nature and extent of the acts intended to be done.

52.6 The owner of the land for the purposes specified in 52.1 may, within thirty days after the receipt of the notice under 52.5, lodge a written objection with the Authority and the Authority shall specify a date to inquire into the objection.

53 Water rights

53.1 The Minister may, on the submission of any licensed generator, declare any lake, river or waterway or any part thereof to be the source of water for the purposes of the licensed generator as stipulated in the terms and conditions of his licence and, in making the declaration, the Minister may impose such conditions and restrictions as he deems fit.

53.2 Notwithstanding anything contained in any written law, no person shall dam or otherwise interfere with any such source of water without first serving on the licensed generator either personally or by the registered post giving three months notice, in such form as may be prescribed, specifying the work he proposes to undertake.

53.3 At any time before the expiry of the time specified in the notice the licensed generator may, if he considers that the work referred to in subsection 53.2 will materially affect his functions, by notice in writing served on the person, either personally or by registered post:

- i) prohibit the person from proceeding with the work;
or
- ii) attach conditions to the undertaking of the work by the person.

53.4 Any person dissatisfied with the action taken by the licensed generator under subsection 53.3 may appeal to the Minister whose decision shall be final.

53.5 Any person who:

- i) dams or otherwise interferes with any source of water declared under subsection 53.1 without serving the notice required by subsection 53.2;
- ii) undertakes any work prohibited under this section; and
- iii) fails to comply with any conditions imposed under this section,

shall be liable to pay a fine as determined by the Authority.

53.6 Notwithstanding any declaration made under subsection 53.1, nothing in this section shall affect any licence granted not less than thirty years before the date of the declaration under any written law to divert water from any lake, river or waterway, for the purpose of an installation, the holder of which has not, in the opinion of the Minister, made reasonable use, for the purposes of the installation, of the rights arising out of the licence in connection with any lake, river, waterway or part thereof declared to be source of water.

53.7 Royalty on use of water and land resources may be determined by the Authority.

PART 6

CONTINGENCY PROVISIONS

54 Application of contingency provisions

54.1 If it appears to the Minister that:

- i) an event has occurred, or is about to occur, which may materially endanger an undertaking of a distribution company, a transmission company or a generation company, including a person who supplies electricity to another person or materially affect the safe, economical or effective supply of electricity;
- ii) the available supply of electricity is, or is likely to become less than is sufficient for the reasonable requirements of the community;

the Minister may with the approval of the Cabinet introduce certain contingency provisions which in his opinion are necessary to safeguard the generation, transmission, distribution and supply of electricity.

54.2 Any contingency provisions introduced by the Minister under 54.1 may continue in force for a period not exceeding six months and extension of such measures shall be subject to the approval of the Cabinet.

54.3 Without limiting subsection 54.1 the Minister may, by notice in writing, do all or any of the following:

- i) give any directions that are necessary to control, direct, authorize, conduct in relation to, restrict or prohibit the supply, distribution, sale, use or consumption of electricity;
- ii) direct a person or body to carry out any work required to ensure the generation, supply or distribution of electricity;
- iii) direct a person or body to maintain or operate any services required to ensure the generation, supply or distribution of electricity;
- iv) requisition the use of property of any kind which is used, or may be used, for or in connection with the generation, supply or distribution of electricity;
- v) operate, use, dispose of, distribute, store, repair and maintain any such property;
- vi) authorize a person specified in the notice to enter any land, building or structure used for or in connection with the provision of electricity;
- vii) authorize a person specified in the notice to withdraw the supply of electricity from any customer the person reasonably believes is in breach of any direction given under subsection 54.3 (i); and
- viii) provide, by direction, for any matter or thing incidental to the carrying into effect of the powers referred to in this section.

54.4 A direction of the Minister:

- i) may operate generally, or may be limited in its operations according to specified time, places, circumstances, condition or restrictions;
- ii) may, if so specified in the direction, allow the Minister to exempt a person or body from having to comply with the direction;
- iii) may be addressed or directed to people and bodies generally or particularly;
- iv) takes effect when made or, if a later time specified in the direction, at that later time.

54.5 The Minister may at any time by direction under this section amend or revoke a direction made, or purportedly made, under this section or may return requisitioned property.

54.6 If a direction of the Minister under subsection 54.5 amending an earlier direction for the purpose of correcting a defect, mistake or omission:

- i) includes the statement that the earlier direction is deemed to have been made as so amended; and
- ii) is made not later than three months after the earlier direction was made,

the earlier direction is deemed to have been made as so amended.

54.7 If the Minister requisitions the use of property under subsection 54.3(iv) the reasonable costs of compensating the owner of that property for the requisition and making good any damaged resulting from the requisition must be determined by the Minister.

54.8 Requisitioned property that has not been disposed of must be returned as soon as it is safe to do so after the Minister revokes a proclamation.

54.9 The amendment, revocation or expiry of a direction does not affect:

- i) the previous operation of the direction;
- ii) the validity of any action taken under the direction before the amendment, revocation or expiry; or
- iii) any penalty or punishment incurred in respect of any failure to comply with the direction before the amendment, revocation or expiry or any proceeding or remedy in respect of the penalty or punishment.

55 Compliance with contingency provisions

55.1 A person or body who is aware of a direction under section 57 must comply with the direction.

55.2 A person:

- i) to whom electricity is supplied; and
- ii) who is aware of a direction restricting or prohibiting the use of electricity,

must do everything reasonably possible to ensure that electricity is not used on the land or premises to which the electricity is supplied in contravention of the direction.

55.3 A person must not obstruct another person:

- i) exercising a power given to; or
- ii) complying with an obligation imposed on,

the other person under section 57 if the person has been shown a copy of the notice giving the power or imposing the obligation:

55.4 A person is deemed to be aware of a direction if the Minister has caused:

- i) the direction to be published in a newspaper circulating throughout the area in which the direction applies; or
- ii) details of the direction to be broadcast or telecast by means of radio or television throughout the area in which the direction applies.

56 Offences during contingency provisions

56.1 An act or omission by any person which contravenes the provisions of section 55 shall be an offence.

56.2 In any proceedings for an offence against this section, a certificate purporting to be signed by the Minister to the effect that details of a direction were broadcast or telecast by means of radio or television throughout a particular area on a specified day is *prima facie* evidence of the facts set out in the certificate.

56.3 In any proceedings for an offence against this section, if a direction was made in respect of part of a day and first broadcast on that day, it is sufficient defense for the defendant to prove that at the time of the offence, the defendant:

- i) did not know; and
- ii) could not reasonably have known,

of the direction.

56.4 If an offence is committed by a person by reason of a failure to comply, within the period specified in a direction under subsection 55.1 with the requirements specified in the direction, the offence, for the purposes of subsection 56.5 is deemed to continue so long as any requirement

specified in the direction remains undone, whether or not the period has elapsed.

56.5 If, under subsection 56.4 an offence is deemed to continue, the person who committed the offence commits an additional offence on each day during which the offence is deemed to continue and is liable, upon conviction for such an additional offence, to a penalty not exceeding one tenth of the penalty for the first-mentioned offence.

56.6 If a body corporate commits an offence against this section, any officer of the body corporate who was in any way, by act or omission, directly or indirectly knowingly concerned in or party to the offence is also guilty of that offence and liable to the penalty for it.

56.7 A person may be charged in accordance with subsection 56.6 and prosecuted before the court of law.

56.8 If in a proceeding for an offence against this section it is necessary to establish the intention of a body corporate, it is sufficient to show that a servant or agent of the body corporate had that intention.

56.9 In subsection 56.6 “**officer**”, in relation to a body corporate, means:

- i) a director, secretary or executive officer of the body corporate;
- ii) any person in accordance with whose direction or instruction the directors of the body corporate are accustomed to act; or
- iii) a person concerned in the management of the body corporate.

56.10 If this section provide that a person is guilty of an offence, that reference to a person must:

- i) in the case of partnership, be read as a reference to each member of the partnership; and
- ii) in the case of an unincorporated body or association, be read as a reference to each member of the committee of management of the body or association.

57 Delegation by Minister

57.1 The Minister may, by instrument, delegate to any person or body, all or any of the Minister's powers and functions under this Part, except this power of delegation.

57.2 The Minister may limit the delegation with respect to time, place or circumstance.

58 Judicial notice

58.1 All courts and any person acting judicially must take judicial notice of any proclamation, direction or general requisition made, given or imposed under this Part.

59 Immunity from suit

59.1 A person acting in good faith in the execution of this Part or any proclamation or direction under this Part is not liable to any action, claim or demand on account of any damage, loss or injury sustained or alleged to be sustained because of the operation of this Part or of any thing done or purporting to be done under this Part or any proclamation or direction under this Part.

PART 7

SOCIAL OBLIGATIONS

60 Prescription of levies and issuance of directions

60.1 The Minister may, on the recommendation of the Authority, prescribe levies for such matters and in accordance with guidelines set by the Authority which include:

- i) recovery of costs incurred in the delivery of electricity to rural or remote customers of Bhutan; and
- ii) any other matters which further the objectives of this Act as set out in section 60.3.

60.2 The Minister may, on the recommendation of the Authority, prescribe the amount and the manner of collection of such levy to be borne by Licensee and customers, classes of customers.

60.3 The Minister may, on the recommendation of the Authority, direct Licensees to undertake certain public service obligation which may include obligations in relation to:

- i) the security of supply of electricity;
- ii) regularity, quality and price of electricity;
- iii) health and safety of person;

- iv) environmental protection ;
- v) use of renewable energy sources;
- vi) promotion of efficient use of electricity; or
- vii) assistance to the underprivileged or the decentralization of development to provincial areas.

60.4 The Minister may, on the recommendation of the Authority, issue general policy directions in relation to the choice and diversification of fuel sources in the generation of electricity.

61 Rural electrification

61.1 The Minister shall undertake to promote, support and provide rural electrification programmes through public and private sector participation in order to:

- i) achieve equitable regional distribution access to electricity;
- ii) maximize the economic, social and environmental benefits of rural electrification subsidies;
- iii) promote extension of the grid and development of off-grid electrification;
- iv) promote renewable energy and
- v) stimulate innovations within suppliers.

PART 8

TECHNICAL REQUIREMENTS AND SAFETY

- 62** In carrying out electricity industry operation, a Licensee must comply with the engineering and safety standards under the regulations prescribed by the Authority.
- 63** In the event that the operation of a Licensee fails to comply with the characteristics and standards referred to under section 64, the Authority shall have the power to order the Licensee to improve or to take corrective measures, pursuant to the regulations prescribed by the Authority.
- 64** The technical characteristics and standards of equipment to be connected to the power system shall be in conformity with the regulations announced by the Authority.
- 65** The Authority may issue an instruction requiring that the standards of certain categories of equipment to be connected to the power system be tested and certified prior to their utilization in energy services provision.
- 66** The Licensee shall have to undertake the maintenance, repair and improvement of the power system, equipment and appliances utilized in the energy business operation to ensure that their efficiency and standards comply with the regulations

referred to under section 64, if there is any damage or breakdown, repair must be expeditiously taken to restore the operation.

- 67** In establishing the technical characteristics and standards referred to under section 64, the Authority may refer to the characteristics and standards established by other agencies under the authority and duties specified in other pieces of legislation.
- 68** The Authority may assign, in his place, any other agency to be responsible for the testing and certification of the technical characteristics and standards under section 64.

PART 9

OFFENCES

69 The following acts shall be offences:

- i) unauthorized tapping of electricity;
- ii) contravention of any provisions of the terms and conditions of supply prescribed by the licence or any other law governing the supply and use of electricity of rules and regulations framed thereunder;
- iii) unauthorized supply of electricity to any service;
- iv) unauthorized supply of electricity to any service, which was disconnected;
- v) exceeding the contracted connected load without specific permission of the Licensee;
- vi) addition, alteration or extension of electrical installation in the customer's premises without permission of the Licensee or extension to any premises other than one for which supply was contracted for;
- vii) non-compliance of orders imposing restriction on use of energy for rational and equitable distribution thereof;
- viii) use of electricity for the purpose other than that for which supply is contracted for;

- ix) resale of energy without the permission of the Licensee;
- x) obstruction to lawful entry by the authorized officers/employees of the Licensee into the customer's premises;
- xi) tampering with or adjusting any installation or part of an installation, or manufacturing or importing or selling any equipment so as to cause or to be likely to cause harm to human life or damage to any equipment or other property;
- xii) without the consent of the Licensee or the Authority, affixing or causing to be affixed any advertisement, bill or notice or any other paper against or upon or otherwise defaces any building, post or bracket or other equipment or the enclosure thereof used for or in connection with any electrical installation;
- xiii) damaging any meter or other instrument used on or in connection with any licensed installation for recording the output or consumption of energy;
- xiv) extinguishing or damaging any public lamp or defaces any post, bracket or other means of support of a public lamp;
- xv) undertaking any work or engage in any activity in the vicinity of any electrical installation or part of the installation in a manner likely to interfere with any electrical installation or to cause danger to any person or property;

- xvi) any act that may threaten power supply;
- xvii) any act that may threaten system security; and
- xviii) violation of any of the provision of this Act,

any person committing an offence shall be punished as per the law of the land.

PART 10

MISCELLANEOUS

- 70** The Authority may, by statutory order, grant an exemption from the requirement to hold a Licence for the generation, distribution or sale of electricity by categories of persons or by a particular person, for the promotion of rural electrification where the generation capacity does not exceed 500 kilowatts but that exemption shall not preclude the Authority from exercising its other regulatory functions under this Act.
- 71** An exemption granted to persons of a particular class shall be published in such manner, as the Authority considers appropriate for bringing it to the attention of persons of that class.
- 72** An exemption granted by the Authority under this section shall be in writing and may be revoked in accordance with any term contained in the exemption.
- 73** Unless previously revoked, an exemption will continue in operation for such period as may be specified in or determined by or under the exemption.
- 74** The Minister shall, in consultation with the Authority, lay down administrative procedures for the regulation of electricity

distribution and sales to customer activities involving generation systems of a capacity not exceeding 500 kilowatts.

75 The Authority shall, within four months after the end of each financial year, submit to the Minister, a statement of his activities in the preceding financial year, containing such information as the Minister may require.

76 The Authority shall also submit to the Minister, such other reports on his activities or on any other matter as the Minister may, from time to time, require.

77 The common seal of the Authority shall:

77.1 be in a form to be determined by the Authority; and

77.2 not be affixed to any document except by order of the Authority.

78 The common seal of the Authority shall be authenticated by the signatures of the Chief Executive Officer and two other members of the Authority.

79 An instrument or contract which if executed or entered into by a person other than a body corporate would not require to be under seal, may be executed or entered into or on behalf of the Authority by the Chief Executive Officer, or by any member of

the Authority or by any other person if that member or the Authority or other person has been duly authorized by resolution of the Authority to execute or enter into the instrument or contract as the case may be.

- 80** Every document purporting to be an instrument or contract executed or issued by or on behalf of the Authority in accordance with this section shall be deemed to be so executed or issued until the contrary is proved.
- 81** Subject to section 82, all applications for licences and documents related to resolution of disputes, handling of cases regarding breaches of safety or technical regulations, or any other matter dealt with by the Authority, shall be regarded as public documents.
- 82** The Authority may, of his own motion or on the application of the Licensee, exempt such documents as he may prescribe from access to the public under section 81 in order to prevent the revealing of business secrets and other sensitive matters.
- 83** The Authority shall keep a register in which shall be entered the particulars of:
- i) every exemption granted to a Licensee;
 - ii) every licence granted by the Authority;
 - iii) every modification or revocation of a licence;

- iv) every compliance order or revocation of a compliance order; and
- v) every requirement imposed and every consent or approval given by the Authority under the terms of a licence.

84 All decisions of the Authority shall be in writing and the Authority shall give reasons for every decision made by him.

85 A member of the Authority or of a committee of the Authority is not personally liable for any action done or omitted to be done by him in good faith without negligence for the purposes of carrying into effect the provisions of this Act.

86 An officer or employee of the Authority or other person acting on behalf of the Authority is not liable for any act done by him in good faith, without negligence, for the purpose of carrying into effect the provisions of this Act.

87 The Authority shall, within twelve months after the commencement of this Act, by statutory instrument, make regulations relating to the generation, transmission, distribution, retail, internal house wiring and utilization of the electricity system.

88 Without prejudice to the generality of section 87, regulations made under this section may provide for:

- i) standards regarding safety;
- ii) technical equipment and skills;
- iii) the quality of deliverance of electricity;
- iv) the fees to be charged under this Act; and
- v) any other matter necessary or convenient for giving full effect to this Act.

89 The Authority shall, by statutory instrument, make regulations to establish a Grid Code.

Done at the 79th session of the National Assembly of Bhutan on the 6th day of the 6th month of the Female Iron Snake Year corresponding to 26 July, 2001.

Bhutan

Sustainable Hydropower Development Policy

2008


DIRECTOR GENERAL
DEPARTMENT OF HYDROPOWER & POWER SYSTEMS
MINISTRY OF ECONOMIC AFFAIRS
THIMPHU : BHUTAN

(26 June 2008)

ABBREVIATIONS

BEA	Bhutan Electricity Authority
BHP	Basochhu Hydropower Plant
BOOT	Build-Own-Operate-Transfer
BPC	Bhutan Power Corporation
CA	Concession Agreement
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CHP	Chukha Hydropower Plant
DGPC	Druk Green Power Corporation
DHI	Druk Holding & Investment
DoE	Department of Energy
DPR	Detailed Project Report
EIA	Environmental Impact Assessment
EMP	Environment Management Plan
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
Gol	Government of India
KHP	Kurichhu Hydropower Plant
MoEA	Ministry of Economic Affairs
MoA	Ministry of Agriculture
MoU	Memorandum of Understanding
MW	Mega Watt
PDA	Project Development Agreement
PSMP	Power System Master Plan
RfB	Request for Bid
RGoB	Royal Government of Bhutan
RoC	Registrar of Companies
SPV	Special Purpose Vehicle
THPA	Tala Hydroelectric Project Authority


 DIRECTOR GENERAL
 DEPARTMENT OF HYDROPOWER & POWER SYSTEMS
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1. Introduction

- 1.1 The economy of the Kingdom of Bhutan is largely dependent on the development of Hydropower generation. Hydropower plants contribute significantly to the overall GDP growth and economy, both during construction and operation phases.
- 1.2 The domestic demand for electricity in the country is increasing at a rate that may soon exceed existing generation capacity that is presently available to meet such domestic demand, and hence, capacity augmentation is imperative. The surplus electricity is being exported to India from the existing hydropower generating plants. The revenue earned from export of electricity is a significant contributor to the overall revenues of the Kingdom. There is great potential for increasing such export and consequently earn substantial revenues. As part of the Framework Agreement entered between the Royal Government of Bhutan (RGoB) and the Government of India (GoI) for cooperation in the field of hydropower sector, GoI has agreed to a minimum import of 5,000 MW of electricity from Bhutan by the year 2020.
- 1.3 The RGoB intends to develop hydropower projects in an accelerated manner in order to have an installed capacity of at least 10,000 MW by 2020. The key reasons for acceleration of hydropower development are:
 - hydropower is the main source of revenue for the country and its development would help the country achieve its goal of economic self reliance, and
 - huge energy demand in the region offers a big opportunity for Bhutan to develop its rich hydropower resources for export.
- 1.4 The Power System Master Plan estimates the overall hydropower potential of Bhutan at 30,000 MW with production capability of about 120,000 GWh. With the commissioning of Tala hydroelectric project (1020 MW) in 2006-07, the installed hydropower capacity in Bhutan has reached 1,488 MW, which constitutes only 5% of the potential.
- 1.5 So far, all hydropower projects have been developed with bilateral grants and loans as Public sector undertakings. While this model will continue to receive priority, the ability to accelerate hydropower development through this model alone is limited mainly on account of resource constraints.
- 1.6 To facilitate accelerated hydropower development, there is a need to create enabling environment to attract public and private investments, and strengthen institutional capacity. The Hydropower Policy provides the framework and guidelines for accelerated hydropower development.
- 1.7 The Royal Government shall continue to develop hydropower projects on its own or through existing bilateral arrangements and simultaneously look for private sector and public private partnership also to contribute to the hydropower development.


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2. Objectives of the Hydropower Policy

2.1 The key objectives of the policy are to:

- a) Mobilize funds and attract investments for accelerated hydropower development
- b) Enhance the revenue contribution to the Royal Government
- c) Contribute to socio-economic development
- d) Ensure domestic electricity supply security and reliability
- e) Ensure that the hydropower development is in accordance with the sustainable development policy of the Royal Government, keeping in view the fragile mountain ecosystem of the country
- f) Contribute towards development of clean energy to mitigate problems related to global warming and climate change.

3. Institutional Arrangements of the Hydro Power Sector

3.1 The erstwhile Department of Power under the erstwhile Ministry of Trade and Industry was responsible for all activities related to the Power sector till June 2002. The Electricity Act was passed in the 79th session of the National Assembly in July 2001 and the Power sector in Bhutan has since then undergone major restructuring. The Department of Power was split up into three organizations: the Department of Energy (DoE) for policy making and planning of all aspects of Energy and Power sector, the Bhutan Power Corporation (BPC) for transmission and distribution of electricity and the Bhutan Electricity Authority (BEA) for regulating the electricity industry.

3.2 The three Hydro Power Corporations (Chukha, Basochhu and Kurichhu), which have been operating as independent corporations, have been merged into a single entity, the Druk Green Power Corporation (DGPC) on 1st January 2008.

Department of Energy (DoE)

3.3 The DoE, a Department under the Ministry of Economic Affairs (MoEA), is responsible for developing the long term policies and plans for the energy and power sector. The functions of the Department are to:

- Be the Apex body for implementation of this policy. The body will undertake bidding processes for allotment of projects, and promotional and marketing activities for the hydro power sector under this Policy including investor facilitation for hydropower development
- Formulate national policies, plans, programmes and guidelines related to sustainable development, efficient utilization and management of Energy, Hydropower and Hydromet services in the Kingdom;

- Serve as the Central Coordination Agency and the Focal point of the Royal Government on all matters related to Energy, Hydropower and Hydromet services;
- Responsible for planning of security of electricity supply, national transmission grid network and rural electrification;
- Lead and encourage the development of renewable energy;
- Provide technical advice and related support services to the Royal Government on various issues, options, strategies and prospects related to Energy, Hydropower and Hydromet services;
- Oversee, monitor and evaluate the implementation of plans, programmes and projects and provide feedback for improvement;
- Provide techno-economic and budgetary clearance on all major projects and programmes related to the electricity sector before implementation; and
- Be responsible for all bilateral and multilateral issues on Energy and Power.

Bhutan Electricity Authority (BEA)

3.4 The BEA is an autonomous regulator for the electricity sector. The functions of the BEA include:

- Develop and implement technical, safety and performance regulations, standards and codes for the electricity sector;
- Develop and implement principles and procedures for tariff setting, and subsidies and economic regulation of domestic tariff;
- Issue licenses and monitor Licensees as per the provision of the Electricity Act in place; and
- Develop and implement Dispute Resolutions Procedures relating to enforcement of Electricity Act, regulations, codes and standards.

Bhutan Power Corporation (BPC)

3.5 The BPC is responsible for electricity transmission, distribution and supply functions. The BPC also manages and operates some embedded generation units consisting of micro/mini hydro and diesel generating units. The BPC provides transmission access for export of surplus power to India. It is also the National System Operator.


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Druk Green Power Corporation (DGPC)

- 3.6 The DGPC is responsible for managing all hydropower plants fully owned by the Royal Government. It will also develop projects on its own or through joint ventures on behalf of the Royal Government as may be directed. Projects that are funded through bilateral assistance shall continue to be managed and supervised by the MoEA through formation of project authorities. Such fully Government owned generating plants shall be handed over to DGPC when the Project Authority is dissolved.

Ministry of Agriculture (MoA)

- 3.7 The MoA plays an important role in ensuring sustainable watershed management through catchment protection and other nature conservation works in order to support the availability of water for hydropower generation.

National Environment Commission (NEC)

- 3.8 The NEC is the apex body for overall coordination of matters relating to water resources. The NEC is also responsible for according environmental clearances of all projects as per the Environment Act and Regulations.

4. Project Solicitation Process

4.1 Project Classification

- 4.1.1 The Power System Master Plan 2003-22 shortlists 76 projects: 70 run of the river and 6 reservoir schemes. The total estimated capacity of these 76 projects is about 23,760 MW. For the purpose of this policy, the projects are classified as follows:

- (a) Micro/Mini projects – having installed capacity less than and up to 1 MW
- (b) Small Projects - having installed capacity greater than 1 MW and up to 25 MW
- (c) Medium Projects - having installed capacity more than 25 MW and up to 150 MW
- (d) Large projects - having installed capacity of more than 150 MW and up to 1000 MW
- (e) Mega Projects – having installed capacity of more than 1000 MW.

4.2 Investment Model and Period

- 4.2.1 The RGoB shall identify hydropower projects that would be developed under Build Own Operate and Transfer (BOOT) model. The project shall be allotted to a Developer for a concession period of thirty (30) years, excluding the construction period. Based on the performance of the incumbent operator and on terms and conditions to be agreed upon, the period can be extended for a maximum of fifteen (15) years.

- 4.2.2 Project Developer shall register with the Registrar of Companies (RoC) as a separate company as per the Companies Act of the Kingdom of Bhutan. The company shall be a Special Purpose Vehicle (SPV) dedicated for a specific hydroelectric project in Bhutan. The SPV shall be required to obtain licenses from BEA for construction and generation, sale, export or import of electricity as may be relevant as per the Electricity Act. The SPV will also be required to obtain a business license.
- 4.2.3 The RGoB or one of its appointed agencies shall carry out mandatory inspection of the project during the concession period to ensure that the project assets are maintained to the required standards in order to maintain the specified generation capability and residual life of the plants. If such inspections find that the plant capacity/or life of the project are being undermined by inadequate maintenance, the RGoB shall seek remedial measures from the project company.
- 4.2.4 At the end of the concession period, the entire project shall be transferred and vested in the RGoB at no cost and in good running condition. At the 25th year of operation, the RGoB and the project company shall carry out joint inspection to mutually agree upon any capital investments that may be required towards major replacement, renovation and modernization of project components, which cannot be covered by internal funds of the project. Liabilities arising out of such activities shall be transferred to the RGoB. Other liabilities and non-project assets of the project at the end of concession period shall be retained by the project or distributed among the shareholders, as mutually agreed between the shareholders. In the event the concession period is extended beyond 30 years, all liabilities shall be accrued to the project developer and not to the RGoB.
- 4.2.5 Projects that are fully owned by the RGoB/RGoB agency or where the RGoB/RGoB agency has a minimum of seventy four percent (74%) equity and the balance shares are owned by the Bhutanese nationals, such projects will not be required to be reverted to the Royal Government at the end of the Concession Period.

4.3 Project Ownership

Micro/Mini and Small Hydropower Projects

- 4.3.1 Investment in Micro, Mini and Small Hydropower Projects will be addressed through a separate Renewable Energy Policy and not fall within purview of this Policy.

Medium Hydropower Projects

- 4.3.2 Investments in Medium Hydropower Projects shall have a minimum of 26% equity held by Bhutanese nationals and/or Bhutanese companies having 100% ownership by Bhutanese nationals. No single foreign investor can enter into Joint Ventures beyond five projects.

Large Hydropower Projects

- 4.3.3 Investments in Large Hydropower Projects are open for joint ventures with Bhutanese companies or 100% foreign investments. The equity participation by any single foreign investor including Bhutanese FDI companies shall be limited to three large projects with total installed capacity not exceeding 2000 MW.

Mega Hydropower Projects

- 4.3.4 The RGoB shall generally undertake development of Mega Hydropower Projects in collaboration with governments of development partner countries.
- 4.3.5 Such Projects may also be considered for development through models as specified for Large Hydropower Projects in the event the Projects cannot be realized through the bilateral models specified under sub-clause 4.3.4.

Public-Public Partnership

- 4.3.6 The RGoB shall directly award projects for development as 100% Royal Government undertaking or through Public-Public partnership in which the RGoB and participating Governments have majority shareholding in the Public sector companies.
- 4.3.7 For Public-Public partnership, the RGoB undertaking shall have a minimum of 51% shareholding.

Public-Private Partnership

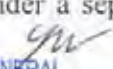
- 4.3.8 The RGoB may develop hydropower projects through Public-Private Partnership. For this, the RGoB shall allocate projects directly to Royal Government undertaking. The private partner shall be selected through the project allotment process as per this policy, except in case of strategic partnership.
- 4.3.9 The RGoB may opt to have a share in Hydropower Projects developed by private investors.

Strategic Partnership

- 4.3.10 Subject to special approval by the Royal Government of Bhutan, an investor can be selected without bidding as a strategic partner having maximum shareholding of twenty six percent (26%).

Captive Power Plants

- 4.3.11 Power Intensive Industries located within Bhutan shall be permitted to develop hydropower plants as captive power sources for their industries under a separate Captive Power Policy.


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4.4 Project Definition and Preparatory Studies

- 4.4.1 All project definition and preparatory studies up to at least the Pre-feasibility level for the projects shall be carried out by the DoE or any other agencies authorized by the RGoB.
- 4.4.2 The pre-feasibility reports will identify basic parameters of the projects like gross/net head, hydrological characteristics, geological conditions, installed capacity, annual plant factor, monthly profile of energy potential, preliminary costs and development benefits. Pre-feasibility studies will be carried out in accordance with internationally accepted practices. The bidder will have the right, at its own cost, to examine, evaluate and to carry out additional studies to make its own assessment about the pre-feasibility and viability of the project, as part of its due diligence process.

4.5 Pre-Qualification

- 4.5.1 Notices inviting Bids for pre-qualification to develop Medium, Large and Mega projects shall be widely advertised.
- 4.5.2 For each identified site, as notified by the RGoB from time to time, there shall be a pre-qualification of the bidders based on their past experience, and financial and technical capacity. The applicants qualifying in the pre-qualification stage will be eligible for participating in the Bid solicitation phase. Each attribute set for pre-qualification will be evaluated. Guidelines for evaluation, and the passing scores on attributes required for pre-qualification, shall be specified at the time of inviting Bids for pre qualification.
- 4.5.3 Request for Bid (RfB) will be made available to the pre-qualified bidders along with Pre-feasibility reports.

4.6 Project Allotment Process

- 4.6.1 The competitive bidding process will be based on Up-front Premium and Royalty power/energy as specified in the RfB. All Bids will have to be accompanied by Bid Security and any other fees as specified in the RfB.
- 4.6.2 The Up-front Premium shall generally be fixed and the amount shall be notified in the RfB. The successful bidder shall be required to deposit 50% of the Up-front Premium at the time of issue of Letter of Allotment (LoA). The selected Developer shall sign a Project Development Agreement (PDA) with the RGoB within three months of the issue of LoA and deposit the balance 50% of the Up-front Premium at the time of signing of the PDA.
- 4.6.3 A minimum of twelve percent (12%) of electricity generated shall be made available free of cost to the RGoB as Royalty Energy during the first 12 years of commercial operation of the project and a minimum of eighteen (18%) thereafter till the end of concession period. This free power/energy will be in addition to the Up-front Premium as indicated under sub-clause 4.6.2. The project shall be allotted to the bidder offering the highest Royalty Energy over the minimum specified.

- 4.6.4 If there are two or more identical Bids which emerge as the best Bids for the project, allotment will be made on the basis of the higher score obtained in valuation of the pre qualification among the identical bidders.
- 4.6.5 The selected Developer shall reimburse to the RGoB the expenditure incurred on investigations and infrastructure work for the project at the time of signing the Project Development Agreement (PDA). This amount will be specified in the Request for Bid (RfB) document for the Project.
- 4.6.6 The PDA shall constitute the commitments and obligations of the parties and will provide a timeline for the selected Developer to prepare a Detailed Project Report (DPR). The DPR will consist of the techno-economic feasibility studies undertaken by the selected bidder. If the submission of the DPR is delayed, an extension of a maximum of six months may be granted by the RGoB, provided that it is satisfied that the cause for delay is reasonable. The Developer must make the request for such an extension to the RGoB three months prior to the DPR submission deadline. Should the Developer submit a DPR which is not approved by the RGoB, the Developer will be given six months to review their DPR and re-submit it.
- 4.6.7 The quality of DPR, Construction and Operation & Maintenance shall be conforming to International Standards and Specifications, and shall be enforced by the RGoB.
- 4.6.8 The Developer will be permitted to withdraw from the project, if the RGoB is satisfied that the Developer has sufficient grounds to establish that the project is not techno-economically feasible. In such an event, the RGoB shall refund 50% of the Up-front Premium to the Developer, without interest. The RGoB shall not be held liable for any expenditure the selected bidder may have incurred. Withdrawal for any other reason would lead to forfeiture of the entire Up-front Premium.
- 4.6.9 After the DPR is approved by the RGoB, the selected Developer shall sign a Concession Agreement (CA) with the RGoB. The CA shall be the key legal instrument granting the concession to the Developer, specifying the rights and obligations of the parties. The CA shall also include time schedules for getting necessary legal/administrative/technical approvals, financial closure, construction, commissioning, operation, maintenance and transfer of the project.
- 4.6.10 The Developer may be allowed an extension should there be any delay in obtaining any of the approvals/licenses mentioned in the CA. This extension will be granted by the RGoB, provided the Developer shows sufficient grounds for such an extension. The terms and penalties associated with such extensions shall be stipulated in the CA. If the Developer is unable to show sufficient grounds for an extension, the project will revert to the RGoB, and the allotment shall be treated as automatically cancelled. In such a case, the Developer shall not be compensated for any expenses they may have incurred including the Up-front Premium paid.


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- 4.6.11 For projects allocated directly to the RGoB undertaking without bidding process, a minimum of twelve percent (12%) of electricity generated shall be made available free of cost to the RGoB as Royalty Energy during the first 12 years of commercial operation of the project and eighteen (18 %) thereafter till end of the concession period. Any exception to this shall be through the approval of the RGoB.

5. Project Investment Issues

5.1 Lock-in Period

- 5.1.1 The "Developer" identified as the "Principal Developer" in the application for pre-qualification, having a lead role and possessing sufficient financial strength, is required to hold 100 % of his equity invested in the SPV during the "lock-in period" which will be from the signing of Project Development Agreement till the end of the fifth year of commercial operation.

5.2 Treatment of Royalty Power/Energy

- 5.2.1 The RGoB shall have the option to avail the Royalty Energy either as energy or as cash in lieu thereof based on the highest off take rate at which the power/energy from the plant is sold by the Developer to its buyers. The conditions of supply of the free energy or cash in lieu thereof shall be stipulated in the CA.
- 5.2.2 Completion of the project prior to the scheduled date as stipulated in the CA shall attract incentive to the Developer and penalty in case of delay. A rebate by way of reduction of one percent (1%) in the Royalty Energy for every year of earlier completion or prorated thereof shall be given as incentive for early completion. This rebate shall be applicable for the first five (5) years from the date of commercial operation. Likewise delay in completion will also entail penalty by way of increase of one percent (1%) in the Royalty Energy for every year of delay or prorated thereof, for first five (5) years from the commercial operation date (for instance, if the royalty energy for a project is 15% and the developer completes the project 6 months prior to the scheduled date as stipulated in the CA, then the developer shall be required to pay 14.5% Royalty Energy for the first 5 years from the date of commercial operation. Similarly, if the royalty energy for a project is 15% and the developer completes the project with a delay of 6 months from the scheduled date as stipulated in the CA, then the developer shall be required to pay 15.5% Royalty Energy for the first 5 years from the date of commercial operation). The terms and conditions of such incentives and penalties shall be stipulated in the CA.

However, in case there is substantial delay in completion from the time period stipulated, the allotment of the Project may be cancelled for which terms and conditions will be stipulated in the CA.


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5.3 Foreign Direct Investment

- 5.3.1 Hydropower shall be developed through domestic and foreign investments. Foreign investors shall be encouraged to develop projects through joint ventures with Bhutanese investors. For medium size hydropower projects, the maximum limit for FDI shall be seventy four percent (74%) of the equity. For large and mega size hydropower projects, one hundred percent (100%) foreign equity participation is permitted. Other aspects of FDI shall be based on the prevailing Foreign Direct Investment Policy and Foreign Direct Investment Rules and Regulations.
- 5.3.2 Foreign Investors other than Indian nationals/companies will be required to invest in freely convertible currency.
- 5.3.3 Investments by Indian national/companies shall be permitted in Indian Rupees. Any hard currency requirements shall be arranged by the Indian nationals/companies.

5.4 Repatriation

- 5.4.1 Repatriation of capital and Remittance of dividends shall be governed by the Income Tax Act of the Kingdom of Bhutan, the Foreign Exchange Regulations of Bhutan, the Foreign Direct Investment Policy, and Foreign Direct Investment Rules and Regulations.

5.5 Expatriate employment and work permits

- 5.5.1 Foreign companies will be allowed to bring in expatriate personnel in areas where there are shortages of Bhutanese with requisite skills and in accordance with prevailing laws of the Kingdom of Bhutan.

5.6 Water Use Charges

- 5.6.1 No additional charges associated with water usage related to the project will be charged.
- 5.6.2 Sub-clause 5.6.1 does not exempt the Developer from being required to obtain and abide by the terms specified in the Composite License as specified in Sub-clause 11.1.2.

5.7 Renewable Energy Development Fund

- 5.7.1 A part of the Up-front Premium received from the Developers shall be allocated to a Renewable Energy Development Fund. The RGoB will use the Fund for project development activities including preparation of project profiles and reports, site investigation and studies, processing of clearances, acquisition of land, promotion of projects, and facilitation for accelerated development of hydropower resources.


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- 5.7.2 This fund will also be utilized for environmental services rendered in the form of hydropower upstream catchment protection and for renewable energy initiatives. The manner in which this fund would be allocated would be determined and notified separately by the RGoB.

5.8 Risk Mitigation

5.8.1 Extension of Concession period

- 5.8.1.1 In case of an adverse geological and hydrological conditions during construction or concession period that have not been anticipated at the time of granting the license or in case of a force majeure event, the concession term can be extended up to a period not exceeding five years. The extension will be decided by the RGoB after evaluating the impact of such an event. The incentive/penalty provided under Sub-clause 5.2.2 shall not apply under such an event.

5.8.2 Political

- 5.8.2.1 In case of occurrence of any Bhutan sovereign event impacting the continuation or operation of the project, the compensation that is to be provided to the Developer shall be decided as per the dispute resolution mechanism provided under Sub-clause 7.1.

6. Fiscal Incentives

- 6.1 The Developer will be exempted from payment of corporate income tax for a period of ten (10) years from the commercial operation date of the hydropower plant. This exemption shall not apply to projects that have been directly awarded without any bidding process.
- 6.2 The Project Developer will be exempted from payment of all import duties and Bhutan sales taxes on import of plant and equipment as direct input to the project during the construction period. No sales tax or duty shall be levied on the export of electricity.

7. Dispute Resolution

- 7.1 Any difference and/or disputes arising at any time between the parties shall be resolved through mutual negotiations, failing which the matter may be resolved through dispute resolution mechanism as specified in the PDA and CA.

8. Clean Development Mechanism (CDM)

- 8.1 By facilitating accelerated hydropower development, the RGoB is promoting a form of renewable energy generation which does not produce waste products that contribute to air pollution, acid rain, and greenhouse gases. Export of such energy across borders would displace or reduce the energy generation from sources which contribute to global warming and environmental damages.

- 8.2 The RGoB will allocate any benefits derived from the Kyoto Protocol or any future International mechanisms in terms of limitation or reduction of emissions of greenhouse gases to the Project Proponents. Certified Emission Reduction (CER) or any other credits will be the property of the Project Proponents. The RGoB shall levy tax on the income from sale of CER and the terms and conditions shall be specified in the CA.

9. Off-take of Electricity

- 9.1 After adjusting for Royalty Power/Energy, the Project Developer can contract and export the electricity generated after complying with licensing regulations.
- 9.2 The RGoB shall have the first right to purchase any power/energy that it requires at the off-take rate applicable at the generating station bus bar.

10. Transmission and Load Dispatch

- 10.1 The Project Developer will be required to have a power evacuation agreement with Bhutan Power Corporation at the time of CA. The Developer shall be responsible for laying transmission lines and connect to the nearest Grid sub-station of the Bhutan Power Corporation beyond which the Bhutan Power Corporation will provide the transmission facilities for wheeling the electricity within Bhutan and if it is for export, till the delivery point at the International border in coordination with the Importing Country's transmission entity. The Developer has to enter into an agreement with BPC for the transmission service and will also be required to pay transmission and wheeling charges as determined by the BEA from time to time for usage of BPC transmission system.
- 10.2 The Project Developer will be required to arrange, negotiate and manage the transmission infrastructure facilities beyond Bhutan's international boundary. The RGoB will provide support required for facilitating the transmission of power with the Importing Country's transmission entities.
- 10.3 The load dispatch procedures will be as notified by the System Operator designated by the BEA.

11. Regulatory Aspects

11.1 Licensing requirement

- 11.1.1 All Project Developers will be required to obtain construction and generation license from BEA as per provisions of Electricity Act.
- 11.1.2 The RGoB shall facilitate provision of Composite License (electricity, water, trade, bulk supply etc.)

11.2 Regulatory Provisions

- 11.2.1 Apart from licensing provisions, the project shall be required to comply with all regulations, codes and standards pertaining to construction, operation and maintenance of the plant.

12. Environmental Requirements

- 12.1 The Royal Government shall ensure that hydropower development, generation and transmission are in line with the environmental legislations of the Kingdom of Bhutan.
- 12.2 Initial pre-feasibility study for environmental aspects shall be carried out by the concerned RGoB agencies. The developer shall be required to carry out comprehensive EIA as per the environmental legislations of the Kingdom of Bhutan.

Environment Management Plan

- 12.3 The Project Developer shall make suitable provisions for mitigation of adverse impacts as per approved EIA Report. The implementation of Environment Management Plan (EMP) and other risk management measures shall be the responsibility of the Project Developer at all stages of the project.

Integrated Sustainable Water Resources Management

- 12.4 In order to utilize water resources in a sustainable manner for hydropower generation, it is important to protect water catchment areas by promoting sustainable agricultural/land use practices and nature conservation works. The MoA in collaboration with MoEA shall work out the modalities for integrated sustainable water resources management. A minimum of 1% of royalty energy in cash shall be made available on annual basis to MoA for this purpose.

13. Social Considerations

13.1 Land Acquisition and Compensation

- 13.1.1 The RGoB shall acquire private land as per the Land Act 2007, required to construct the hydropower project, the cost of which shall be charged to the project through an annual lease rent. All land required for the project shall be leased to the Developer during the Concession period.
- 13.1.2 In addition to land compensation provided above, the RGoB shall provide free electricity of 10,000 kWh per annum for every acre of land (or prorated thereof) acquired for the Project from the Royalty Energy after the Project comes into commercial operation till the end of the initial CA. The land owner may either avail free electricity or cash in lieu thereof at the export rates from the project. Such benefits will continue beyond the concession period.

13.2 Rehabilitation and Resettlement

- 13.2.1 The Developer shall provide an amount not exceeding one percent (1%) of the Project cost for the rehabilitation and resettlement of the displaced persons from the project area and other local development activities, which shall be specified in the RfB. This amount shall be paid at the time of signing the CA. The RGoB shall implement the Rehabilitation, Resettlement and Local Development Plan in consultation with the Local Development Committee.

13.3 Basic infrastructure as part of project

- 13.3.1 The necessary infrastructure for the construction/development of the project and local area development will be part of the project and shall be developed by the Developer, the scope of which will be indicated in the RfB and elaborated in the DPR. In case the RGoB intends to bear a part of such cost, it will be specified in the RfB and the CA.

13.4 Local Employment

- 13.4.1 The Project Developer shall provide employment to one member of each of the displaced families adversely affected as a result of acquisition of land for the project during the construction period of the project.
- 13.4.2 The Project Developer shall submit a Human Resources plan for the project implementation and Operation and Maintenance (O & M) phases to the Ministry of Labour and Human Resources (MoLHR) which shall facilitate timely recruitment or development of skills in collaboration with the Project Developer. At least seventy five percent (75%) of the employees shall be Bhutanese nationals during O & M phase.
- 13.4.3 For the purpose of employment, the Developer shall also provide training to such eligible persons based on their educational qualification so that they are in a position to get employment for various jobs in the project. The Company shall implement a training program endorsed by the MoLHR for transfer of technology and enhancement of skills of Bhutanese workers.

14. Exclusions

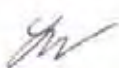
- 14.1 The RGoB may implement hydropower projects outside of this Policy through any other models as deemed necessary in order to achieve the goal of accelerated hydropower development.

15. Amendments

- 15.1 The RGoB may amend this policy as and when required. However, the terms and conditions of the PDA and CA which are in effect shall not be subject to these amendments.

16. Interpretation of the Policy

- 16.1 In the event of conflict of interpretation, the Ministry of Economic Affairs shall, on behalf of the RGoB, be the authority to interpret various provisions of this policy which shall be final and binding.


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17. Definitions

Unless specifically included in the list below, words and expressions are to be interpreted in good faith, in accordance with the ordinary meaning of its terms, in their context, and in light of the objective and purpose of this Policy. Whenever the following capitalised terms are used in the Policy, whether in the singular or the plural, in the future or past, they shall have the meanings ascribed to each of them below, unless the context otherwise requires:

- i. **Bhutanese Company:** A Company registered under the Companies Act of the Kingdom of Bhutan either owned wholly by the RGoB or 100% owned Public Corporation of the RGoB or Companies owned by Bhutanese nationals having 100% equity.
- ii. **Bid:** Is an offer to participate in the project, made in accordance with the terms and conditions set out in a document inviting such offers. The term "tender" is synonymous with the term "bid".
- iii. **Bid Security:** The deposit of an unconditional bank guarantee; or an irrevocable letter of credit; or a cashier's or certified check, submitted with a Bid and serving to guarantee to the RGoB that the bidder, if awarded the project, will execute the project in accordance with the bidding requirements and the contract documents.
- iv. **Certified Emission Reductions (CER):** A CER is the technical term for the output of Clean Development Mechanism (CDM) projects, as defined by the Kyoto Protocol. One Certified Emission Reduction unit represents one tonne of carbon dioxide (CO₂) equivalent reduced.
- v. **Clean Development Mechanism (CDM):** The CDM is an arrangement under the Kyoto Protocol allowing industrialised countries (called Annex 1 countries) with a greenhouse gas reduction commitment to invest in projects that reduce emissions in developing countries as an alternative to more expensive emission reductions in their own countries.
- vi. **Commercial Operation Date (COD):** The commercial operation date shall be reckoned as the date on which the each unit of generating plant and equipment is jointly declared as commissioned by the RGoB and the Project Developer.
- vii. **Composite License:** A license to be obtained by Developers under this policy, which covers the distinct areas of electricity, water, trade, bulk supply etc. Under such a License, Developers no longer will have to obtain the licenses in the above-mentioned categories separately.
- viii. **Concession Agreement (CA):** The CA outlines the implementation agreement between the Government and the Developer and broadly consists of the following:
 - Project Commissioning Schedule and Construction Period Requirements from the parties as per the Techno Economic Clearances of the approved DPR
 - Terms and Conditions for the project during the operation period i.e. From the Commercial Operation Date of the Project.

- ix. **Detailed Project Report (DPR):** The preparation of a DPR is further step in firming up a Developer's Bid for the techno-economic costs as well as the various other project facilities. Thus, once a Bid has been approved and selected by the RGoB according to the criteria mentioned in this policy, the DPR will be undertaken by the Developer in accordance with the information specific to the Project contained in the Bid Documents, letter of allotment, and Project Development Agreement.
- x. **Developer:** A person or body of persons, company, firm and such other private or government undertaking, who finances, designs, processes, constructs, commissions, operates and maintains the Project facilities and, at the end of the concession term, transfers them to the RGoB.
- xi. **Environment Impact Assessment (EIA):** Is a study which provides a description of the potential environmental effects of the project. The EIA would usually involve an analysis of the likely effects on the environment, a recording of those effects in a report, undertaking a public consultation, and taking into account the comments and the report when making the final decision as to whether to go ahead with the project, and how best to go about it in an environmentally conscious manner.
- xii. **Foreign Direct Investment (FDI):** As defined in the FDI Policy of Bhutan.
- xiii. **Importing Country:** Means the country that is the final destination to which the electricity generated is being sent to.
- xiv. **Letter of Allotment (LoA):** This notifies the successful Bidder, in writing, that its Bid has been accepted. Until a formal PDA is prepared and executed, the LoA shall constitute a binding Contract.
- xv. **Local:** For the purposes of this Policy a local is either:
- A person who is a citizen of Bhutan; or
 - An entity which is incorporated/registered within Bhutan
- xvi. **Parties:** Collectively includes any individual, firm, company, legal entity, agency or partnership between whom an Agreement or a Contract has been executed under this Policy.
- xvii. **Private:** The private sector consists of all that is outside the state. This includes a variety of entities such as for-profit and non-profit enterprises, corporations (including those in foreign control), banks (other than central banks), any other non-governmental organizations, as well as individuals not employed by the state. It is the part of the economy which is not under the direct control of government.
- xviii. **Project Development Agreement (PDA):** The PDA is a legal document expressing a convergence of will between the parties, outlining the terms and details of the agreement between the RGoB and the Project Company till signing of the Concession Agreement, including each parties requirements and responsibilities. The PDA serves as a basis for a future formal contract in the form of the Concession Agreement (CA).

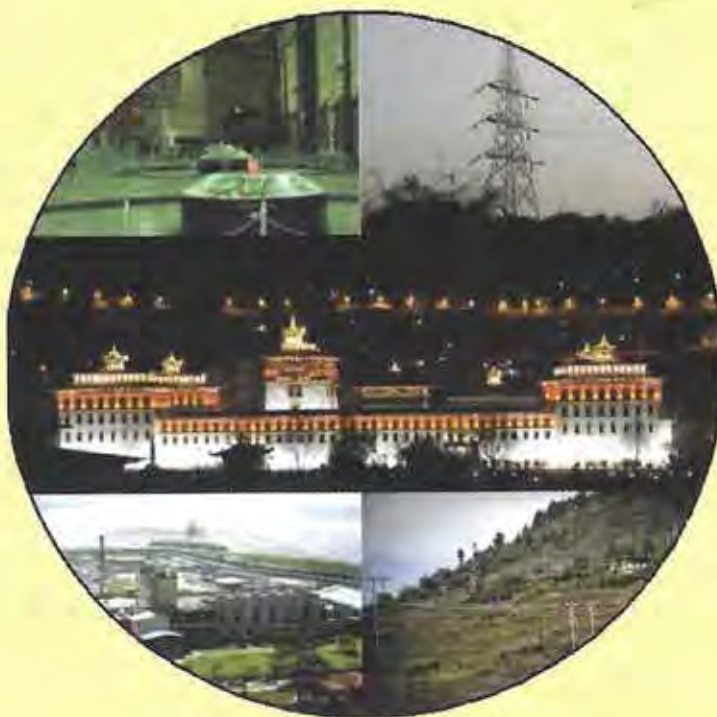
and lays out the time periods in which crucial milestones must be reached prior to further progression with the deal.

- xix. **Principal Developer:** Is the "Developer" identified as the "Principal Developer" in the application for pre-qualification and holding at least fifty one percent (51%) of the Developers' Share of the equity in the investment.
- xx. **Public:** Refers to an agency as well as corporations owned by the Royal Government or/and sectors of the general government of foreign countries (e.g. central, state and local government units) as well as their state owned enterprises. Any public partnerships mentioned in this policy shall in the first place mean the RGoB agency.
- xxi. **Request for Bid (RfB):** Is the document an organisation posts to elicit Bids from potential developers of a project. Ideally, RfBs stipulate the requesting organization's requirements and delineates the deliverables associated with the project and establishes a framework for project execution so as to minimize the possibility of misunderstandings and errors.
- xxii. **Royalty Power/Energy:** The free Power/Energy that would be made available to the RGoB under a project during the concession period i.e. the period starting from the commercial operation date of the project.
- xxiii. **Special Purposes Vehicle (SPV):** Is a body corporate created to fulfil narrow, specific or temporary objectives, primarily to isolate financial risk.
- xxiv. **Strategic Partnership:** A partnership where the RGoB agency chooses a partner based on market access, technology transfer, human capacity building and franchise reasons. In such partnership, the equity of the foreign/private partner shall be limited to twenty six percent (26%).
- xxv. **Up-front Premium:** The premium payable to the RGoB by the successful bidder for utilization of resources for hydropower generation.
- xxvi. **Wheeling Charges:** Means charges for transfer of power per unit of energy payable to the owner of the transmission network.


 DIRECTOR GENERAL
 DEPARTMENT OF HYDROPOWER & POWER SYSTEMS
 MINISTRY OF ECONOMIC AFFAIRS
 THIMPHU : BHUTAN



DOMESTIC ELECTRICITY TARIFF POLICY OF THE KINGDOM OF BHUTAN, 2016



བསྐྱོན་རྒྱལ་ཁྲིམ་པ་ལྷན་ཁག།

Ministry of Economic Affairs
Royal Government of Bhutan

DOMESTIC ELECTRICITY TARIFF POLICY OF THE KINGDOM OF BHUTAN, 2016



བསྐྱོན་རྒྱུ་རྩུག་པོ་

Ministry of Economic Affairs
Royal Government of Bhutan



དཔལ་ལྷན་འབྲུག་གཞུང་ བསྟན་འཕེལ་ལྷན་ཁག།

MINISTRY OF ECONOMIC AFFAIRS

ROYAL GOVERNMENT OF BHUTAN

TASHICHO DZONG

THIMPHU



FOREWARD

In keeping with provisions of the Electricity Act of Bhutan, the Ministry of Economic Affairs, Royal Government of Bhutan is pleased to issue the Domestic Electricity Tariff Policy, 2016, approved by the Royal Government in the 98th Session of the Lhengye Zhungtsog held on March 1, 2016.

Bhutan is fortunate to be blessed with abundant natural renewable energy resources that can be tapped to meet its developmental needs. Energy is recognized as a priority sector in Bhutan for poverty reduction and sustainable development. As envisioned in “Bhutan: 2020, A Vision for Peace, Prosperity and Happiness”, the Royal Government of Bhutan, has been able to provide the nation with clean and renewable electricity, despite the challenges of limited resources, geography with the rugged terrain, sparsely populated demography, and the high cost of transmission and distribution. While a significant portion of the electricity generated by the hydropower will continue to be exported to generate revenue for the country, it is increasingly becoming compelling for the Royal Government to provide reliable, efficient and adequate supplies to the domestic market at affordable and competitive rates to improve and enhance quality of lives of Bhutanese people and to enhance and sustain the economic growth. Studies have demonstrated that efficient and effective utilization of electricity for productive use can enhance income significantly coupled with other benefits in terms of health, education, employment and social upliftment.

Given the limited public resources, it is also equally imperative to provide enabling and conducive environment to attract adequate investment in the sector by allowing power utilities to recover actual cost of efficient business operation and investments in expansion and up-gradations. The policy will ensure a balanced approach in addressing intertwined objectives and provide guidelines to determine domestic electricity tariff in a transparent and equitable manner.

I hope and aspire that this policy will contribute in ensuring the electricity supply to domestic consumers at affordable and competitive rates and concurrently facilitate power utilities to grow and maintain their competitiveness. I am sure that this Policy would provide clarity to the Bhutan Electricity Authority in discharging their core mandate “to determine, review and approve domestic tariffs” to the benefit of consumers and the utility service providers.

I am hopeful that this policy will ensure the achievement of the larger goals and objectives for our nation in realization of our development philosophy of GNH.

Tashi Delek!

A handwritten signature in black ink, appearing to read 'Norbu Wangchuk', with a stylized, flowing script.

(Norbu Wangchuk)

ABBREVIATIONS

BEA	Bhutan Electricity Authority
BPC	Bhutan Power Corporation Ltd.
CoE	Cost of Equity
CoD	Cost of Debt
DGPC	Druk Green Power Corporation Ltd.
DHPS	Department of Hydropower and Power Systems
DRE	Department of Renewable Energy
EAB	Electricity Act of Bhutan 2001
HV	High Voltage
LV	Low Voltage
MoEA	Ministry of Economic Affairs
MV	Medium Voltage
MW	Mega Watt
O&M	Operation and Maintenance
PPA	Power Purchase Agreement
RGoB	Royal Government of Bhutan
SHDP	Bhutan Sustainable Hydropower Development Policy, 2008.
TDR	Tariff Determination Regulation
WACC	Weighted Average Cost of Capital

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1. Introduction

Bhutan's electricity supply is based on mainly hydropower. Hydropower is a strategic national resource and the main driver of the economic growth. It forms the foundation of Bhutanese economy and its benefits must accrue to the people of Bhutan. The two principle roles of the sector are i) It shall drive the economy of Bhutan by providing safe, reliable, affordable electricity in an equitable manner to improve the lives of all Bhutanese and , ii) Surplus power shall be exported to enhance national revenue and achieve positive balance of payment. While the second objective is being addressed through Bhutan Sustainable Hydropower Policy, in order to achieve the first objective, a proper domestic tariff Policy is essential.

The Electricity Act 2001 contains the broad principles of tariff setting and the Minister is empowered to provide policy guidelines and approvals associated with the tariff formulation. On one hand, Tariff formulation entails ensuring delivery of reliable, efficient and adequate supply of electricity, utility viability and adequate revenue for expansion and investment in the sector. On the other hand, for the general populace, electricity has to be affordable and adequate so as to enhance living standard of the people and to protect and preserve the environment to ensure sustainability of the hydropower resource. Considering the intertwined and conflicting objectives, a clear policy is required for determining the domestic tariff that ensures a balance in the interests of the public, customers and utilities in the electricity sector. As provided in the Act, this policy shall outline the tariff setting parameters to reflect the actual cost of efficient business operation of utilities and a Government subsidy mechanism to address the affordability aspect while at the same time incentivizes conservation and efficient utilization.

2. Scope

This policy shall provide guidelines for domestic tariff determination which will be applicable for all the customers. However, the industrial customers may opt to have separate arrangement through a Power Purchase Agreement (PPA) with the service provider to ensure long term predictability upon approval by Bhutan Electric Authority (BEA). In case of the injection of electricity from non-conventional renewable energy sources into the grid, the price of such electricity shall be governed by a separate feed-in tariff regulation mentioned in the Alternate Renewable Energy Policy. The existing TDR shall be amended as per this Policy.

3. Objectives

This tariff policy shall provide guidelines for domestic tariff formulation to achieve the following objectives in consonance with realization of GNH goals:

- (a) Ensure fairness to both service customers and service providers;
- (b) Ensure recovery of the actual cost of efficient business operation of electric utilities and enable investments in expansions and up-gradations;
- (c) Provide affordable tariff to improve the quality of life of the people through rationalized and targeted subsidy mechanism.
- (d) Promote transparency and predictability in tariff setting.
- (e) Promote conservation of environment to ensure sustainability of the hydropower resource.
- (f) Promote sustainable economic and Industrial growth.

4. Legal Basis

Section 17.1 Powers and functions of the Minister under the Electricity Act of Bhutan 2001 provides for the Minister:

- i) to determine general policies, targets and strategies of the electricity industry operations;
- ii) to set general policies on tariff determination and service provision on Licensee;
- iii) to set policy encouraging energy service extensions and providing electricity services for the underprivileged;

5. Title and Operative period

This Policy shall be known as “Domestic Electricity Tariff Policy, 2016”.

This Policy shall come into effect from March 1, 2016 and will remain in force until superseded or modified by another Policy.

6. Institutional Arrangements

6.1 Ministry of Economic Affairs (MoEA)

The Ministry of Economic Affairs is the nodal Ministry and Tengye Lyonpo is, as per EAB 2001 empowered to provide all policy guidelines with respect to the electricity sector.

Under the MoEA, the concerned Departments responsible in implementation of this policy are:

- i) Department of Hydropower and Power Systems (DHPS) is responsible for granting approval to the utility companies for development of hydropower and associated transmission systems including expansion and up-gradation thereof. DHPS shall also be responsible for examining the BEA’s proposal for subsidies requirement and allocation for customers and recommending the same to the Minister for approval.

- ii) Department of Renewable Energy (DRE) is responsible for granting approval to the utility companies for development of rural electrification, small/mini/micro hydro (25 MW and below), non-conventional renewable energy resources including expansion and up-gradation thereof. DRE is also responsible for development of feed-in tariff framework/policy.

6.2 Bhutan Electricity Authority (BEA)

The BEA is an autonomous regulator for the electricity sector. BEA shall develop regulations for formulating domestic tariff including subsidies in accordance with the provisions in the EA Act 2001 and this Policy. BEA shall determine and approve the Cost of Supply and submit the tariff proposal including subsidy allocations to the Minister through DHPS for consideration. There shall be one representative from private sector as Commissioner in the BEA.

6.3 Bhutan Power Corporation (BPC)

The BPC is responsible for electricity transmission, distribution and supply functions including management and operations of embedded generation units consisting of micro/mini/small hydro and diesel generating units. The BPC provides transmission access for export of surplus power to India. It is also Bhutan's Power System Operator. BPC shall implement the national plans and programs as directed/approved by MoEA. BPC shall file tariff proposals and implement the approved tariff as per the regulations of BEA.

6.4 Druk Green Power Corporation (DGPC)

The DGPC is responsible for managing all hydropower plants fully owned by the Royal Government and develop projects on its own or through joint ventures on behalf of the Royal Government as may be directed. DGPC shall implement the national plans and programs as directed/approved by MoEA. DGPC shall be responsible for ensuring domestic electricity supply security and provision of the royalty energy obligations as per the SHDP and this policy. DGPC shall file domestic generation tariff proposals and implement the approved tariff as per the regulations of BEA.

6.5 Other Generating Plants

Hydropower plants developed under SHDP other than fully owned DGPC projects shall be responsible for providing the royalty energy obligations. These hydropower plants shall be obliged to give the “first right of refusal” to the RGoB for sale of electricity for domestic consumption at their export rate.

7. Guiding Principles for Tariff formulation

In general, the tariff for generation, transmission and distribution shall be computed on a cost plus model. The cost shall comprise of O&M, depreciation, return of Assets & working capital, regulatory fees & levies, losses and the power purchase. While the domestic electricity demand for the next tariff cycle shall be based on the forecasts, the mean annual energy generation for the past three years with 98% water utilization factor to the extent of generation capacity less royalty energy shall be used for computation of the generation tariff. Other relevant models of tariff determination shall be explored for application.

To achieve the policy objectives, it is necessary to come out with the true, fair and competitive costs of supplies to the various customer categories without any inherent subsidy beyond forms of economic regulation provided by this policy in formulating the costs of supplies. Based on such cost of supplies, the end customer tariffs shall be computed by providing subsidies to targeted customers in a transparent manner to ensure that the tariff is fair, equitable and affordable. Therefore, to rationalize the cost of supplies, the following guidelines for tariff parameters shall be adopted:

7.1 Gearing Ratio

To ensure competitive and efficient pricing through an optimal capital structure, the gearing ratio for computation of WACC shall be higher than the actual gearing ratio and up to a maximum of 70:30.

7.2 Cost of Equity

In order to make domestic tariff predictable, promote sustainable economic growth and, attract investment in the power sector, the Cost of Equity shall be based on the average lending rates of the domestic financial institutions. BEA may allow a reasonable premium up to a maximum of 250 basis points on the average lending rates of the financial institutes depending on the domestic market situation and gearing ratio applied. With approval of the Government, the return on equity shall be first allocated for the up-gradation, modernization and expansion of power systems including national plan works.

7.3 Cost of Debt

The actual cost of debt for the tariff period should be considered. The debt along with its tenure should be structured by the utilities so as to encourage reduction

in tariff. Utilities should be incentivized by BEA to restructure their debt to yield cost savings.

7.4 Operation & Maintenance (O&M) Expenses

The O&M expenses shall be based on the benchmarks set by BEA. The O&M benchmarks for the new investments shall be maintained lower than that of older assets. The O&M expenses norms should be efficient, relatable to historical performance, realistic in case of new investments and progressively reflecting improvement in efficiencies and service standards. BEA shall come out with allowable and non-allowable O&M expenses for the purpose of tariff determination. The costs related to CSR and income from rental and hire charges, if any, shall be excluded from the tariff calculations. Inflation to be used for O&M expenses shall be based on historical average inflation rates published by the National Statistics Bureau.

7.5 Depreciation

The allowance for depreciation shall be such that it allows recovery of investment over the economic life of the asset. BEA shall formulate the schedules of depreciation applicable for generation, transmission and distribution and other associated infrastructure, equipment, etc. Under circumstances when the utilities are in difficulty in meeting the debt service obligation, accelerated depreciation may be allowed during the initial debt servicing period. The net proceeds from accumulated depreciation fund shall be used by utilities for replacement of assets.

7.6 Weighted Average Cost of Capital (WACC)

WACC is necessary for determining the cost of capital and for computation of the return on assets. In order to avoid cross subsidies, between the customer categories,

separate WACC should be computed for each customer categories.

7.7. Interest on Working Capital

The interest on Working Capital shall be determined based on the prevailing lowest short term lending rate of financial institution of Bhutan.

7.8 Regulatory Asset Base

Regulatory Asset Base will be determined by BEA from the capital cost incurred for the assets of the utilities. Assets owned by the utilities but not in use and/or which are not utilized for generation, transmission and distribution of electricity shall not be considered for tariff determination.

7.9 Treatment of Granted Assets

All Granted Assets shall be treated as equity by the utility companies in order to determine the actual cost of supply and to avoid injection of subsidy through the generation and network cost of supply.

7.10 Investment & Expansion Plans

The national plans and programs prepared by the Government shall be directed for implementation by the Utilities. BEA shall allow cost recovery depending on the capitalization schedule of the investments in the tariff cycle. For the investments made as per national plans but not utilized on account of the reasons beyond the control of the utilities, the cost shall be spread out across all categories of the customers as per the allocation factors mentioned under 7.11(iv).

7.11 Allocation Factors of Transmission and Distribution Assets

The allocation factors for assets and associated costs like O&M costs, inventories, fees and levies shall be determined for the customer categories based on the following guidelines:

- i) Where assets and associated costs are exclusively used by a particular customer category, the same shall be allocated fully to this customer category.
- ii) Where assets and associated costs are for export purpose, the entire allocation shall be to the export category.
- iii) Where generation, transmission and distribution assets and their associated costs are meant for joint usage by different customers, the allocation factor shall be based on capacity demand.
- iv) From the above i), ii), and iii), weighted average allocation factors for all the customer categories shall be determined for allocating assets and associated costs that do not fall under the above three items including fees and levies of BEA.

BEA shall work towards determining the allocation factor schedules based on the above guidelines.

7.12 Accounting of Imported Energy

The import of energy shall continue especially during the lean season to meet the domestic energy deficits till adequate firm generation capacity is added. Since the bulk of domestic demand is for the industries, any net monthly import cost to meet the shortfall of domestic supply shall be allocated to industries (HV customers). For net monthly import, generation utility should have entered into an arrangement with the Indian

counterparts regarding price and quantum of energy, which shall also be allocated to the HV customers on monthly basis.

7.13 Non-Tariff Revenues

All non-tariff revenues from rentals, fund deposits, deposit works, etc. shall be deducted from the total costs for computation of costs of supplies.

7.14 Tariff Structure

The generation tariff structure shall comprise of a single weighted average energy charge from selected generating plants.

The Tariff structure for general LV customers shall comprise of only energy charges with progressive blocks and tariff starting with a lifeline block to ensure that the energy is provided at minimal rate for meeting the basic energy requirements. The tariff structure for other LV customers such as commercial, industrial, institutions, street lightings, temporary connections etc. shall consist of single tier energy charge.

The Tariff structure for MV and HV customers shall consist of fixed and variable charges. The fixed charge shall be to recover the network cost and the variable charge shall be the generation cost. BEA shall work towards the recovery of the generation cost as the energy charge and fixed cost through the demand charge.

The wheeling charge shall consist of common single charge levied per unit of energy wheeled through the network including export. In order to optimize the

transmission infrastructure, common corridors are being constructed for exporting of electricity from several generating stations. BEA shall work towards wheeling charge structure that addresses congestion, scheduling, capacity / access issues, losses and fixed cost recovery etc.

In the long run, the tariff structure should be in such a way to encourage efficient use and conservation of electricity.

7.15 Subsidy

Tariff shall be made affordable to improve the living standards of the general populace through rationalized and targeted subsidy mechanism. The Government shall use the revenue from the sale of Royalty Energy from the generation utilities to subsidize the targeted customers as per section 11.1. i) c. of EAB 2001. To implement the subsidy allocation effectively and in a transparent manner, the following principles shall be adopted:

1. All LV Households and the Religious Institutions and Structures except Dzongs shall be provided subsidy in order to make electricity affordable. A progressive block tariff structure shall be adopted in order to apply regressive subsidy in proportion to consumption.
2. For LV customers such as street lightings, temporary connections for non-residential purpose, institutions and all other non-residential LV customers including commercial and industrial customers, the highest LV block tariff shall be charged. Beyond 2019, the Government

shall adopt criteria to target subsidies amongst these various customer groups.

3. The rural domestic households shall be provided additional subsidy with objectives to enhance the living standards, curb rural to urban migration, conserve environment, reduce fossil fuel consumptions and promote income generating activities. This additional subsidy shall also apply to rural cooperatives, community Lhakhangs and micro trade activities.
4. Subsidy to the medium voltage (MV) industrial customers shall continue for the 2016-17 to 2018-19 tariff period. Beyond 2019, the Government shall adopt criteria to target subsidies to MV industrial customers that need to be promoted.
5. HV industries shall not be eligible for subsidy.
6. In order to have a transparent mechanism for providing subsidy, the Ministry of Finance in consultation with the Ministry of Economic Affairs shall work out a modality for accounting of royalty energy revenue and payment of subsidy to the targeted customers.

7.16 Allocation of Energy for Domestic Supply

In order to meet the domestic demand, the existing plants fully owned by the Royal Government as of 2015 shall first be booked for domestic supply to the extent that they are able to meet the demand. In the event that they are not able to fully supply the demand, the plant(s) (out of the balance expensive plant) with the lowest

cost of generation shall be selected to supplement the energy. The generation tariff for the bulk supply to the Transmission and Distribution utilities shall be the weighted average Costs of generation of the existing plants as of 2015 combined together and next least cost of generation of the additional plant(s) for meeting the domestic demand with energy to be supplied as weights. This would ensure that the domestic generation tariff is lower than the export tariff.

In the event of inadequate generation from all the fully RGoB owned plants to meet the domestic demand, the RGoB shall exercise its “first right of refusal” to source the energy from other plants not fully owned by RGoB that has the lowest off-take rate.

7.17 Treatment of Unutilized Demand Capacity

The MV and HV customers shall surrender any unutilized demand capacity to the BPC within one year of allocation. The BPC shall exercise its right to take over any unutilized demand capacity for reallocation to other customers.

7.18 Royalty Energy

All existing generation plants (Kurichhu, Chhukha, Tala and Basochhu) fully owned by the RGoB have to provide 15% of the annual generation as Royalty energy to RGoB free of charge. All other generation plants shall provide royalty energy as per the SHDP. RGoB shall have the option to avail the royalty energy either in energy or cash in lieu at the highest off-take rate or pro-rated thereof after adjusting for admissible losses and wheeling charges.

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In the event of inadequate generation from all the fully RGoB owned plants to meet the domestic demand, the RGoB shall exercise its “first right of refusal” to source the energy from other plants not fully owned by RGoB that has the lowest off-take rate.

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7.19 Tariff Revision Cycle

In order to ensure the predictability, the tariff revision cycle shall be normally be three years unless there is substantial and significant difference in the business environment and generation scenario in which case, an interim revision may be carried out.

All the parameters required for tariff formulation shall be notified in the regulation.

8. Interpretation

In the event of conflict of interpretation, the Ministry of Economic Affairs shall, on behalf of the RGoB, be the authority to interpret various provisions of this policy which shall be final and binding.

9. Amendments

The RGoB may amend this policy and its provisions as and when required.

10. Definition

The following words and expressions shall have the meaning ascribed to them:

Authority	means the authority of Bhutan Electricity Authority established by EAB 2001.
Affordable	means within one's financial means
Customers	means any person who is supplied with electricity for his own use by a Licensee or by any other person engaged in the business of supplying electricity to public under the Act or any other law for the time being in force and includes any person whose premises are for the time being connected for the purpose of receiving electricity with the works of a Licensee, or such other person, as case may be.

Domestic Supply	means the generation, transmission or distribution of electricity for domestic consumption by way of the generation, transmission or distribution system, respectively.
Export Energy	means electricity exported.
Electricity Act of Bhutan	Electricity Act enacted by the National Assembly in its 79 th Session held on 6 th day of the 6 th Month of the Female Iron Snake Year corresponding to 26 th July 2001 of Bhutan.
Embedded Generation	means a generator which is connected to a Distribution System.
Feed-in Tariff	means a minimum guaranteed price per unit of electricity paid to the generator.
Firm Capacity	means the minimum guaranteed amount of generation of electricity throughout the year.
Fixed Charges	means the service charges of a utility that applies for supplying electricity to a customers.
Gearing Ratio	means the ratio of debt to assets.
Generation	means the conversion of another form of energy into electricity.
Generating Plants	means an electrical generating unit coupled to a turbine within a power station together with all plant and apparatus at that power station which relates exclusively to the operation of that units / plant.
Granted Assets	means assets (both monetary and non-monetary) funded through the Government.
Government	means the Royal Government of Bhutan.
Imported Energy	means energy imported from India.
License	means a license issued by BEA.

Losses	means loss of energy due to resistance and other factors while transmitting energy.
Low Voltage	means voltage not exceeding 400 volts between phase to phase for three phase supply or 230 volts between phase to neutral in case of single phase supply.
Medium Voltage	means voltages of 6.6 kV or 11 kV or 33 kV.
Network costs	means cost of apparatus, equipment, plant and infrastructures used to convey and control the conveyance of electricity to customers.
Power Purchase Agreement	means a legal contract dealing with the sale and purchase of power and electrical energy.
Power Supply	means the supply of electricity by way of the power system in accordance with system security.
Regulatory Asset Base	Means assets which is regulated by BEA.
Royalty Energy	means the free energy that would be made available to the Government.
Rural domestic households	means households located outside the proclaimed Municipal or Thromde demarcated boundary.
Sale	means the sale of electricity to a customer or resale to third parties.
Subsidy	means a financial transfer from one entity to another in order to reduce the cost or price of services.
Supply	means the generation, transmission or distribution of electricity by way of the generation, transmission or distribution system, respectively.
Tariff	means price of electricity per unit or kilowatt hour (kWh)
Tariff parameters	means economic and financial parameters applied for determining tariff.

Tariff Revision Cycle	means the cycle, in a designated number of years, for which the tariff revision shall take place.
Utility (ies)	means company licensed by BEA to provide generation, transmission and distribution utility services.
Variable Charges	means usage or consumption charges of electricity listed in Ngultrum per units or kWh.
Weighted Average Cost of Capital (WACC)	means the Weighted Average Cost of Capital determined in accordance with Tariff Determination Regulation of BEA.
Wheeling Charges	means charges of transfer of power per unit of energy payable to owner of transmission network.
Working Capital	means the short term capital (i.e. difference between payables and receivables) required for meeting the day to day operating funds of the utilities determined in accordance with Tariff Determination Regulation of BEA.

Bhutan

**Grid Code and
System Operation**



ཨ་ཁུག་གློག་ལྷན་པོ་འཛིན།

Bhutan Electricity Authority



གློག་མེ་རྒྱུད་ལམ་སྒྲིག་ཁྲིམས།

Grid Code Regulation, 2008

Approved during the 9th Commission Meeting held on 28 March
2008

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1 Purpose, Scope and Commencement

1.1 Introduction

1.1.1 This Regulation shall be cited as the Bhutan Electricity Authority Grid Code Regulation 2008.

1.1.2 The purpose of this regulation is to establish the basic rules, procedures, guidelines and standards to be followed by the various Licensees and all power utilities connected to the Transmission System so as to plan, develop, maintain and ensure secure, reliable and efficient operation of the Transmission System in economic manner. It aims to create a level playing field for all Users, without any discrimination.

1.2 Commencement

This regulation shall come into force from 1st July 2008.

1.3 Objective

1.3.1 The objective of the Grid Code Regulation is to establish a single set of technical rules, applicable to all the entities connected to, or using, the Transmission System. The Grid Code Regulation provides the following:

- (i) Documentation of the principles and procedures which define the relationship between the Licensees using the Transmission System, as well as the System Operator and the Ministry;
- (ii) Facilitation of the planning, development, operation & maintenance of an economic and reliable Transmission System; and

- (iii) Facilitation for beneficial trading of electricity by defining a common basis of operation of the Transmission System, applicable to all the Users of the Transmission System.

1.4 Scope

- 1.4.1 All parties that connect with and/or utilize the Transmission System shall abide by the principles and procedures defined in the Grid Code Regulation in so far as they apply to that party.
- 1.4.2 Exemptions from provisions of the Grid Code Regulation may be granted by the Authority, for which the interested User shall approach the Authority in accordance with the defined process and guidelines.
- 1.4.3 Prior to the implementation of this Grid Code Regulation, Generation Licensees may have concluded Power Purchase Agreements which may be at variance to the provisions of this Grid Code Regulation. Nothing contained in this Grid Code Regulation is intended to modify the parties' rights and obligations under the Power Purchase Agreements. In the event of any conflict, the Power Purchase Agreements takes precedence only to the extent that it does not affect the safety and security of the Transmission System.
- 1.4.4 This regulation shall extend to the whole of the Kingdom of Bhutan.

1.5 Dispensation.

Nothing contained in this Grid Code Regulation shall have effect, in so far as it is inconsistent with the provisions of the Act and Regulations framed under the law.

1.6 Non-Compliance

- 1.6.1 Section 11.1 of the Act provides the functions of the Authority. Under Sub-section (vii) of Section 11.1 of the Act, it has been provided that the Authority,

establish a dispute resolution process and settle disputes between Licensees and between Customers and Licensees relating to the enforcement of the Act, Regulations, Codes, Standards and Licence issued under the Act.

- 1.6.2 In case of a persistent non-compliance of any of the stipulations of this Grid Code Regulation by any Licensee, the matter shall be reported by the System Operator to the Authority as per the dispute resolution mechanism under section 11.1 (vii) of the Act. In case of non-compliance by the System Operator the matter shall be reported by the concerned Licensee to the Authority. The Authority, in turn after due process, may order the defaulting Licensee/System Operator for compliance, failing which, the Authority may take appropriate actions.

1.7 Confidentiality

Under the terms of the Grid Code Regulation, the System Operator and Transmission Licensee shall receive information from Users relating to their systems in respect of their generation or supply business. The System Operator and Transmission Licensee shall not, other than required by the Grid Code Regulation, disclose such information to any other person without the prior written consent of the User concerned, unless required by the Ministry or the Authority.

2 Interpretation and definitions

2.1 Definitions

For the purpose of this regulation, any word or expression used to which a meaning has been assigned in the Electricity Act of Bhutan, 2001, shall have that meaning, unless explicitly indicated in this regulation. The following words and expressions shall have the meaning ascribed to them:

“Act” means the Electricity Act of Bhutan, 2001;

“Alert State” means the condition of the Transmission

- System as defined in Section 6.4.1.2;
- “Authority” means the Bhutan Electricity Authority;
- “Automatic Voltage Regulator” means a continuously acting automatic excitation control system to control the voltage of a Generating Unit measured at the generator terminals;
- “Bhutan Electricity Authority” means the authority of that name established pursuant to Part 2 of the Act;
- “Black Start” means the procedure necessary to recover from a partial or a total blackout;
- “Connection Agreement” means an agreement between the User and the Transmission Licensee setting out the terms relating to a connection to and/or use of the Transmission System;
- “Connection Point” means a point at which a User’s plant and/or apparatus connects to the Transmission System;
- “Contingency Reserve” means generating capacity that is intended to take care of the loss of the largest synchronized generating unit;
- “Demand” means the demand of Active Power and Reactive Power of electricity unless otherwise stated;
- “Dispatch Schedule” means the electrical power and energy output of a generating station, Ex-Power Plant, that is scheduled to be supplied to the Transmission System;
- “Distribution Licensee” means a person who has obtained a Licence to distribute electricity in pursuant to Section 22 of the Act;
- “Distribution” means the conveyance of electricity through a distribution system, which distributes electricity at voltage below 66kV or as deemed by the Authority to be a part of the distribution network;
- “Disturbance Recorder” means a device provided to record

- the behaviour of the pre-selected digital and analogue values of the system parameters during an Event;
- “Drawal Schedule” means the electrical power that a distribution Licensee is scheduled to receive from the generating stations, Ex-Power Plant;
- “Eastern Grid” means the part of the Transmission System that is located in the East of the country;
- “Emergency State” means the condition of the Transmission System as defined in Section 6.4.1.3
- “Event Recorder” means a device provided to record the sequence of operation in time, of the relays/ equipments at a location during an Event;
- “Event” means an unscheduled or unplanned occurrence on the Transmission System including disturbances, faults, incidents and breakdowns;
- “Ex-Power Plant” means the net electrical power and energy output of a generating station, after deducting auxiliary consumption and transformation losses;
- “Extreme State” means the condition of the Transmission System as defined in Section 6.4.1.4;
- “Flexible Alternating Current Transmission System” means facilities that enable power flows on AC lines to be regulated, to control loop flows, line loadings etc;
- “Forced Outage” means an outage of a Generating Unit or a transmission facility due to a fault or other reasons which has not been planned;
- “Frequency Regulating Reserve” means a generating unit’s capability of assisting in frequency control through governor action;
- “Generating Unit” means an electrical generating unit coupled to a turbine within a power station together with all

plant and apparatus at that power station which relates exclusively to the operation of that unit;

“Generation Licensee” means a person who has obtained a Licence for generation of electricity pursuant to Section 22 of the Act;

“Good Utility Practices” means any of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period which could have been expected to accomplish the desired results at a reasonable cost consistent with good business practices, reliably, safely and with expedition;

“Governor Droop” means, in relation to the operation of the governor of a Generating Unit, the percentage drop in system frequency which would cause the Generating Unit under free governor action to change its output from zero to full load;

“Grid Planning Studies” means studies on the performance of a Transmission system, including but not limited to load flow studies, short circuit studies, steady state stability analysis studies, voltage stability analysis studies and reactive power compensation studies;

“High Voltage” means voltage of 66 kV and above;

“Island Grid” means a portion of the Transmission System that is electrically isolated from the rest of the Transmission System;

“Large Consumer” means any Consumer who is directly connected to the Transmission System or whose notified maximum demand exceeds a level of five (5) MW, or such level as the Authority may determine from time to time;

- “Licensee” means any person issued with a Licence pursuant to Section 22 of the Act;
- “Load” means the electrical power and energy taken by a utility/ installation;
- “Low Voltage” means voltage not exceeding 400 volts between phase to phase for three phase supply or 230 volts between phase to neutral in case of single phase supply;
- “Maximum Continuous Rating” means the normal rated full load power output capacity of a Generating Unit which can be sustained on a continuous basis at specified conditions;
- “Medium Voltage” means voltages of 6.6kV or 11kV or 33kV;
- “Ministry” means the ministry which is assigned responsibility for the electricity sector;
- “Net Drawal Schedule” means the Drawal Schedule of a beneficiary after deducting the apportioned transmission losses (estimated);
- “Normal State” means the condition of the Transmission System as defined in Section 6.4.1.1;
- “Person” means any individual, firm, company, association, partnership or body of persons, whether incorporated or not;
- “Power System Master Plan” means a long-term plan prepared for the development of the Power System;
- “Power System” means the total system relating to power supply including associated generation, transmission and distribution networks;
- “Reactive Power” means the square root of the difference between the square of the kilovolt-amperes and the square of the kilowatts and is expressed as VAR;

- “Restorative State” means the condition of the Transmission System as defined in Section 6.4.1.5;
- “Single Line Diagram” means diagrams which are a schematic representation of the HV apparatus and the connections to all external circuits at a Connection Point incorporating its numbering nomenclature and labelling;
- “Site Common Drawings” means drawings prepared for each Connection Point, which incorporates layout drawings, electrical layout drawings, common protection/control drawings and common service drawings;
- “Site Responsibility Schedule” means a schedule specifying the ownership and responsibility for all the equipment at a site where a connection is made;
- “Spinning Reserve” means part loaded generating capacity with some reserve margin that is synchronized to the system and is ready to provide increased generation at short notice pursuant to dispatch instruction or instantaneously in response to a frequency drop;
- “Static VAR Compensator” means an electrical facility designed for the purpose of generating or absorbing Reactive Power;
- “System Co-ordination Committee” means a committee having representation of all the stakeholders to plan, review and co-ordinate power system operation;
- “System Operator” means the person/s designated by the Authority in this role, whose function is defined under Section 39 of the Act;
- “Tight Power Pool” means the situation in a power system where the centralized scheduling and dispatch of generation is done by the System Operator.

“Transmission Licensee” means a person who has obtained a Licence for transmission of electricity in pursuant to Section 22 of the Act;

“Transmission System” means a network operating at a nominal voltage of 66 kV and above or as deemed by the Authority to be a part of the transmission network.

“Transmission” means activities pertaining to a Transmission System including conveyance of electricity at voltages above 66kV or as deemed by the Authority to be a part of the transmission network;

“User” means any Person using the Transmission System;

“Western Grid” means the part of the Transmission System that is located in the West of the country.

2.2 Abbreviations

The following abbreviations shall have the meaning ascribed to them:

“AC” means Alternating Current;

“AVR” means Automatic Voltage Regulator;

“BST” means Bhutan Standard Time;

“D/C” means Double Circuit;

“ERLDC” means the Eastern Regional Load Despatch Centre, Kolkata, India;

“FACTS” means Flexible Alternating Current Transmission System;

“HV” means High Voltage;

“ICT” means Inter-Connecting Transformer;

“IST” means Indian Standard Time;

“kV” means kilovolt;

“LV” means Low Voltage;

“MCR” means Maximum Continuous Rating;
 “MV” means Medium Voltage;
 “NLDC” means national Load Dispatch Centre;
 “S/C” means Single Circuit;
 “SRS” means Site Responsibility Schedule;
 “SVC” means Static VAR Compensator;
 “TOO” Time of Origin;
 “MW” means megawatt;
 “MWh” means megawatt-hour;
 “MVAR” means megavolt-ampere reactive; and
 “VAR” means volt-ampere reactive.

3 Role & Responsibilities

3.1 Introduction

This chapter defines the functions of the Licensees and the roles of the Authority and the Ministry so far as they relate to the Grid Code Regulation.

3.2 Role of the Ministry

3.2.1 In accordance to Section 17.1 of the Act, the role of the Ministry, relevant to this Grid Code Regulation, shall be:

- (i) To determine general policies, targets, strategies of the electricity industry operation;
- (ii) To approve power system expansion plans;
- (iii) To provide policy on customer service standards and Licensee standards;
- (iv) To set policy encouraging energy service extensions and providing electricity services for the under privileged;

- (v) To provide policy on protection against and solutions to energy shortage;
- (vi) To provide policy in respect of private participation; and
- (vii) To perform other duties as stipulated under the Act.

3.2.2 Ministry shall also formulate the Power System Master Plan for development of the electricity system and co-ordinate for the optimum utilization of resources.

3.3 Role of Bhutan Electricity Authority

3.3.1 As per the provisions of the Act, the functions assigned to the Authority relevant to the Grid Code Regulation, shall be:

- (i) To develop regulations, standards, codes, principles and procedures, which include, but not limited to the following:
 - (a) Performance standards, including minimum technical and safety requirements for construction operation and maintenance of generation, transmission and distribution facilities;
 - (b) Terms and conditions for provision of access to the Transmission System and distribution networks; and
 - (c) System operation including dispatch of generation;
- (ii) To process application and issue, modify and revoke licences for generation, transmission, system operation, export, import, distribution and sale of electricity;
- (iii) To monitor the performance of Licensees and their compliance with provisions of the Act, regulations, standards, codes, licenses and contracts approved by the Authority;

- (iv) To impose any fines, sanctions or penalties for any breach of provisions of this Act, regulations, standards, codes licences or contract to be approved by the Authority; and
- (v) To perform other duties as stipulated under the Act.

3.3.2 The Authority shall, in the performance of its functions:

- (i) ensure the reliability, quality, security and efficiency of electricity supply;
- (ii) encourage competition in electricity generation, transmission and supply;
- (iii) ensure non-discriminatory access to the transmission and distribution;
- (iv) ensure a fair balance of the interest of the public, customers and participants in the electricity sector;
- (v) facilitate the development of the generation, transmission and distribution of electricity throughout the country; and
- (vi) ensure the protection of the natural resources, the environment and other public interests affected by the development of electricity supply.

3.4 Role of System Operator

3.4.1 As per Section 39 of the Act, the Authority may designate a person to be a “System Operator”, who shall:

- (i) co-ordinate the power supply system to obtain instantaneous balance between generation and consumption of electricity;
- (ii) be responsible for dispatching generation installations;
- (iii) co-ordinate the transmission outages;
- (iv) monitor the import and export of electricity;

- (v) prepare forecasts of generation requirements;
- (vi) prepare regulations, with approval of the Authority, for the dispatch of generation installations; and
- (vii) perform such other functions as may be prescribed by the Authority in the Licence or by regulations.

3.4.2 The System Operator shall not, in the performance of its functions, show undue preferences or discrimination against any person.

3.5 Role of Transmission Licensee

3.5.1 The Transmission Licensee shall undertake transmission of electricity through its Transmission System.

3.5.2 The Transmission Licensee shall discharge all function of short-term planning and co-ordination relating to Transmission System with the following:

- (i) The Ministry;
- (ii) The System Operator;
- (iii) Generation Licensees;
- (iv) Distribution Licensees,
- (v) Other Licensees;
- (vi) The Authority; and
- (vii) Any other person or designated by the Ministry.

3.5.3 The Transmission Licensee shall provide access to all existing and potential Users of the Transmission System on the payment of fees and other charges for the Transmission System services as may be approved by the Authority.

3.6 Role of Distribution Licensees

3.6.1 The area of the Licensee's distribution of electricity shall be defined in the Licence.

3.6.2 A Distribution Licensee shall provide access to all existing and potential Users of the distribution network on payment of charges, and on the terms and conditions for network services as may be approved by the Authority.

3.6.3 The quality of distribution service shall be in accordance with standards prescribed by the Authority.

3.7 Responsibilities of Transmission System Users

3.7.1 All Users connected to the Transmission System are responsible for:

- (i) Planning, constructing and maintaining all necessary equipment for the connection to the Transmission Grid according to standards approved by the System Operator. This includes upgrading of the installations and the necessary protective devices to enable a safe and reliable connection to the Grid;
- (ii) Providing the System Operator with all requested data and technical and economical characteristics on design, construction and operation of facilities to be connected to the Transmission Grid;
- (iii) Providing adequate key personnel satisfying appropriate qualification standards to be approved by the System Operator; and
- (iv) Complying with the necessary operating liaison procedures and installation of communication equipment according to specifications made by the System Operator.

3.8 Communication

3.8.1 Licensees and Users shall appoint a representative to be responsible for all communications between the System Operator and the respective User.

3.8.2 The System Operator may use any communication media for issuing instructions to Users. Any such instructions

shall be confirmed within 24 hours by electronic message or in writing.

- 3.8.3 For communication between the System Operator and Licencees/Users, any communication media may be used. Communication considered to be of importance by one of the parties shall subsequently be confirmed in writing.
- 3.8.4 Instructions given by the System Operator that shall have commercial implications for Licensees and Users shall always be given in writing unless the instructions have an emergency character.
- 3.8.5 The System Operator, Licensees and Users shall accept the recording, by whatever means, of instructions of communications as evidence of those instructions or communications unless otherwise specified in this Grid Code Regulation.
- 3.8.6 Data and notices to be submitted to the System Operator under this Grid Code Regulation shall be delivered in writing either by hand or sent by registered post unless otherwise specified in the Regulations. Any such notices shall be confirmed within 24 hours by electronic message or in writing. In case of insufficient time, the delivery by facsimile transfer is acceptable, which shall be followed by the original, through registered post or by hand.

4 Planning Code

4.1 Introduction

4.1.1 The Transmission Licensee shall discharge all functions of short-term planning and co-ordination related to the Transmission System in association with the Ministry, Generation Licensees, System Operator, Distribution Licensees and any other person notified by the Authority in this behalf.

4.1.2 This section specifies the policy and procedures which shall be applied in planning of the Transmission System.

4.2 Objective

The objectives of the planning code are to:

- (i) Specify the principles, procedures and criteria which shall be used in the planning and development of the Transmission System;
- (ii) Promote co-ordination amongst all the Licensees in any proposed development of the Transmission System;
- (iii) Identify the planning studies to be performed; and
- (iv) Provide methodology and information exchange amongst the Licensees in the planning and development of the Transmission System.

4.3 Scope

This section applies to the Transmission Licensee, Generation Licensees and the Distribution Licensees connected to and/or using and involved in developing the Transmission System.

4.4 Planning Policy

4.4.1 The Ministry shall develop the overall Power System Master Plan, which includes developments for the Transmission System including export transmission facilities. The Power System Master Plan may be periodically updated to reflect revisions in load

projections and generation scenarios.

- 4.4.2 The Transmission Licensee shall carry out the planning process from time to time as per the requirement for identification of Transmission System which shall fit in with the Power System Master Plan or to meet the transmission needs of the Transmission License.
- 4.4.3 The Transmission Licensee shall consider the data of authenticated nature collected from and in consultation with all the utilities of the Power System. The following shall also be referred:
 - (i) The Power System Master Plan developed by the Ministry;
 - (ii) Any transmission planning criteria and guidelines of the Ministry; and
 - (iii) Power data, hydrological statistics and other reports issued by the Ministry, which are relevant to the development of the Transmission System.
- 4.4.4 In addition to new facilities to evacuate power from a new generating station, the Transmission Licensee shall plan the system strengthening schemes to overcome and prevent constraints in power transfer and to improve the overall performance of the Transmission System. Such schemes shall be discussed with the System Operator and other Users/Licensees and submitted to the Authority for approval.
- 4.4.5 All Generation Licensees and Distribution Licensees shall provide the desired planning data to the Ministry and to the Transmission Licensee every year to enable them to formulate and finalise their plans.
- 4.4.6 The investment plans of the Transmission Licensee shall include the additional transmission requirement which may cover not only transmission lines but also additional equipment such as transformer, capacitors, reactors,

amongst other transmission equipment. Special attention shall be accorded to capacitors, reactors, SVC and FACTS.

4.4.7 The investment plans of the Transmission Licensee shall also indicate the action taken to fulfill the plans and actual progress made on new schemes.

4.4.8 The planning of the Transmission System for export of power from the generating stations to neighbouring countries shall be discussed and reviewed with the concerned agencies of the neighbouring countries.

4.5 Grid Planning Studies

4.5.1 The System Operator shall prepare aggregated medium-term (5 years) and long-term (10 years) load forecasts for the overall system. These plans shall include the identification of likely power and energy balances and the possibilities of export as well as capacity and/or energy deficits during the planning period.

4.5.2 The System Operator shall review and revise all plans for the expansion of the generation capacity. Based on these plans, the System Operator shall prepare a medium-term expansion plan for the generation capacity comparing the different alternatives and identifying an estimated least cost expansion plan.

4.5.3 The Transmission Licensee shall conduct Grid Planning Studies to ensure the safety, reliability, security, sufficiency and stability of the Transmission System. Grid Planning Studies shall:

- (i) Assess the impact on the Transmission System or to any User system of any demand forecast or any proposed addition or change of equipment facilities in the Transmission System and to identify the corrective measures to eliminate the deficiency

- in the Transmission System. All transmission connections with the Transmission System shall be taken into consideration while performing the Planning studies;
- (ii) Assess the behaviour of the Transmission System during normal and outage-contingency conditions and the behaviour of the Transmission System during the transient condition due to any disturbance or switching operation;
 - (iii) Include load flow studies to evaluate the behaviour of the Transmission System for the existing and planned transmission facilities under forecasted maximum and minimum load condition and to study the impact on the Transmission System of the connection of new generating plants, loads and transmission lines;
 - (iv) Include short circuit studies to evaluate the effect on the Transmission System of the connection of new generating plants, transmission lines and other facilities that shall result in increased fault duties for the Transmission System;
 - (v) Include steady state stability analysis studies to determine whether the Transmission System is vulnerable to steady-state stability problems. The studies shall identify appropriate solutions, such as proper tuning of power system stabilizers or the identification of safe operating conditions;
 - (vi) Include voltage stability analysis studies to determine if the Transmission System is vulnerable to voltage collapse under heavily loaded conditions. The studies shall identify the requirement for installation of dynamic and static reactive power compensation; and

- (vii) Include Reactive Power compensation studies of the Transmission System including reactive power requirement at the generating station switchyards.

4.6 Planning Criteria

4.6.1 The transmission planning criteria shall be based on the security philosophy envisaged in the planning of the Transmission System, as per the guidelines of the System Operator and Ministry.

4.6.2 As a general policy, the Transmission System shall be capable of withstanding and be secured against the following outages without necessitating load shedding or rescheduling of generation during steady state operation:

- (i) Outage of a 66 kV D/C line; or
- (ii) Outage of a 132 kV S/C line; or
- (iii) Outage of a 220 kV S/C line; or
- (iv) Outage of a 400 kV S/C line; or
- (v) Outage of single Interconnecting Transformer.

The above contingencies shall be considered assuming a pre-contingency system depletion (planned outage) of another 66 kV D/C line or 132 kV S/C or 220 kV S/C line in another corridor and not emanating from the same substation. All the Generating Units may operate within their capability curves and the network voltage profile shall also be maintained within voltage limits specified.

4.6.3 The Transmission System shall be capable of withstanding the loss of most severe single system infeed without loss of stability.

4.6.4 Any one of the events defined above shall not cause:

- (i) Loss of supply;

- (ii) Prolonged operation of the system frequency below and above specified limits;
- (iii) Unacceptably high or low voltage;
- (iv) System instability; and
- (v) Unacceptable overloading of Transmission System elements.

4.6.5 In all substations (66 kV and above) at least two transformers shall be provided.

4.7 Planning Data

4.7.1 All Licensees and Users shall provide all data as required by the System Operator to execute the co-ordinated planning of the operation and expansion of the system. Such data should include, but not necessary be limited to:

- (i) Load forecasts;
- (ii) Technical and economical characteristics of generation units, including capital and operational costs of the units; and
- (iii) Technical and economical characteristics of the relevant transmission and distribution systems.

4.7.2 The System Operator may establish further specifications as to the data requirements.

4.7.3 The Licensees and Users shall identify all such data that may be required to be kept confidential.

4.8 Implementation of Transmission Plan

The investment programme to install new transmission lines, reactors and capacitors shall be prepared by the Transmission Licensee in consultation with the concerned agencies and submit the same to the Authority for approval. The completion of these works, in the required time frame, shall be ensured by the Transmission Licensee.

5 Connection Conditions

5.1 Introduction

This section specifies the minimum technical and design criteria which shall be complied with by the Transmission Licensees and any User connected to, or seeking connection to, the Transmission System. This Section also sets out the procedures by which the Transmission Licensee shall ensure compliance by any User with the above criteria as pre-requisite for the establishment of an agreed connection.

5.2 Objective

5.2.1 The power system shall expand with the addition of new transmission lines and Users and it shall continue to perform with reliability, security and quality standards at any point of time. A new connection to the Transmission System shall not adversely affect the Transmission System nor shall the Transmission System adversely affect the new connection.

5.2.2 Procedures are required to be laid down in order to ensure that:

- (i) a prospective User is well informed, in advance, of the Standards and Conditions he has to meet for being integrated into the existing power system, the Standards and Parameters of the existing system with which its system has to be interfaced and the electrical environment in which his system has to operate; and
- (ii) there is no discrimination to any player in regard to connectivity.

5.2.3 The ownership and responsibility for all the equipment shall be clearly specified in a Site Responsibility Schedule for every site, where a connection is made.

5.3 Scope

- 5.3.1 These connection conditions shall be applicable to the Transmission Licensee and all the Users seeking new connection with the Transmission System as well as to the existing Users who may modify/upgrade their system.

5.4 Procedure for connection

- 5.4.1 Prior to a potential User being connected to the Transmission System, all necessary conditions outlined in the Grid Code Regulation in addition to other mutually agreed requirements to be complied with, shall be fulfilled by the potential User. Any potential user seeking to establish new or modified arrangement of connection to or for use of the Transmission System, shall submit an application in standard format to the Transmission Licensee along with the following details:

- (i) Report stating the purpose of the proposed connection and/or modification including capacity, connection point, description of apparatus to be connected or modification of the apparatus already connected and beneficiaries of the proposed connection;
- (ii) Construction schedule and target completion date; and
- (iii) Confirmation that the applicant shall abide by Grid Code Regulation and provisions of the Regulations/Standards issued by the Authority.

- 5.4.2 The Transmission Licensee shall normally make a formal offer to the applicant within a period of three months after the date of receipt of all details. Details of the requirements and procedures will be set out in the offer of a connection to the Transmission System and the resulting Connection Agreement with the applicant. Upon compliance, the Transmission Licensee shall notify the

applicant that it can be connected to the Transmission System.

- 5.4.3 However, in case of the existing connections between Transmission network and other Licensees including Distribution Licensees, Generation Licensees, a relaxation of two years in respect of the connection conditions is allowed so that the present arrangements may continue. The process of re-negotiation of the connection conditions with Licensees shall be completed within a period of one year. In case it is determined that the compliance of connection conditions would be delayed further, the Authority may consider further relaxation depending upon the application submitted by the concerned Licensee along with the Transmission Licensee's recommendation/comments. The cost of modification, if any, shall be borne by the concerned Licensee.

5.5 Connection Agreement

Every connection of a User's system to the Transmission System shall be covered by a Connection Agreement between the User and the Transmission Licensee. The Connection Agreement shall contain general and specific, technical and financial conditions, applicable to that connection. A connection agreement shall include (but not limited to), as appropriate, within its terms and conditions, the following:

- (i) A condition requiring both parties to comply with the Grid Code Regulation;
- (ii) Description of the point of connection including the technical and economical characteristics of the connected installations;
- (iii) Specification of the transmission capacity, both in technical and geographical terms, made available;
- (iv) Details of any capital expenditure arising from

necessary reinforcement or extension of the system and demarcation of the same between the concerned parties, and connection fees if applicable;

- (v) Site Responsibility Schedule;
- (vi) General philosophy and guidelines on protection; and
- (vii) Meter, metering, testing and communication requirements.

5.6 Standards

All installations, equipment or apparatus to be included in the Transmission System or to be connected to the Transmission System shall comply with the relevant standards of Bhutan. In the absence of such standards, the responsible standardisation entity shall be consulted, along with the Authority, to obtain permission to adapt to good utility practice.

5.7 Site Responsibility Schedule

5.7.1 A Site Responsibility Schedule (SRS) shall be prepared for every connection. At the connection site where equipment of both entities, i.e., the Transmission Licensee and the Distribution Licensee are installed, the Distribution Licensee shall furnish required data to the Transmission Licensee which shall prepare SRS. At a generating station, the Transmission Licensee shall furnish the necessary data to the Generation Licensee who shall prepare SRS.

5.7.2 The following information shall be included in the SRS:

- (i) Schedule of HV apparatus;
- (ii) Schedule of plant, LV / MV apparatus, services and supplies;
- (iii) Schedule of telecommunications and

- measurement apparatus; and
- (iv) Safety rules applicable to each plant/apparatus.

5.7.3 Following information shall also be furnished in the SRS for each item of equipment installed at the connection site:

- (i) The ownership of equipment;
- (ii) The responsibility for control of equipment;
- (iii) The responsibility for maintenance of equipment;
- (iv) The responsibility for operation of equipment;
- (v) The manager of the site;
- (vi) The responsibility for all matters relating to safety of persons at site; and
- (vii) The responsibility for all matters relating to safety of equipment at site.

5.6.4 All HV apparatus on any connection site shall be shown on a diagram in detail.

5.8 Site Common Drawings

5.8.1 Site Common Drawings shall be prepared by the owner company (Transmission Licensee or User) using the information furnished by the other company (User or Transmission Licensee) containing the following information:

- (i) Connection site equipment layout;
- (ii) Electrical layout;
- (iii) Common protection and controls; and
- (iv) Common services (water, compressed air, telephone, electricity supply for lighting and other appliance, etc.)

5.8.2 Each item of equipment at the connection site shall be assigned with one unique number to facilitate identification.

5.9 Single Line Diagrams

5.9.1 Single Line Diagram shall be furnished for each Connection Point by the connected Users to the System Operator. These diagrams shall include all HV connected equipment and the connections to all external circuits and incorporate numbering, nomenclature and labelling etc. The diagram is intended to provide an accurate record of the layout and circuit connections, rating, numbering and nomenclature of HV apparatus and related plant.

5.9.2 Whenever any equipment has been proposed to be changed, then the concerned User shall communicate the necessary changes to Transmission Licensee and to all concerned. When the changes are implemented, changed Single Line Diagram shall be circulated by the User to the System Operator and to the Transmission Licensee.

5.10 Access and maintenance at connection site

5.10.1 The Connection Agreement shall indicate any procedure necessary for site access and other required facilities for installation, operation, maintenance, etc.

5.10.2 The User's equipment at the site owned by the Transmission Licensee shall be maintained promptly and properly by the User and vice versa so that the equipment and personnel of the site owner are not jeopardized by the neglect of the other entity.

5.11 Site Operational and Safety Procedures

5.11.1 The Transmission Licensee and the User shall ensure that staff is available to take necessary safety precautions and carry out operational duties at the site. Written operating and safety procedures shall be made available at the each site.

- 5.11.2 The telephone numbers and addresses of the officers of each entity responsible for operation at the connection site shall be furnished to the other entity.

5.12 Boundaries between Systems of Entities

- 5.12.1 Boundary between a Generating station and the Transmission System: The boundary shall be the gantry of the Substation/Switchyard/Pothead-yard or the other terminal equipment as may be decided by and between the two parties.
- 5.12.2 Boundary between the Transmission System and the Distribution System: The boundary shall be the outgoing terminal structure or pole as the case may be decided by and between the parties.
- 5.12.3 In respect of 5.12.1 and 5.12.2 above, at particular inter-connections for both the parties may jointly agree on a different boundary.
- 5.12.4 The boundary between the Transmission Licensee and a User directly connected to the Transmission System is the isolator in the Transmission System, which is also the point of commencement of supply.

5.13 General Conditions for Connection to the Transmission System

- 5.13.1 The System Operator shall determine the availability of transmission capacity for Users to connect to the Transmission System. The System Operator shall further approve any equipment required for connecting the particular installations and time schedules for the implementation of the requested connections.
- 5.13.2 Within the power system, instantaneous values of system frequency and voltage are subject to variation from their nominal value. All agencies shall ensure that Plant and Apparatus requiring service from/to the Transmission System is of such design and construction that

satisfactory operation shall not be prevented by such variation.

- 5.13.3 Rated frequency of the system shall be 50.0 Hz and shall normally be controlled within the limits as specified in Section 6.4.1.
- 5.13.4 The variation of voltage may not be more than the voltage range specified in the Section 6.4.1.
- 5.13.5 The Distribution Licensee shall not depend upon the Transmission System for reactive compensation support when connected. The Distribution Licensee shall estimate and provide the required reactive compensation in its distribution network to meet its full Reactive Power requirement, unless specifically agreed with the Transmission Licensee.
- 5.13.6 All sub-station equipment shall comply with the codes and standards approved by the Authority.
- 5.13.7 All equipment shall be designed, manufactured, tested and certified in accordance with the quality assurance requirements as per Codes and Standards approved by the Authority.
- 5.13.8 The User shall cooperate with the Transmission Licensee and the System Operator in respect of the operational matters listed below, but not limited to:
 - (i) Carryout the modifications in his equipment considered necessary, whenever the power system is upgraded or modified;
 - (ii) Protection coordination (relay settings);
 - (iii) Provide on line data to the appropriate load dispatch centre;
 - (iv) Participate in contingency operations such as load shedding, islanding, black start, providing

start-up power and restoration;

- (v) Furnish data to the Transmission Licensee, System Operator and any committee constituted by the Ministry or by the Authority for disturbance analysis and other studies;
- (vi) Maintain meters and communication system in its jurisdiction in good condition;
- (vii) Coordinated outage plan ; and
- (viii) Prompt implementation of instructions of the System Operator.

5.13.9 Each connection between a User and the Transmission System shall be controlled by a circuit breaker capable of interrupting at the connection point, the short circuit current shall be in the range as advised by the Transmission Licensee in the specific Connection Agreement.

5.13.10 All hydropower generation units having Francis Turbines shall be capable of continuous stable operation at any load between 50% and 100% MCR, Pelton turbine between 30% and 100% MCR and those having Kaplan Turbine between 70% and 100% MCR at normal operating head.

5.13.11 The generating units shall be capable to generate/absorb reactive power within their respective capability limit without sacrificing on the active generation.

5.13.12 The System Operator may introduce further specifications on connection requirements if and when found necessary.

5.13.13 To enable the execution of its obligation, the System Operator shall, after giving prior notice and reason, have access to the Licensees' and Customers' facilities and metering equipment.

5.14 International Connections to the Transmission System

The procedure for international connection to the Transmission System and the execution of agreement for the same shall be done by the agency who has been assigned this responsibility by the Ministry.

5.15 Schedule of assets of the Transmission System

5.15.1 All Transmission Licensee shall submit annually to the Authority by 31st March each year a schedule of transmission assets which constitute the Transmission System as on 31st December of the previous year.

5.15.2 The System Operator may, after approval of the Authority, disconnect installations from the Transmission System if the connected User has failed to meet with the substantial requirements as set forth in this Grid Code Regulation.

6 Operations and Operational Planning

6.1 Introduction

This section covers all important aspects of Transmission System operation, including operation planning.

6.2 Objective

The objective of this section is:

- (i) To specify the operating states, operating criteria, operating policies and system security aspects that shall ensure the safety, reliability, security and efficiency of the Transmission System;
- (ii) To define the operational responsibility of the System Operator, Generators, Distribution Licensees etc;
- (iii) To specify the procedure for demand estimation for operational purpose;
- (iv) To describe the operating reserves and demand control strategies use for the control of system frequency and the methods used for voltage control.

- (v) To specify the procedure for coordinated generation and transmission outage planning;
- (vi) To specify the role/responsibility for Black Start procedure;
- (vii) To establish a procedure for operational liaison; and
- (viii) To identify the periodic reports to be issued and event information to be reported.

6.3 Scope

This section applies to all Users of the Power System connected with the Transmission System including Generation, Transmission and Distribution Licensees.

6.4 Transmission System Operating States and Operating Criteria

6.4.1 Transmission System Operating States

6.4.1.1 The Transmission System shall be considered to be in the Normal State When:

- (i) The Transmission System frequency is within the limit of 49.5 Hz. to 50.5 Hz;
- (ii) The voltage at all connection points are within the limits of 0.95 times and 1.05 times of the nominal values;
- (iii) The transmission line loadings and sub-station equipment are below 90% of their continuous ratings; and
- (iv) Sufficient operating margin is available.

6.4.1.2 The Transmission System shall be considered to be in the Alert State when any one of the following conditions exists:

- (i) The Transmission System frequency is beyond the normal operating limit but within 49 to 51Hz; or
- (ii) The voltage at connection points are outside the normal limit but within the limits of 0.9 times and 1.1 times of the nominal values; or

- (iii) There is a critical loading or imminent overloading of transmission line or substation equipment; or
- (iv) Adverse weather condition.

6.4.1.3 The Transmission System shall be considered to be in the Emergency State when multiple outage contingency has occurred without resulting in total system blackout and any one of the following condition exists:

- (i) There is a generation deficiency and frequency is below 49 Hz;
- (ii) Transmission System voltage are outside the limit of 0.9 times and 1.1 times of nominal values; and
- (iii) The loading level of any transmission line or substation equipment is above 110% of its continuous rating.

6.4.1.4 The Transmission System shall be considered to be in the Extreme State when the corrective measures undertaken by the System Operator during an emergency state failed to maintain system security and resulted in cascading outages, islanding, and/or system voltage collapse.

6.4.1.5 The Transmission System shall be considered to be in the Restorative State when generating units, transmission lines, sub-station equipment and loads are being energized and synchronized to restore the Transmission System to its normal state.

6.4.2 Transmission System Operating Criteria

6.4.2.1 The Transmission System shall be operated so that it remains in the Normal State.

6.4.2.2 The Transmission System shall be operated and maintained to meet the power quality standards as specified by the System Operator.

6.4.2.3 The security and reliability of the Transmission System shall be based on the single outage contingency criterion.

This criterion specifies that the Transmission System shall continue to operate in the Normal State following the loss of a single generating unit, transmission line, or transformer.

- 6.4.2.4 The Transmission System frequency shall be controlled by the Frequency Regulating Reserve during the Normal State, and by the timely use of Contingency Reserve and demand control during other conditions.
- 6.4.2.5 Adequate Frequency Regulating Reserve and Contingency Reserve shall be available to stabilize the Transmission System and facilitate the restoration to the Normal State following a multiple outage contingency.
- 6.4.2.6 Following an incident that makes it impossible to avoid Island Grid operation, the Transmission System shall separate into several self-sufficient Island Grids, which shall be resynchronized to restore the Transmission System to a Normal State.

6.5 Operating Policy

- 6.5.1 The primary objective of integrated operation of the Transmission System is to enhance the overall operational economy and reliability of the entire electric power network throughout Bhutan. Participant utilities shall cooperate with each other and adopt Good Utility Practice at all times for satisfactory and beneficial operation of the Transmission System.
- 6.5.2 Overall real time operation of the Transmission System shall be supervised by the System Operator from the National Load Despatch Centre (NLDC) located at Thimphu. The roles of the System Operator shall be in accordance with the provisions of Section 3 of this Grid Code Regulation.
- 6.5.3 The control rooms of the NLDC, Eastern Grid Data

Centre, and Western Grid Data Centre, all Generating Power Plants, HV (66 kV and above) sub-stations and any other control centres of the constituents shall be manned round the clock by qualified and adequately trained personnel or otherwise they are controlled remotely but the remote control centre must be manned.

6.6 System Security Aspects

6.6.1 All Licensees shall endeavour to operate their respective power systems and generation stations in synchronism with each other at all times, such that the entire Transmission System operates as one synchronised system.

6.6.2 No part of the Transmission System shall be deliberately isolated from the rest of the Transmission System, except:

- (i) under an emergency, and conditions in which such isolation would prevent a total Transmission System collapse and/or enable early restoration of power supply;
- (ii) when serious damage to a costly equipment is imminent and such isolation would prevent it; and
- (iii) when such isolation is specifically instructed by the System Operator.

Complete synchronisation of the Transmission System shall be restored as soon as the conditions again permit it. The restoration process shall be supervised by the System Operator, as per operating procedures separately formulated.

6.6.3 No important element of the Transmission System shall be deliberately opened or removed from service at any time, except when specifically instructed by the System Operator or with specific and prior clearance of the System Operator. The list of such important elements on which the above stipulations apply shall be prepared by

the System Operator in consultation with the Transmission Licensees, and be available with the System Operator. In case of opening/ removal of any important element of the Transmission System under an emergency situation, the same shall be communicated to the System Operator at the earliest possible time after the event.

- 6.6.4 Any tripping, whether manual or automatic, of any of the above elements of the Transmission System shall be precisely communicated by the concerned Licensee to the System Operator as soon as possible, and within ten minutes of the event. The reason (to the extent determined) and the likely time of restoration shall also be given. All reasonable attempts shall be made for the elements' restoration as soon as possible.
- 6.6.5 Except under an emergency, or to prevent damage to the equipment, no generator shall suddenly reduce his generation output by more than 5 (five) MW without prior communication to, and consent of, the System Operator. Similarly, no Large Consumer shall cause a sudden increase in his load by more than 5 (five) MW without prior communication to, and consent of, the System Operator.
- 6.6.6 Provision of protections and relay settings shall be coordinated periodically throughout the Transmission System, as per a plan to be separately finalised by the System Co-ordination Committee (SCC).
- 6.6.7 All Users shall make all possible efforts to ensure that the Transmission System frequency always remains within the 49.5 to 50.5 Hz band, the normal frequency range.
- 6.6.8 Procedures shall be developed to recover from partial/

total collapse of the Transmission System and periodically updated in accordance with the requirements given under Section 6.12. These procedures shall be followed by all the Users to ensure consistent, reliable and quick restoration.

6.6.9 Each Licensee shall provide an adequate and reliable communication facility internally and with the System Operator to ensure exchange of data information. Wherever possible, redundancy and alternate path shall be maintained for communication along important routes.

6.6.10 Each Licensee shall send data including Disturbance Recorder and sequential Event Recorder output to the System Operator for purpose of analysis of any Transmission System Event; No Licensee shall refuse provision of any data or information required by the System Operator for maintaining reliability and security of the Transmission System and for analysis of an Event.

6.7 Operational Responsibilities

6.7.1 Operational responsibilities of the System Operator

6.7.1.1 The System Operator shall coordinate and maintain the power quality in the Transmission System during normal conditions.

6.7.1.2 The System Operator shall ensure that the load-generation balance is maintained during emergency conditions and take prompt corrective actions following these emergency conditions, to restore the system to normal conditions.

6.7.1.3 The System Operator shall control Transmission System voltage variations during emergency conditions through a combination of direct control and timely instructions to Generators and other Licensees.

6.7.1.4 The System Operator in consultation with all Users shall develop a detailed operating procedure. This procedure shall in conformity with this Grid Code Regulation.

6.7.1.5 The System Operator shall perform all necessary system studies to determine the safe operating limits that shall protect the Transmission System against any instability problem, including those due to multiple outage contingencies.

6.7.2 Operational Responsibilities of Generation Licensees

6.7.2.1 The Generation Licensee shall be responsible for maintaining its generating units to fully deliver the capabilities declared and ensure the maximum possible availability of the units by proper & timely maintenance.

6.7.2.2 The Generation Licensee shall provide accurate and timely planning and operational data to the Transmission Licensee and System Operator.

6.7.2.3 All generating units, which are synchronised with the Transmission System, irrespective of their ownership, type and size, shall have their governors in normal operation at all times. If any generating unit of over ten (10) MW is required to be operated without its governor in normal operation, the System Operator shall be immediately advised about the reason and duration of such operation and action shall be taken to restore it back as soon as possible. All governors shall have a Governor Droop of between 3 to 10 percent. No dead bands and/or time delays shall be deliberately introduced.

6.7.2.4 All Generating Units, operating at/up to 100% of their Maximum Continuous Rating (MCR) shall normally be capable of (and shall not in any way be

prevented from) instantaneously picking up five percent (5%) extra load or within technical limits prescribed by the manufacturer when frequency falls due to a system contingency. The generating units operating at above 100% of their MCR shall be capable of (and shall not be prevented from) going at least up to 105% of their MCR when frequency falls suddenly. Any generating unit of over ten (10) MW not complying with the above requirement shall be kept in operation (synchronised with the Transmission System) only after obtaining the permission of the System Operator. However, the Licensee can make up the corresponding short fall in Spinning Reserve by maintaining extra Spinning Reserve on the other generating units of the Licensee.

- 6.7.2.5 The recommended rate for changing the governor setting, i.e. supplementary control for increasing or decreasing the output (generation level) for all generating units, irrespective of their type and size, would be one (1) percent per minute or as per manufacturer's limits. However, if frequency falls below 49.5 Hz, all partly loaded generating units shall pick up additional load at a faster rate, according to their capability.
- 6.7.2.6 All generating units shall normally have their AVR in operation, with appropriate settings. In particular, if a generating unit of over ten (10) MW size is required to be operated without its AVR in service, the System Operator shall be immediately informed about the reason and duration, and its permission obtained.
- 6.7.2.7 All generating units shall generate/absorb VAR within their capability curve as per system condition/instruction from the System Operator.

- 6.7.2.8 Black Start facility available with the generators, if any shall be ensured to always remain in the operating condition.

6.7.3 Operational Responsibility of Transmission Licensee

- 6.7.3.1 The Transmission Licensee shall provide and maintain all Transmission System equipment and facilities including those required for maintaining power quality.
- 6.7.3.2 The Transmission Licensee shall design, install, commission and maintain the Transmission System's protection system as finalized in the System Co-ordination Committee.
- 6.7.3.3 The Transmission Licensee shall also facilitate identification, installations and commissioning of system protection schemes (including inter-tripping and runback) in the power system to protect against situations such as voltage collapse and cascading.
- 6.7.3.4 The Transmission Licensee shall ensure that safe and economic Transmission System operating procedures are always followed.

6.7.4 Operational Responsibilities of Distribution Licensees/Other Users

- 6.7.4.1 Distribution Licensees/Users shall provide and maintain voltage control equipment on its system to support the voltage at the connection points. Distribution Licensees/Users shall also provide and maintain reactive power supply facilities on its system to meet its reactive power demand.
- 6.7.4.2 If required by the System Operator, Distribution Licensees shall provide automatic under-frequency load shedding facilities in their respective systems, to arrest frequency decline that may result in a

collapse/disintegration of the Transmission System and shall ensure its effective application to prevent cascade tripping of generating units in case of any contingency.

- 6.7.4.3 Distribution Licensees shall ensure that the under frequency load shedding/islanding schemes are functional. However, in case of extreme exigencies, under-frequency relays and/or islanding schemes may be temporarily kept out of service with prior consent of the System Operator or as directed by the System Operator.

6.8 Demand Estimation for Operational Purposes

- 6.8.1 The Distribution Licensee shall formulate a short term demand forecast (MW, MVAR and MWh) from the historical data and demand estimation submitted by Large Consumers.
- 6.8.2 The Distribution Licensee shall review the status of load materializing as per the previous load forecast. Energy sales in each tariff class shall be projected in the forecasted period over the corresponding figures relating to the base year by adopting an appropriate statistical method. The projection shall take into account the assumed normal growth for non-specific loads, specific and identified loads of 1MW and above.
- 6.8.3 The peak load requirement at each connection point/interface point shall be estimated taking into account distribution losses. If the Distribution Licensee received power at a number of connection points in a compact area which are inter-connected in a ring then such Distribution Licensee shall forward the overall short term forecast as well as at each connection points with the variation or tolerance as mutually discussed and agreed upon.

- 6.8.4 The Distribution Licensee and Large Consumers shall provide their above mentioned demand estimates for the period from 1st Jan to 31st Dec by 15 January of the subsequent year on a financial year ahead basis. This shall be updated for every month subsequently in the previous month on month ahead basis, and in the previous day on day ahead basis as required by the System Operator.
- 6.8.5 Based on the data furnished by the Distribution Licensees and Large Consumers the System Operator shall make monthly peak and off peak period demand estimate for the year ahead and daily peak and off peak demand estimates for the month ahead.
- 6.8.6 The System Operator shall make demand estimation on hourly basis for day ahead scheduling and dispatch purpose.
- 6.8.7 Distribution Licensees shall also provide the System Operator, estimates of loads that may be shed, when required, in discrete blocks with details of arrangements of such load shedding.
- 6.8.8 The System Operator shall maintain a data base of total demand of the country on an hourly basis.
- 6.9 Operating Margins and Demand Control
 - 6.9.1 Operating Margin
 - 6.9.1.1 Operating Margin comprises of Contingency Reserve and Operating Reserves required for satisfactory operation of the power system to cover uncertainties in variation in demand forecasts, loss of external connections, loss of generation, constraint in the transmission system and/ or any other factor.

6.9.1.2 The System Operator shall decide the required Contingency Reserves on the basis of historical trends in reduction in availability of generation and increase in demand then demand forecast during real time operation.

6.9.2 Demand Control

6.9.2.1 Distribution Licensees should reduce their demand in the event of insufficient generating capacity, and transfers from external interconnections being not available to meet demand, or in the event of breakdown or operating problems (such as frequency, voltage levels or thermal overloads) on any part of the Transmission System.

6.9.2.2 In case of certain contingencies and/or threat to system security, the System Operator may direct the Distribution Licensees to decrease their drawal by a certain quantum. Such directions shall immediately be acted upon.

6.9.2.3 Each Licensee shall make arrangements that shall enable manual demand disconnection to take place, as instructed by the System Operator, under normal and/or contingent conditions.

6.9.2.4 The measures taken to reduce the Licensee's drawal in its area of supply from the Transmission System shall not be withdrawn as long as the frequency/voltage remains at a low level, unless specifically permitted by the System Operator.

6.10 System Voltage and Reactive Power Requirements

6.10.1 The System Operator, Licensees and Users shall co-ordinate the use of voltage control equipment to maintain the system voltage within the system criteria.

6.10.2 To the extent possible, each Distribution and

Transmission Licensee and User connected to the Grid System shall meet its own local requirements for reactive power.

- 6.10.3 The Generation Licensees shall on an aggregated level have sufficient reactive reserve capacity to maintain the system voltage during emergency conditions.
- 6.10.4 The System Operator shall define the required load profile and allocate within the technical capability of the generation units, the generation and reserve reactive capacity throughout the system to ensure that the voltage is kept within acceptable levels in the event of the loss of a component decisive to the system voltage.
- 6.10.5 Each Generation Licensee shall, subject to the technical capability of the generation units, operate its plants to provide the required reactive generation and reserve capacity as instructed by the System Operator.

6.11 Outage Planning

- 6.11.1 The System Operator shall be responsible for analysing the outage plans given by all Licensees, and finalisation of the outage plan for the following calendar year.
- 6.11.2 All Licensees shall provide the System Operator their proposed outage plans for the next financial year by 1st December of each year. These shall contain identification of each generating unit/line/inter-connecting transformers (ICTs), the preferred date for each outage and its duration and where there is flexibility, the earliest start date and latest finishing date.

- 6.11.3 The System Operator shall thereafter prepare an outage plan for the next calendar year by 15 December of each year taking into account the available resources in an optimal manner and to maintain security standards. The same shall be done after carrying out necessary system studies and, if necessary, the outage plans of Users shall be rescheduled. An adequate balance between generation and load requirements shall be ensured while finalising the outage plan.
- 6.11.4 The final outage plan shall be communicated to all Licensees by the System Operator by 31 December of each year.
- 6.11.5 The above outage plan shall be reviewed by the System Operator on a quarterly and monthly basis in coordination with all concerned Licensees, and adjustments madewherever found to be necessary.
- 6.11.6 In case of emergency in the system viz., loss of generation, break down of transmission line affecting the system, Transmission System disturbance, system isolation, the System Operator may conduct studies again before clearance of the planned outage.
- 6.11.7 The System Operator is authorised to defer the planned outage in case of any of the following:
- (i) Major Transmission System disturbance (total black out in country);
 - (ii) System isolation;
 - (iii) Black out in a Distribution Licensee / Supply Licensee system; and
 - (iv) Any other event in the system that may have an adverse impact on the system security by the proposed outage.

- 6.11.8 Each Licensee shall obtain the final approval from the System Operator prior to availing an outage.
- 6.11.9 The outage plan of Generators and Transmission System associated with export of power to neighbouring countries shall be finalized in consultation with the concerned System Operator of the neighbouring country.

6.12 Recovery Procedures

- 6.12.1 Detailed plans and procedures for restoration of the Transmission System under partial or total blackout shall be developed by the System Operator in consultation with all Licensees and shall be reviewed and updated annually.
- 6.12.2 Detailed plans and procedures for restoration after partial or total blackout of each Distribution System connected to the Transmission System shall be finalised by the concerned Licensee, in coordination with the System Operator. The procedure shall be reviewed, confirmed and/or revised once every subsequent year.
- 6.12.3 A list of generating stations with Black Start facility, Transmission System elements associated with export of power to neighbouring countries, synchronising points and essential loads to be restored on priority, shall be prepared and be available with the System Operator.
- 6.12.4 The System Operator is authorised during the restoration process following a black out, to operate with reduced security standards for voltage and frequency as necessary in order to achieve the fastest possible recovery of the Transmission System.
- 6.12.5 All communication channels required for

restoration process shall be used for operational communication only, until Transmission System Normal State is restored.

6.13 Operational Liaison

6.13.1 The operational liaison function is a mandatory built-in hierarchical function of the System Operator and Licensees, to facilitate quick transfer of information to operational staff. It shall correlate the required inputs for optimisation of decision making and actions.

6.13.2 Operations and events on the Transmission System

6.13.2.1 Before any operation is carried out on Transmission System, the System Operator shall inform each Licensee, whose system may, or shall, experience an operational effect, and give details of the operation to be carried out.

6.13.2.2 Immediately following an Event on Transmission System, the System Operator shall inform each Licensee, whose system may, or shall, experience an operational effect following the Event, and give details of what has happened in the Event.

6.13.3 Operations and events on a Licensee System

6.13.3.1 Before any operation is carried out on a Licensee's system the Licensee shall inform the System Operator, in case the Transmission System may, or shall, experience an operational effect, and give details of the operation to be carried out.

6.13.3.2 Immediately following an Event on a Licensee's system, the Licensee shall inform the System Operator, in case the Transmission System may, or shall, experience an operational effect following the Event, and give details of what has happened in the Event.

6.13.4 Safety co-ordination

6.13.4.1 The System Operator shall establish procedures for establishing and maintaining the necessary isolation and earthing when work and/or test are carried out.

6.13.4.2 Such procedures shall cover:

- (i) The nomination and qualifications of a safety co-ordinator for the installations of the affected Licensee (-s);
- (ii) Notification and communication procedures for work on apparatuses;
- (iii) The implementation of the isolation and earthing;
- (iv) Tests of whether the system is isolated or earthed; and
- (v) Cancellation of isolation and earthing.

6.14 Periodic Reports

6.14.1 A quarterly report shall be issued by the System Operator to all Licensees, Authority and the Ministry, and shall cover the performance of the Transmission System for the previous quarter. The

report shall contain the following but not limited to:

- (i) Performance of Generating Stations;
- (ii) Peak demand, energy availability and requirement for the country;
- (iii) Export and import of electricity to/ from neighbouring countries;
- (iv) Frequency profile: Maximum and minimum frequency recorded and the frequency duration in different frequency bands;
- (v) Voltage profile of selected substations;
- (vi) Major generation and transmission outages;
- (vii) Transmission constraints; and
- (viii) Instances of persistent or significant non-compliance with the Grid Code Regulation.

6.14.2 Other Reports

6.14.2.1 The System Operator shall also prepare an annual report covering the performance of the Transmission System and details as required by the Ministry and the Authority annually for development of Power System Master Plan and formulation of other policy decisions.

6.14.2.2 The System Operator shall also provide information and reports which may be called upon by the Authority or by the Ministry in the interest of smooth operation of the Transmission System.

6.15 Event Information

6.15.1 Any Event on the other User's system having an operational effect on Transmission System shall be reported by the concerned User to the System Operator.

6.15.2 The reportable incidents that require reporting are as follows:

- (i) Tripping of any inter-connecting transformer (ICT), transmission line or capacitor bank;
- (ii) Tripping of any generating units;
- (iii) Major protection failure;
- (iv) Exceptionally high/low voltage frequency;
- (v) Serious equipment problem i.e. major circuit breaker, transformers, bus-bar fault etc.;
- (vi) Overloading of equipment or transmission lines;
- (vii) Activation of any alarm or indication of abnormal operating condition;
- (viii) Breakdown or faults or temporary changes in the capabilities of the plant and/or apparatus; and
- (ix) Loss of load.

6.15.3 Reporting Procedure

6.15.3.1 All reportable incidents shall be reported orally by the User whose equipment has experienced the incident to all other significantly affected Users and the System Operator.

6.15.3.2 The reporting User shall submit a written confirmation to the System Operator in the specified format.

6.15.3.3 Form of Written Reports: A written report shall be sent to the System Operator or a Licensee, as the case may be, and shall

confirm the oral notification together with the following details of the Event:

- (i) Time and date of Event;
- (ii) Location;
- (iii) Plant and/or equipment directly involved;
- (iv) Description and cause of Event;
- (v) Antecedent conditions;
- (vi) Demand and/or generation (in MW) interrupted and duration of interruption;
- (vii) All relevant system data including copies of records of all recording instruments including data from Disturbance Recorders and Event Recorders;
- (viii) Sequence of trippings with time;
- (ix) Details of relay flags;
- (x) Remedial measures and recommendation for future improvement; and
- (xi) Any other relevant information.

7 Scheduling and Dispatch Code

7.1 Introduction

7.1.1 The entire Bhutan Grid operates in synchronism with the Indian Grid and the major generation in Bhutan is envisaged to be exported to the Indian Grid as per Memorandum of Understanding between the Royal Government of Bhutan and Government of India. The Scheduling and Dispatch Code for Bhutan has to be technically compatible with the Scheduling and Dispatch Code of the Indian Electricity Grid Code Regulation.

7.1.2 This section sets out the:

- (i) Demarcation of responsibilities between System Operator, Generation Licensees and Distribution Licensees;
- (ii) Demarcation of interface responsibilities with the Eastern Regional Load Despatch Centre(ERLDC), Kolkata (West Bengal), for export/import schedule at the India-Bhutan border;
- (iii) The procedure for scheduling and dispatch; and
- (iv) The reactive power and voltage control mechanism.

7.2 Objective

7.2.1 This section deals with the procedures to be adopted for scheduling of the various generating stations in Bhutan, export to India and drawal by various Distribution Licensees within the country on a daily basis with the modality of flow of information between the agencies involved in the process.

7.2.2 It also provides the method for issuing real time dispatch/drawal instructions and rescheduling, if required, to Generating Stations, Distribution Licensees and Large Consumers in order to maintain minimum deviation from schedule so as to facilitate maintaining the

Transmission System frequency within the stipulated band of 49.5 to 50.5 Hz.; in addition to coordination amongst the Generation Licensees, Distribution Licensees and Transmission Licensee for congestion management and voltage control.

7.3 Scope

7.3.1 This Section shall apply to the System Operator, Generation Licensees, Distribution Licensees and Large Consumers.

7.3.2 The scheduling and dispatch procedure for scheduling of drawal by the Indian purchasers from Bhutan shall be as per the bilateral agreements between the contracting parties.

7.4 Demarcation of responsibilities

7.4.1 The Power System shall be operated as a Tight Pool in which the System Operator shall have complete responsibility for:

- (i) centralized scheduling and centralized dispatch of generation;
- (ii) scheduling the drawals of the Distribution Licensees and export to India;
- (iii) regulating the demand of the Distribution Licensees; and
- (iv) arranging any bilateral interchanges.

7.4.2 The entire Power System shall be treated and operated as a single national system. However, until integration is achieved between the Eastern and Western Grids, the System Operator shall prepare schedules for the Eastern and Western Grids separately.

7.4.3 The generating stations shall be responsible for power generation in accordance with the daily schedules advised to them by the System Operator. The

generating stations shall also be responsible for the operation and maintenance of their generating stations, such that these stations achieve the best possible long-term availability and economy.

- 7.4.4 Generating stations are normally be expected to generate power according to the daily schedules advised to them. In the event of any unforeseen situation at the generation stations necessitating deviation from the schedules, the same shall be informed to the System Operator. The System Operator after examining the Transmission System conditions shall interact with the other generating stations, Distribution Licensees, importing agencies and reschedule the dispatch which shall be complied with by the concerned agencies.
- 7.4.5 Provided that when the frequency is higher than 50.5 Hz, and spilling of water is not envisaged, the System Operator shall reschedule the dispatch schedule of generating stations. Similarly, in the event of frequency falling below 49.5Hz the System Operator may consider revision in dispatch schedule after examining the overall inflow position and scheduled dispatch of other generating stations.
- 7.4.6 Notwithstanding the above, the System Operator may direct the Distribution Licensees for demand management wherever possible and generating stations to increase/decrease their generation in case of contingencies e.g. overloading of lines/transformers, abnormal voltages, threat to system security etc. Such directions shall immediately be acted upon.
- 7.4.7 The Generation Licensees while entering in to an agreement for sale of power shall discuss the metering and supply arrangements with the System Operator. All such agreements and subsequent modifications shall

be filed with the System Operator in advance.

- 7.4.8 It shall be incumbent upon the generating stations to declare the plant capabilities faithfully, i.e., according to their best assessment. The generating stations based on the past historical data/records as well as with the data gauge available for inflows shall estimate the hourly inflow pattern for declaration of the day-ahead plant capability in terms of energy and power.
- 7.4.9 The energy meters on all interconnections with the Distribution Licensees and with generators and other identified points for recording of actual bilateral energy exchange and reactive energy drawals shall be installed. The type of meters to be installed, metering scheme, metering capability, testing and calibration requirements and the scheme for collection and dissemination of metered data shall be in accordance with Annexure 3.
- 7.4.10 The System Operator shall be responsible for computation of actual energy export/import of each generating stations and at each distribution point. All computations carried out by the System Operator shall be open to all the utilities for checking and verification for a period of fifteen (15) days. In case any mistake/omission is detected, the System Operator shall forthwith make a complete check and rectify the same.
- 7.4.11 The System Operator, in order for periodic review from the actual deviation from the dispatch and net schedules being issued shall check the hourly logbooks maintained by the aforesaid agencies and prepare a report of deviations from schedules. This may enable the System Operator to refine the future demand estimation and issue correct schedules. All the agencies shall furnish such details to the System

Operator whenever the same is sought for such information.

7.5 Scheduling and dispatch procedure

- 7.5.1 All the generating stations synchronized with the Transmission System and whose scheduling shall be done by the System Operator shall be duly listed. The station capacities and any contracted shares by the generating stations shall also be listed.
- 7.5.2 By 0900 hours on each day all the hydroelectric stations shall estimate their respective inflows and assess their respective energy capability as well as the maximum ex-bus power deliverable based on the number of machines available. Generating stations with their own system demands such as auxiliary and colony loads shall also estimate the hourly demand pattern for such load and any other constraints including maintenance that might cause a restriction in generation in any period during the next day. The total energy capability and anticipated hourly power capability that can be delivered to the Transmission System, on an Ex-Power Plant basis, shall be calculated after deducting the above local demands. A sample format for presenting the availability is shown at Annexure 1.
- 7.5.3 By 0930 hours every day, all generating stations directly connected to the Transmission System shall advise the System Operator of the station-wise Ex-Power Plant demand and energy capabilities (in the sample format of Form 1) foreseen for the period from 0000 hours to 2400 hours of the following day.
- 7.5.4 The Distribution Licensees and Large Customers who do not purchase from Distribution Licensees shall communicate their forecasted demand on the Transmission System for the next day, net of supply

from embedded generators, on an hourly basis to the System Operator by 0930 hours each day.

- 7.5.5 Embedded generators shall communicate their expected energy and power capability to the System Operator by 0930 hours for record purposes.
- 7.5.6 The capabilities of each of the generating stations and the corresponding hourly estimated demand of the entire Power System shall be compiled by the System Operator every day for the following day. A format for compilation for such information by the System Operator is enclosed at Annexure 2. A copy of Annexure 2 shall be forwarded by the System Operator to ERLDC.
- 7.5.7 Until the East and West Grids are interconnected inside Bhutan, the day-ahead demand on the Eastern Grid and that of Western Grid shall be estimated by the System Operator separately on an hourly basis.
- 7.5.8 By 1130 hours, the System Operator shall advise the ERLDC of the expected cross-border transfer at Salakati in India. The cross-border transfer at Salakati shall be arrived at subtracting the demand on the Eastern Grid and notional transmission loss from the ex-power plant energy available to the Eastern Grid.
- 7.5.9 Similarly by 1130 hours, the System Operator shall advise ERLDC of the expected cross-border transfer at Birpara and Binaguri in India. The cross-border transfer at Birpara and Binaguri shall be arrived at subtracting the demand on the Western Grid and notional transmission loss from the ex-power plant energy available to the Western Grid
- 7.5.10 By 1330 hours, the ERLDC shall inform the System Operator of any modifications required in the cross-

border transfers arising from any anticipated transmission constraints. ERLDC, in finalizing the dispatch schedule for its own system, shall reconfirm the same to the System Operator by 1730 hours (i.e. 1700 hours IST).

- 7.5.11 The System Operator by 1800 hours shall issue the hourly schedule of generation to each of the generators, excluding embedded and off-grid generators.
- 7.5.12 The System Operator by 1800 hours shall also issue a Net Drawal Schedule for Distribution Licensees. Until the Eastern and Western Grids are connected inside Bhutan, the System Operator shall however, prepare the Net Drawal Schedule for Eastern and Western Grids separately.
- 7.5.13 While finalizing the above daily dispatch schedules for the generating stations the System Operator shall ensure that the same are operationally reasonable, particularly in terms of maintaining optimum efficiency, avoiding problems due to cavitations etc. The generators are required to furnish the System Operator the typical ramping up/down rate capabilities of their machines.
- 7.5.14 In case of Forced Outage of a unit, the System Operator shall revise the schedules on the basis of revised declared capability by the concerned generator. Where such revision affects the cross-border transfers, the generator shall communicate the revision to the System Operator in Bhutan who shall then forward the information to ERLDC.
- 7.5.15 In the event of bottleneck in evacuation of power due to any constraint, outage, failure or limitation in the

Transmission System, associated switchyard and sub-stations owned by the Transmission Licensee, sudden demand change by the Distribution Licensees or Large Consumers, the System Operator shall revise the schedules and advise the ERLDC.

- 7.5.16 In case of any Transmission System disturbance within Bhutan, the scheduled generation of all Generators and scheduled drawal by the Distribution Licensees and Large Consumers shall be deemed to have been revised to be equal to their actual generation/drawal for the period affected. Certification of Transmission System disturbance and its duration shall be done by the System Operator.
- 7.5.17 Revision of declared capability by the Generating stations (exporting power to Indian Transmission System) for sudden increase or decrease in inflows for the remaining period of the day shall also be allowed with advance notice. The concerned generator may advise the System Operator in Bhutan of such revision who shall then forward the information to ERLDC.
- 7.5.18 If, at any point of time, the System Operator observes that there is need for revision of the schedules in the interest of better system operation, it may do so on its own initiative.
- 7.5.19 After 2400 hours, the schedule finally implemented during the day (taking into account all ex-ante changes in dispatch schedule of generating stations and Drawal Schedule of the Distribution Licensees and Large Customers) shall be issued by the System Operator. These schedules shall be compared to the actual generation /drawal for the purpose of refinement of demand estimation.

7.5.20 The System operator shall properly document all the above information i.e. station-wise foreseen ex-power plant capabilities advised by the generating stations, the Drawal Schedules for all Distribution Licensees as issued and all revisions with reasons thereof.

7.5.21 The procedure for scheduling and the final schedules issued by the System Operator shall be open to all concerned for any checking and verification, for a period of five (5) days. In case any mistake or omission is detected, the System Operator shall forthwith make a complete check and rectify if necessary.

7.6 Reactive Power and Voltage Control

7.6.1 Reactive power compensation should ideally be provided locally, by generating reactive power as close to the reactive power consumption as possible. The utilities are therefore expected to provide local reactive power compensation/generation such that they do not draw reactive power from the Transmission System, particularly under low-voltage conditions.

7.6.2 Notwithstanding the above, the System Operator may issue instructions to the generators to generate or absorb reactive power as per their capability curves in order to control the voltage level. The System Operator may also instruct switching in/out of lines/transformers in order to control the voltage level. The security and reliability criteria need be critically examined while issuing such switching instructions.

7.6.3 In general, the Distribution Licensees shall endeavour to minimize the reactive power drawal at an interchange point when the voltage at that point is

below 95% of rated, and shall not return reactive power when the voltage is above 105%. ICT taps at the respective drawal points may be changed to control the reactive power interchange as per a Distribution Licensee's request but only at reasonable intervals. The System Operator shall periodically review the reactive power drawal/injection at the distribution points and may suggest programmes for installation of Reactors/Capacitors.

- 7.6.4 Switching in/out of all bus and line reactors, and shunt capacitors throughout the Transmission System shall be carried out as per instructions of the System Operator. Tap changing on all ICTs up to 66/33 kV shall also be done as per the System Operator's instructions only.

8 Management of Grid Code Regulation

8.1 Introduction

- 8.1.1 The Grid Code Regulation is a regulation issued by the Authority under Section 89 of the Act.
- 8.1.2 Any amendments to the Grid Code Regulation shall also be specified by the Authority only.

8.2 Objective

This Section defines the method for managing the Grid Code Regulation, pursuing of any change/modifications and the responsibilities of the concerned to effect that change.

8.3 Scope

The Authority shall be responsible for managing the Grid Code Regulation.

8.4 Management of Grid Code Regulation

- 8.4.1 The Grid Code Regulation and any amendments shall be finalised and notified according to the prescribed

procedure issued by the Authority.

- 8.4.2 The request for amendments or modifications to the Grid Code Regulation and for removal of difficulties shall be addressed to the Authority for periodic consideration, consultation and disposal.
- 8.4.3 Any dispute or query regarding interpretation of Grid Code Regulation may be addressed to the Authority and clarifications issued by the Authority shall be taken as final and binding on all concerned.

Annexure I: Availability Declaration

(To be sent to the System Operator by the Generators in accordance with Section 7.5.3)

MSG NO _____ DATE _____

TOO: _____ (BST)

EXPECTED EX-POWER PLANT AVAILABILITY DECLARATION
FOR HYDRO STATIONS FOR DATE _____

<i>Anticipated Ex-Power Plant power and energy availability for the day</i>				
Power Station:	Tala	Chukha	Basochu	Kurichu
Expected Maximum Ex-Power Plant Power (MW)				
Expected Ex-Power Plant Energy (MWh)				
Anticipated in-flow (m ³ /s)				

<i>Anticipated line constraints/ outages / other constraint, if any</i>			
Tala	Chukha	Basochu	Kurichu

Anticipated hourly Ex-Power Plant availability for the day (MW)

Hour	Tala	Chukha	Basochu	Kurichu
0000				
0100				
0200				
0300				
0400				
0500				
0600				
0700				
0800				
0900				
1000				
1100				
1200				
1300				
1400				
1500				
1600				
1700				
1800				
1900				
2000				
2100				
2200				
2300				

(SIGNATURE)

(OFFICER IN CHARGE)

Annexure 2: Consolidated Availability

MSG NO _____ DATE _____

TOO: _____ (BST)

EXPECTED TRANSMISSION SYSTEM AVAILABILITY FOR DATE _____

Transmission System (East/West/Total)				All figures in MW		
Hour	Total Ex- Power Plant Availability	Total Ex- Transmission System	Domestic Transmission System Losses	Total available for Export Ex- Power Plant	Export Transmission System Losses	Total available for export at border
	A	B	C	D=A-B-C	E	D-E
0000**						
0100						
0200						
0300						
0400						
0500						
0600						
0700						
0800						
0900						
1000						
1100						
1200						
1300						
1400						
1500						
1600						
1700						
1800						
1900						
2000						
2100						
2200						
2300						

* Negative figure indicates an import requirement

** 0000 hrs means midnight

Annexure 3: Metering Philosophy

1. The energy meters of uniform technical specification shall be provided so as to permit accounting of the energy transactions at actual drawal /injection from one Licensee to other Licensee system.
2. The main meter and check meter shall be provided on all the outgoing feeders from the bus-bars of the generating switchyard to measure and record the energy delivered to the Grid. The main & check meter shall be connected to same core of CTs & VTs.
3. The Main Energy Meter shall be owned by the Licensee in whose premises the meter is located and the check meters shall be owned by the other Licensee. For the Energy meters already installed at various metering points the present system of ownership of meters may be continued. For any future addition/replacement of the meters, the concerned Agencies shall provide and install the same.
4. The main energy meters shall be used for billing provided the main meters have been in continuous service throughout the month. If any one or more main meters have been removed from service for repairs or have not registered energy supply for any duration of time, the reading of the corresponding check meter or meters shall be taken as basis for billing. The owners of the meters shall be responsible for maintenance of the meters.
5. If the reading of the main meter(s) installed differ from the corresponding check meter(s) by more than $\pm 0.6 \%$, for class of 0.2 accuracy meter then the main and check meters shall be taken up for joint calibration. Energy figures recorded by the main meter for the month concerned shall be revised accordingly if the overall error on the main meter exceeds the above said percentage on actual testing. In the event any meter is removed from calibration/testing, the relevant Agency shall substitute the meters and to be jointly witnessed.

6. Pending results of such testing being available, the billing shall continue to be based on the energy recorded by the main meter(s).
7. All the energy meters installed on feeders of 66kV and above shall be of a minimum accuracy class of 0.2 and accuracy class 0.5 for 33kV and below. In future, as and when the meters are replaced, efforts shall be made to install higher accuracy class energy meters.
8. All the main and check meters shall be tested and calibrated annually as per prevailing standards in the country, jointly by the concerned Agencies. The cost of testing /calibration of the energy meters shall be borne by the respective owner of the energy meters.
9. The concerned representatives shall record the energy meter reading(s) at 1230 hours (BST) on the 1st of every calendar month. Recording of energy meter readings shall be done jointly by the authorized representatives of the concerned Agencies. Any error beyond permissible value observed in the meters shall be set right by joint calibration of the meters.
10. The current and voltage transformers to which the above meters are connected shall have a measurement accuracy class of 0.5 or better.
11. The meter shall be totally sealed and tamper proof, with no possibility of any adjustments at site, except for a restricted clock operation. The harmonic shall preferably be filtered out while measuring and only fundamental frequency quantities shall be measured/computed.

Approved in the Ninth Commission Meeting held on the 21st day of the 2nd Month of the Male Earth Rat Year corresponding to 28th March 2008.

Bhutan

Generation and Transmission Tariffs

Bhutan Electricity Authority



Tariff Determination Regulation 2016 (Updated on July 2016)

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TARIFF DETERMINATION REGULATION 2016

In exercise of the power vested by Section 11.1(i) (b) of the Electricity Act of Bhutan, 2001; in order to provide for the determination of electricity prices, the Bhutan Electricity Authority hereby adopts the Tariff Determination Regulation 2016 as follows:

CHAPTER I PRELIMINARY

Title and Commencement

1. This Regulation shall:
 - (1) Be cited as the Tariff Determination Regulation 2016; and
 - (2) Come into force with effect from April 2016.

Scope

2. This Regulation shall apply to all Licensees including:
 - (1) Generation Licensee;
 - (2) Transmission Licensee;
 - (3) Distribution and Supply Licensee; and
 - (4) System Operation Licensee.
3. Notwithstanding Clause 2 of this Regulation, all electricity tariffs for sale of electricity shall comply with the terms of this Regulation, except for:
 - (1) Import of electricity from other countries;
 - (2) Export of electricity to other countries; and
 - (3) Sale of electricity from generators under Power Purchase Agreements.

Objective

4. The objective of this Regulation is to provide for the determination of electricity prices in accordance with the Electricity Act of Bhutan, 2001 and the Domestic Electricity Tariff Policy 2016.

Exemption

5. The Authority may, in particular cases, give dispensation from this Regulation.

Repeal

6. This Regulation repeals the Tariff Determination Regulation 2007. However, the prevailing Schedules A-F of the Tariff Determination Regulation 2007 shall continue to be in force until updated and notified by the Authority.

CHAPTER II

GENERAL CONDITIONS AND TARIFF PRINCIPLES

7. No Licensee shall levy any tariff or charges for generation, transmission, distribution and supply or system operation to any other person or entity without the approval of the Authority, with the exception of generation tariffs regulated by power purchase agreements.
8. The Licensee shall levy tariffs at specific connection points and tariffs shall be independent of distance to the customer.
9. The Authority shall determine tariffs according to the following principles, in accordance with Section 14.1 of the Electricity Act:
 - (1) Fairness to both service customers and service providers;
 - (2) No unjust discrimination against service providers or those who wish to use the services;
 - (3) Reflect the actual cost of efficient business operation;
 - (4) Conducive to efficiency improvement in business operation;
 - (5) Enhance efficient and adequate supply to satisfy the domestic demand; and
 - (6) Transparency in the determination and presentation of tariffs.
10. The Authority shall announce the tariffs publicly and disseminate in such a way that the public can examine the determination of tariffs.
11. Any deviations from the tariff principles set out in Clause 9 of this Regulation shall be in accordance with subsidy policies of Government.

CHAPTER III

TARIFF APPROVAL PROCESS

12. The Licensee shall submit their investment plans for the upcoming tariff period to the Authority, at least nine months prior to the expiry of the current tariff period.
13. The Licensee shall submit application for a revised Tariff Schedule along with complete set of documents, at least four months prior to the expiry of the current tariff period.
14. The Authority shall review the tariff in accordance with this Regulation, and shall result in the determination of Average Prices for each Customer Group.
15. The Authority shall determine efficiency and productivity targets to be used in tariff determination at each tariff review.
16. The Licensee shall provide the necessary information to conduct the tariff review.
17. The Authority may hold a public hearing in accordance with the Annexure I of this Regulation.
18. The Tariff Schedule as approved by the Authority shall be consistent with the Average Prices determined in accordance with this Regulation.
19. The Authority shall set the date on which the new Tariff Schedule shall apply, and the duration of its application.
20. If the Authority fails to approve a new Tariff Schedule prior to the expiry of the prevailing Tariff Schedule, the prevailing Tariff Schedule may be adjusted by average twelve months consumer price index and continue to be in force until such time a new Tariff Schedule is approved.

Interim tariff applications

21. Notwithstanding Clause 19 and Clause 25 of this Regulation, a Licensee may apply to the Authority for an interim tariff adjustment prior to the expiry of the prevailing Tariff Schedules, should the business environment of the licensee be substantially and significantly different from that assumed when the preceding tariff application was made.
22. Should the Authority not concur that the business environment has changed in significant and substantial ways, then the interim tariff application shall be declined and the prevailing Tariff Schedule shall remain in force. Otherwise, the Authority shall consult with affected parties and issue a revised Tariff Schedule that shall come into force on the date determined by the Authority and shall remain in force until the end of the current Tariff Period.

23. The Authority shall provide a written response to the interim tariff application within sixty days of the application.

CHAPTER IV

FORM OF ECONOMIC REGULATION

24. The Authority shall approve a Tariff Schedule for each Licensee that sets the maximum tariffs that shall be charged.
25. The Tariff Schedule so established shall apply for the duration of the Tariff Period, with appropriate indexing or other adjustments over the course of the Tariff Period.
26. Where the cost of supply for a Customer Group not eligible for subsidy are determined by the Authority to be significantly different from prevailing tariffs, the Authority may make suitable transition arrangements in order to ensure tariff stability.
27. Where the cost of supply for a Customer Group eligible for subsidy are determined by the Authority to be significantly different from prevailing tariffs, the Authority shall recommend a subsidy schedule to Government to ensure tariff stability.
28. There shall be no reconciliation of revenues accrued against costs incurred in the preceding Tariff Period in the determination of tariffs for the subsequent Tariff Period.
29. The cost of supply shall provide for an allowance for operating and maintenance costs, and not the actual operating and maintenance costs.
30. For generation Licensees, the determination of tariffs shall provide for an allowance for auxiliary consumption at the power stations as well as a target for water utilization.
31. For transmission, distribution and supply Licensees, the costs of supply shall provide for an allowance for technical losses, commercial losses and non- payment.

CHAPTER V

COST OF SUPPLY METHODOLOGY

32. The Authority shall determine the costs of supply for the forthcoming Tariff Period for the Licensee.
33. The scope of costs shall include:
 - (1) Operation and maintenance costs;
 - (2) Depreciation;
 - (3) A return on fixed assets, including an allowance for company taxation;
 - (4) Power purchases and fuel costs for electricity generation, should either of these be applicable;
 - (5) The cost of losses and non-payment of electricity bills;
 - (6) The cost of working capital; and
 - (7) Any regulatory fees, duties or levies that the Licensee is liable to pay under the Laws of Bhutan.

Determination of Operation and Maintenance costs

34. The operation and maintenance allowance shall incorporate expenses including but not limited to salaries and wages, transportation expenses, insurance of assets, maintenance expenses, office materials, rentals, consumables and all such expenses that are treated as recurrent costs under standard accounting practices.
35. The operation and maintenance allowance shall not include Corporate Social Responsibility expenses.
36. The incomes from rent and hires stemming from activities financed through costs that are included in the historical costs and asset schedule shall be deducted from the allowance.
37. The determination of the operation and maintenance allowance shall take into consideration historical costs, as adjusted for inflation, incurred by the Licensee; industry benchmarks applicable to the Licensee, as set out in Schedule A of this Regulation; opportunities for efficiency improvements; and may include comparison with benchmarks from comparable utilities in the region.
38. The determination of the operation and maintenance allowance shall take into consideration additional costs associated with new assets and growth in the customer base, using appropriate industry benchmarks applicable to the Licensee, as set out in Schedule A of this Regulation.
39. The operation and maintenance benchmarks for new assets shall be maintained lower than that of older assets.

40. The Authority may include in the operation and maintenance allowance provision for asset write-offs not covered by insurance, and may spread such write-offs over two tariff periods should the extent of the write-off significantly influence the objective of tariff stability.

Determination of Asset Values

41. Asset values used to determine depreciation charges and the return on net fixed assets shall be based on historical asset values.
42. Assets owned by the Licensees but not in use and/or which are not used for generation, transmission or distribution of electricity shall not be considered for tariff determination. The Licensee shall maintain a register for the assets which fall under the above category and furnish justifications at the time of tariff review.
43. The determination of asset additions shall take into consideration the investment plans of the Licensee. These investment plans shall be submitted to the Authority for scrutiny during the tariff review.
44. The cost of investments made as per national plans but not utilized on account of the reasons beyond the control of the Licensees, shall be spread out across all customer groups as per Schedule F of this Regulation. The Licensee shall maintain a register for the assets which fall under the above category and furnish justifications at the time of tariff review.
45. The asset additions with regard to hydropower and associated transmission systems including expansion and up-gradation thereof which are not approved by the Department of Hydropower and Power Systems and the asset additions with regard to rural electrification, small/mini/micro hydro 25 MW and below, non-conventional renewable energy resources including expansion and up-gradation thereof not approved by Department of Renewable Energy shall not be considered for tariff determination.
46. In the determination of depreciation and the return on net fixed assets, the Authority shall make allowance for asset additions and asset disposals and other asset value adjustments over the course of the Tariff Period.
47. In the determination of asset values, the Authority shall allow interest accrued during construction and associated labour costs to be capitalized, in accordance with standard accounting practices.
48. Where a Licensee replaces components of a capital nature, these components shall be treated as asset additions and not maintenance expenses.

Determination of Depreciation

49. The allowance for depreciation shall be based on the economic lifetime of the assets, in accordance with Schedule B of this Regulation.
50. The allowance for depreciation shall take into consideration asset additions and retirements over the Tariff Period.
51. Where a Licensee purchases replacement components of a capital nature, including replacement turbines at hydropower generating stations, these components shall be depreciated over the expected economic lifetime of the asset under the specific circumstances of the Licensee.
52. Under circumstances when the Licensees are in difficulty in meeting the debt service obligation, accelerated depreciation may be allowed during the initial debt servicing period. This allowance will only be made where it is necessary to ensure the financial viability of the Licensee.

Determination of Return on Assets

53. The return on assets shall be determined as the product of the Weighted Average Cost of Capital and the net asset values at the start of any year.

Determination of the Cost of Working Capital

54. The amount of working capital shall include a reasonable allowance for inventories and arrears and shall be allocated across Customer Groups.
55. The Authority shall determine the interest on working capital based on the prevailing lowest short term lending rate of a financial institution in Bhutan at the time of the tariff review.
56. The cost of working capital shall be determined as the product of the interest on working capital, as determined in accordance with Clause 55 of this Regulation and the amount of working capital.

Determination of the Cost of Losses

57. The Authority shall determine the losses by taking into consideration both technical and commercial losses, in accordance with Schedule E of this Regulation, and it shall be expressed as a Loss Factor being the combination of technical and commercial losses.
58. Technical losses shall be differentiated for each Customer Group as a function of the voltage level of supply.
59. A single commercial loss factor shall apply for all Customer Groups.

60. The cost of losses shall be determined as the product of the Loss Factor, differentiated for each Customer Group, and the marginal cost of power purchases.
61. The Average Price determined for each Customer Group shall take account of a Collection Rate, common for all Customer Groups, which shall reflect the targeted rate of collections set by the Authority over the Tariff Period.

Determination of Allocation Factors

62. The Authority shall determine the allocation factors for the assets and associated costs like operation and maintenance costs, inventories, fees and levies and system operation shall be allocated to Customer Group based on the following guidelines:
 - (1) Where assets and associated costs are exclusively used by a particular Customer Group, the same shall be allocated fully to this Customer Group;
 - (2) Where assets and associated costs are for export purpose, the entire cost shall be allocated to that Customer Group;
 - (3) Where generation, transmission and distribution assets and their associated costs are meant for joint usage by different Customer Groups, the allocation factor shall be based on capacity demand; and
 - (4) From the above Clauses 62 (1), 62(2) and 62(3) of this Regulation, weighted average allocation factors for all the Customer Groups shall be determined for allocating assets and associated costs that do not fall under the above three items including fees and levies of the Authority.

CHAPTER VI

APPLICATION OF SUBSIDY

63. Upon determination of the Average Price for each Customer Group, where the costs of supply for Customer Group eligible for subsidy are determined by the Authority to be significantly different from prevailing tariffs, the Authority shall recommend a subsidy schedule to the Ministry.
64. In recommending the subsidy schedule to the Ministry, the Authority shall be guided by the subsidy allocation principles of the Government.
65. The Authority shall implement subsidies as approved by the Government.

CHAPTER VII

DETERMINATION OF GENERATION PRICES

Determination of the average cost of supply

66. The Weighted Average Cost of Capital for the generation Licensee shall be calculated as follows:

$$WACC_g = \frac{CoE_g(1 - Gearing_g)}{1 - Tax} + (CoD_g \times Gearing_g)$$

Where,

- (1) $WACC_g$ is the weighted average cost of capital for the Generation Licensee “g”, as a percentage;
 - (2) CoE_g is the cost of equity, as set out in Schedule C of this Regulation, as a percentage for the Generation Licensee “g”;
 - (3) $Gearing_g$ is the ratio of debt to total net fixed assets, as set out in Schedule C of this Regulation for the Generation Licensee “g”;
 - (4) CoD_g is the actual cost of debt for the tariff period for the Generation Licensee “g”, as a percentage, being the weighted average interest rate of the Licensee’s loans with suitable allowance made for currency risk of any loans not made in local currency, provided that the cost of debt should not exceed reasonable benchmarks; and
 - (5) Tax is the prevailing rate of company taxation, as a percentage.
67. The total cost of supply for a Generation Licensee in any year shall be determined as:

$$TC_g = OM_g + DEP_g + RoA_g + RoWC_g + FEES_g$$

Where,

- (1) TC_g is the total cost of supply of the Generation Licensee “g”, in million Ngultrum;
- (2) OM_g is the allowance for operating and maintenance costs of the Generation Licensee “g”, in million Ngultrum;
- (3) DEP_g is the allowance for depreciation of assets for the Generation Licensee “g”, in million Ngultrum;
- (4) RoA_g is the return on fixed assets of the Generation Licensee “g”, in million Ngultrum, determined as:

$$RoA_g = WACC_g \times NA_g$$

Where,

- i) $WACC_g$ is the weighted average cost of capital for the Generation Licensee “g”, as determined in accordance with Clause 66 of this Regulation; and
- ii) NA_g is the net value of all fixed assets at the start of the year for the Generation Licensee “g”, in million Ngultrum.

(5) $RoWC_g$ is the return on Working Capital for the Generation Licensee “g”, in million Ngultrum. The return on working capital shall cover the allowance for arrears and inventories, and shall be calculated as follows:

$$RoWC_g = I * \left[REV_g \times \frac{ARREARS_g}{365} + INVENTORIES_g \right]$$

Where,

- i) I is the interest rate for working capital as determined in Clause 55 of this Regulation;
- ii) $REV_g = OM_g + DEP_g + RoA_g$
- iii) $ARREARS_g$ is the allowed days receivables for the Generation Licensee “g”, in days; and
- iv) $INVENTORIES_g$ is the allowance for inventories for the Generation Licensee “g”, in million Ngultrum.

(6) $FEES_g$ is the allowance for regulatory fees and levies of the Generation Licensee “g”, in million Ngultrum.

68. The annual energy volumes shall be determined as the mean annual energy generation of the past three years based on 98% water utilization factor to the extent of generation capacity less royalty energy adjusted for auxiliary consumption, determined as follows:

$$ENERGY = \sum_i ENERGY_i \times (1 - AUX_i) \times (1 - ROYALTY_i)$$

Where,

- (1) $ENERGY$ is the annual energy volume in any year, in GWh;
- (2) $ENERGY_i$ is the average historical mean annual energy generation of the past three years for plant “i”, in GWh;
- (3) AUX_i is the allowance for auxiliary consumption at plant “i”, as set out in Schedule D of this Regulation, as a percentage; and
- (4) $ROYALTY_i$ is the free energy which is made available to RGoB by plant “i”, as a percentage.

69. The average cost of supply shall be taken as the ratio of the discounted annual costs of supply to the discounted energy volumes, with discounting applied over the Tariff Period using the $WACC_g$, as follows:

$$AC_g = \frac{\sum_{n=1}^{TP} TC_{g,n} / (1 + WACC_g)^n}{\sum_{n=1}^{TP} ENERGY_n / (1 + WACC_g)^n}$$

Where,

- (1) AC_g is the average cost of supply for the Generation Licensee “g”, in Ngultrum per kWh;
- (2) TP is the number of years in the Tariff Period;
- (3) $TC_{g,n}$ is the total cost of supply of generation Licensee “g” in year “n” in million Ngultrum, as determined in accordance with Clause 67 of this Regulation;
- (4) $ENERGY_n$ is the energy volume in year “n” in GWh, as determined in accordance with Clause 68 of this Regulation; and
- (5) $WACC_g$ is the weighted average cost of capital for the Generation Licensee “g”, as determined in Clause 66 of this Regulation.

CHAPTER VIII

DETERMINATION OF END-USER PRICES

70. The Authority, in its tariff review undertaken in accordance with Chapter III of this Regulation, shall determine an Average Price for each Customer Group applicable for the Tariff Period.
71. All customers connected to a common voltage level shall comprise one Customer Group for the purposes of determining Average Prices. Within each Customer Group, different tariff structures for different customer categories may be created by the Licensee to implement the subsidy policies of Government.
72. The Weighted Average Cost of Capital for each Customer Group shall be calculated as follows:

$$WACC_C = \frac{CoE(1 - Gearing_C)}{1 - Tax} + (CoD_C \times Gearing_C)$$

Where,

- (1) $WACC_C$ is the weighted average cost of capital for the Customer Group “C”, as a percentage;
- (2) CoE is the cost of equity, as set out in Schedule C of this Regulation, as a percentage for the Licensee;
- (3) $Gearing_C$ is the ratio of debt to total net fixed assets, as set out in Schedule C of this Regulation for the Customer Group “C”;
- (4) CoD_C is the actual cost of debt related to assets utilized by the Customer Group “C”, as a percentage, being the weighted average interest rate of the Licensee’s loans with suitable allowance made for currency risk of any loans not made in local currency, provided that the cost of debt should not exceed reasonable benchmarks; and
- (5) Tax is the prevailing rate of company taxation, as a percentage.

Allocation of Network Costs

73. The total annual network costs of the Licensee shall comprise the sum of the allowance for return on assets, the allowance for depreciation, the operating and maintenance allowance and any allowances for fees and levies.
74. Annual network costs allocated to each Customer Group shall comprise a share of each element of the total annual network costs, where the sum of allocations across all Customer Groups shall equal the total annual network costs referred to Clause 73 of this Regulation, in accordance with the following:

$$NETWORK_C = WACC_C \times \sum_i [ASSET_i \times AALLOC_{i,C}] + \sum_i [DEP_i \times AALLOC_{i,C}] + \sum_i [OM_i \times AALLOC_{i,C}] + FEES \times FALLOC_C$$

Where,

- (1) NETWORK_C is the network cost allocated to Customer Group “C”, in million Ngultrum;
- (2) WACC_C is the Weighted Average Cost of Capital for Customer Group “C” for the Licensee, determined in accordance with Clause 72 of this Regulation, as a percentage;
- (3) ASSET_i is the net historical value of assets in asset category “i”, in million Ngultrum;
- (4) DEP_i is the depreciation allowance for assets in asset category “i”, in million Ngultrum;
- (5) OM_i is operating and maintenance allowance for cost category “i”, in million Ngultrum;
- (6) FEES is the allowance for regulatory fees and levies, in million Ngultrum;
- (7) AALLOC_{i,C} is the allocation factor to Customer Category “C” for asset-related costs in asset category “i”, as a percentage, where $\sum_c AALLOC_{i,c} = 1$;
- (8) OMALLOC_{i,C} is the allocation factor to Customer Category “C” for operating and maintenance costs in cost category “i”, as a percentage, where $\sum_c OMALLOC_{i,c} = 1$; and
- (9) FALLOC_C is the allocation factor for fees, as a percentage, where $\sum_c FALLOC_{i,c} = 1$

Allocation of the Cost of Working Capital

75. The allowance for the cost of working capital shall be determined as the interest on an allowance for working capital, where the allowance for working capital shall consist of an allowance for arrears and inventories.
76. The cost of working capital allocated to each Customer Group “C” shall comprise a share of the total cost of working capital, where the sum of allocations across all Customer Groups “C” shall equal the total cost of working capital referred to in Clause 75 of this Regulation, in accordance with the following:

$$RoWC_C = I * \left[REV_C \times \frac{ARREARS_C}{365} + INVENTORIES \times IALLOC_C \right]$$

Where,

- (1) RoWC_C is the return on working capital allocated to Customer Group “C” in million Ngultrum;
- (2) I is the interest rate for working capital as determined in Clause 55 of this Regulation;
- (3) REV_C = OM_C + DEP_C + RoA_C

Where,

- i) OM_C is the allowance for operating and maintenance costs for the Customer Group “C”, in million Ngultrum;
- ii) DEP_C is the allowance for depreciation of assets for the Customer Group “C”, in million Ngultrum; and
- iii) RoA_C is the return on fixed assets for the Customer Group “C”, in million Ngultrum, determined as:

$$RoA_C = WACC_C \times NA_C$$

Where,

- a) $WACC_C$ is the weighted average cost of capital for the Customer Group “C”, as determined in accordance with Clause 72 of this Regulation, as a percentage; and
 - b) NA_C is the net value of all fixed assets at the start of the year for the Customer Group “C”, in million Ngultrum.
- (4) $ARREARS_C$ is the allowed days receivables for the Customer Group “C”, in days;
- (5) $INVENTORIES_C$ is the allowance for the value of inventories, in million Ngultrum; and
- (6) $IALLOC_C$ is the allocation factor to Customer Group “C” for inventories, as a percentage, where $\sum_C IALLOC_{ic} = 1$.

Allocation of Cost of System Operator

77. The System Operator Cost shall be allocated to the customer categories based on energy consumption or wheeled, in accordance with Schedule F of this Regulation.
78. The WACC for the System Operator Licenses shall be calculated as follows:

$$WACC_S = \frac{CoE(1 - Gearing_S)}{1 - Tax} + (CoD_S \times Gearing_S)$$

Where,

- (1) $WACC_S$ is the weighted average cost of capital for the System Operator Licensee, as a percentage;
- (2) CoE is the cost of equity, as set out in Schedule C of this Regulation, as a percentage for the Licensee;
- (3) $Gearing_S$ is the ratio of debt to total net fixed assets, as set out in Schedule C of this Regulation, as a percentage for the System Operator Licensee;
- (4) CoD_S is the actual cost of debt for assets used by the System Operator Licensee as a percentage, being the weighted average interest rate of the Licensee’s loans with suitable allowance made for currency risk of any loans not made in local currency, provided that the cost of debt should not exceed reasonable benchmarks; and
- (5) Tax is the prevailing rate of company taxation, as a percentage.

79. The total cost for the System Operator Licensee in any year shall be determined as:

$$TC_s = OM_s + DEP_s + RoA_s + RoWC_s$$

Where,

- (1) TC_s is the total cost of supply of the System Operator Licensee, in million Ngultrum;
- (2) OM_s is the allowance for operating and maintenance costs of the System Operator Licensee, in million Ngultrum, including any regulatory and other fees;
- (3) DEP_s is the allowance for depreciation of assets of the System Operator Licensee, in million Ngultrum;
- (4) RoA_s is the return on fixed assets of the System Operator Licensee, in million Ngultrum, determined as:

$$RoA_s = WACC_s \times NA_s$$

Where,

- i) $WACC_s$ is the weighted average cost of capital for the System Operator, as determined in Clause 78 of this Regulation; and
 - ii) NA_s is the net value of all the fixed assets at the start of the year for the System Operator Licensee, in million Ngultrum.
- (5) $RoWC_s$ is the return on Working Capital for the System Operator Licensee, in million Ngultrum. The return on working capital shall cover the allowance for arrears and inventories, and shall be calculated as follows:

$$RoWC_s = I * \left[REV_s \times \frac{ARREARS_s}{365} + INVENTORIES_s \right]$$

Where,

- i) I is the interest rate for working capital as determined in Clause 55 of this Regulation;
 - ii) $REV_s = OM_s + DEP_s + RoA_s$;
 - iii) $ARREARS_s$ is the allowed days receivables for the System Operator Licensee, in days; and
 - iv) $INVENTORIES_s$ is the allowance for inventories for the System Operator Licensee, in million Ngultrum.
80. The Cost of System Operator shall be allocated to each Customer Group accordance with the following formula:

$$SOC_c = TC_s \times SOALLOC_c$$

Where,

- (1) SOC_C is the cost of System Operator Licensee allocated to Customer Group “C”;
- (2) TC_S is the total cost of the System Operator Licensee as determined in accordance with Clause 79 of this Regulation; and
- (3) $SOALLOC_C$ is the allocation factor to Customer Group “C” for System Operator related costs, as a percentage, where $\sum_c SOALLOC_{i,c}=1$.

Determination of domestic Power Purchase Price (PPP)

81. Upon determination of the domestic energy demand for the tariff period, the generation plants fully owned by Government as of 2015 shall be first allocated for domestic supply.
82. For the determination of the power purchase price from the generation plants fully owned by Government as of 2015, the weighted average generation cost shall be utilized.
83. In the event the fully owned Government plants as of 2015 are not able to meet the domestic demand, the plants with lowest cost of generations shall be selected to supplement the energy.
84. In the event of inadequate generation from all the fully Government owned plants to meet the domestic demand, the plants not fully owned by the Government with the lowest off-take rate shall be selected to supplement the energy.
85. The domestic Power Purchase Price, for determination of Average Costs, shall comprise of the weighted average of purchases from domestic generation plants at their Average Cost, as follows:

$$PPP = \frac{AC_{e,g} \times DOMESTIC_{e,g} + \sum_i [AC_{n,g} \times DOMESTIC_{n,g}]}{DOMESTIC_{e,g} + \sum_i DOMESTIC_{n,g}}$$

Where,

- (1) PPP is the domestic Power Purchase Price in Ngultrum per kWh;
- (2) $AC_{e,g}$ is the Weighted Average Cost of generation for the existing plants “e,g” as of 2015, calculated in accordance with Clause 69 of this Regulation;
- (3) $AC_{n,g}$ is the Average Cost for each new generation plant “n,g” in Ngultrum per kWh;
- (4) $DOMESTIC_{e,g}$ is the volume of electricity supplied to the Licensee by the existing generation plants “e,g” in GWh; and
- (5) $DOMESTIC_{n,g}$ is the volume of electricity supplied to the Licensee by each new generation plant “n,g”, in GWh.

Determination of Average Costs

86. The cost of supply for a Customer Group in a particular year shall be determined as the sum of energy purchase costs, valued at the domestic Power Purchase Price determined in accordance with Clause 85 of this Regulation, import price, network costs allocated to that Customer Group, the cost of Working Capital allocated to that Customer Group, System Operator cost less any Non-Tariff Revenue from that Customer Group, as follows:

$$COST_C = (1 + LOSS_C) \times PPP \times SALES_C + IP \times IMPORT \times IMALLOC_C \\ + NETWORK_C + RoWC_C + SOC_C - NTR_C$$

Where,

- (1) $COST_C$ is the cost of supply for Customer Group “C”, in million Ngultrum;
 - (2) $LOSS_C$ is the sum of technical and commercial losses allocated to Customer Group “C” as set out in Schedule E of this Regulation, as a percentage;
 - (3) PPP is the domestic Power Purchase Price, determined in accordance with Clause 85 of this Regulation, in Ngultrum per kWh;
 - (4) $SALES_C$ is the sales for the year attributed to Customer Group “C”, in GWh;
 - (5) IP is the average import price in Ngultrum per KWh;
 - (6) $IMPORT$ is the volume of electricity imported by the Transmission and Distribution Utility, in GWh;
 - (7) $IMALLOC_C$ is the allocation of import costs to Customer Groups, where $IMALLOC_C$ for the high voltage Customer Group equals one (1), and $IMALLOC_C$ for other Customer Groups equals zero;
 - (8) $NETWORK_C$ is the network costs allocated to Customer Group “C”, determined in accordance with Clause 74 of this Regulation, in million Ngultrum;
 - (9) $RoWC_C$ is the return on Working Capital allocated to Customer Group “C”, determined in accordance with Clause 76 of this Regulation, in million Ngultrum;
 - (10) SOC_C is the cost of System Operator allocated to Customer Group “C”, determined in accordance with Clause 80 of this Regulation, in million Ngultrum; and
 - (11) NTR_C is the estimated Non-Tariff Revenue for the year arising from Customer Group “C”, in million Ngultrum.
87. The Average Price for a Customer Group shall be determined as the ratio of the discounted costs of supply for that Customer Group to the discounted electricity sales to that Customer Group, where sales are adjusted for an allowed collection rate, and where discounting occurs over the Tariff Period at the WACC applicable to the Customers, as follows:

$$AP_C = \frac{\sum_{n=1}^{TP} COST_{C,n} / (1 + WACC_C)^n}{\sum_{n=1}^{TP} (SALES_{C,n} \times COLL) / (1 + WACC_C)^n}$$

Where,

- (1) AP_C is the Average Price for Customer Group “C”, in Ngultrum per kWh;
- (2) TP is the number of years in the Tariff Period;
- (3) $COST_{C,n}$ is the cost of supply allocated to Customer Group “C” in year “n”, as determined in accordance with Clause 86 of this Regulation in million Ngultrum;
- (4) $SALES_{C,n}$ is the volumes of electricity sales expected from Customer Group “C” in year “n”, in GWh;
- (5) COLL is the target collection rate set by the Authority for the Licensee, as a percentage; and
- (6) $WACC_C$ is the Weighted Average Cost of Capital for the Customer Group “C”, as determined in accordance with Clause 72 of this Regulation, as a percentage.

Allocation of net import cost for import through generation licensee

88. Any net monthly import cost to meet the shortfall of domestic supply shall be allocated to HV customers on a monthly basis. The monthly import cost shall be determined as follows:

$$IC_{i,n} = IMPORT_n \times \frac{SALES_{i,n}}{SUMSALES_n}$$

Where,

- (1) $IC_{i,n}$ is the monthly import cost allocated to the HV Customers “i” in a month “n”, in Ngultrum;
- (2) $IMPORT_n$ is the cost of net electricity imported by generation licensee in a month “n”, in Ngultrum;
- (3) $SALES_{i,n}$ is the volumes of electricity sales attributed to the HV customers “i” in a month “n”, in GWh; and
- (4) $SUMSALES_n$ is the sum of electricity sales to all HV customers in a month “n”, in GWh.

Principles for determining Tariff Schedules

89. In preparation of the Tariff Schedules, the Licensees shall be guided by the Clause 7.14 of the Domestic Electricity Tariff Policy 2016.
90. In the tariff applications, Licensees shall submit detailed Tariff Schedules, demonstrating that the expected revenue from electricity sales for each Customer Group is consistent with the Average Price for that Customer Group determined according to this Regulation. Any subsidies required to achieve the tariffs in the schedule shall be shown in Ngultrum per kWh per customer category.

CHAPTER IX MISCELLANEOUS

Amendment

91. The Authority may amend this Regulation from time to time as it deems fit.

Definition

92. In this Regulation unless the context otherwise provides:

- (1) **“Act”** means the Electricity Act of Bhutan, 2001;
- (2) **“Authority”** means the Bhutan Electricity Authority;
- (3) **“Average Price”** means a price in Ngultrum per kWh for each Customer Group that is determined by the Authority in its price reviews according to the provisions of this Regulation;
- (4) **“Bhutan Electricity Authority”** means the authority of that name established pursuant to Part 2 of the Act;
- (5) **“Customer Group”** means a group of customers, where each Customer Group is defined by the voltage at which supply is provided;
- (6) **“Domestic Supply”** means the generation, transmission or distribution of electricity for domestic consumption by way of the generation, transmission or distribution system respectively;
- (7) **“Gearing Ratio”** means the ratio of debt to total net fixed assets;
- (8) **“Government”** means the Royal Government of Bhutan;
- (9) **“GWh”** means one million kilowatt hours;
- (10) **“kWh”** means kilowatt hour, being a measure of electrical energy;
- (11) **“Licence”** means a licence issued under the provisions of Part 3 of the Act;
- (12) **“Licensee”** means any person issued with a licence pursuant to Part 3 of the Act;
- (13) **“Minister”** means the Minister who is the Head of the Ministry;
- (14) **“Ministry”** means the Ministry which is assigned responsibility for the electricity sector;

- (15) “**Ngultrum**” means the currency of the Kingdom of Bhutan;
- (16) “**Non-Tariff Revenue**” means revenue collected from Customers that does not arise from the sale of electricity, such as application fees, connection fees and meter test fees;
- (17) “**Power Purchase Agreement**” means a bilateral contract dealing with the sale and purchase of power and electrical energy;
- (18) “**Royalty Energy**” means the energy to be provided by a generation Licensee to the Royal Government of Bhutan of free of charges;
- (19) “**System Operator**” means the person/s designated by the Authority, whose function is defined under Section 39 of the Electricity Act of Bhutan, 2001;
- (20) “**Subsidy**” means a financial transfer from one entity to another in order to reduce the cost or price of services;
- (21) “**Tariff Period**” means the period, in a designated number of years, for which the approved tariffs shall apply;
- (22) “**Tariff Schedule**” means the detailed set of charges to be applied by a Licensee for provision of electricity supply services; and
- (23) “**WACC**” means the Weighted Average Cost of Capital determined in this Regulation.

Schedule A: Benchmarks for O&M costs

<i>Activity</i>	<i>Benchmark cost</i>
Large hydropower generation	1.0 to 1.5 percent of capital cost, adjusted by the change in the consumer price index since installation.
Micro and mini hydropower generation	2.5 percent of capital cost, adjusted by the change in the consumer price index since installation.
Diesel generation	10 percent of capital cost, adjusted by the change in the consumer price index since installation.
Transmission	1.0 percent of capital cost, adjusted by the change in the consumer price index since installation.
Distribution	3.0 percent of capital cost, adjusted by the change in the consumer price index since installation.
Others	2.0 percent of capital cost, adjusted by the change in the consumer price index since installation.

Schedule B: Depreciation rates

<i>SI. No.</i>	<i>Type</i>	<i>Sub type</i>	<i>Rate</i>
I	Buildings & land	Buildings	3.33 %
		Civil Structures	
		Land	0.00 %
II	Generation	Civil Works	3.33 %
		Electro-mechanical*	
		Mini and Micro Hydro Installations (<5 MW)	5.00 %
		Diesel Generating Sets	
III	Transmission	>= 220 kV Lines	3.33 %
		132 kV Lines	
		66 kV Lines	
		Transmission Substation Equipment	
IV	Distribution	33 KV Lines	3.33 %
		11 KV Lines	
		6.6 KV Lines	
		LV Lines	
		Distribution Substation Equipment	
V	Vehicles	Heavy Vehicles	15.00 %
		Light and Medium Vehicles	
		Earth Mover	
		Two Wheeler	
VI	Office Equipment	Computers & Accessories	20.00 %
		Printer	
		Photocopier	
		Overhead Projectors	
		Telecommunication Equipment	
		Other Office Equipment	
		Software	
		Furniture	10.00 %
VII	Tools	Tools & Plants	10.00 %
		Fire Fighting Equipment	
		Electrical Equipment	

* Note that turbine runners should be depreciated over the expected lifetime in the context of the water quality at each specific generator

Schedule C: Return Allowances

<i>Activity</i>	<i>Cost of Equity</i>	<i>Cost of Debt</i>	<i>Gearing Ratio</i>
Generation	15 per cent	Actual cost of debt	60 per cent
Export Wheeling	15 per cent	Actual cost of debt	60 per cent
HV	15 per cent	Actual cost of debt	60 per cent
MV	15 per cent	Actual cost of debt	70 per cent
LV	15 per cent	Actual cost of debt	70 per cent

Schedule D: Allowance for Auxiliary Consumption

<i>Item</i>	<i>Hydropower</i>
Auxiliary consumption	1.12 per cent

Schedule E: Loss Allowances

Loss allowances for the Customer Groups, namely Export Wheeling, HV, MV and LV are provided below:

<i>Item</i>	<i>HV/Export Wheeling</i>	<i>MV</i>	<i>LV</i>
Technical losses	2 %	2.5 %	12 %
Commercial Losses	0 %	0 %	1.15 %
Collection rate	100 %	100 %	100 %

Schedule F: Allocation Factors

The allocation factors for transmission, distribution and supply Licensees are presented below.

The allocation factors for transmission, distribution and supply Licenses are presented below.						
Items	Category		Export	HV	MV	LV
AALLOC _{i,c} Allocation of Asset related Costs	Buildings & land		20%	21%	11%	48%
	Generation	Mini/micro hydels	0%	0%	30%	70%
	Transmission	Civil structures	41%	42%	6%	11%
		400+ kV lines	99.5%	0.5%	0%	0%
		220 kV lines	45%	55%	0%	0%
		132 kV lines	39%	51%	3%	7%
		66 kV lines	0%	45%	14%	41%
		Substations	20%	56%	10%	14%
		Meters	41%	42%	6%	11%
		Smart grid hard ware	41%	42%	6%	11%
		Smart grid soft ware	41%	42%	6%	11%
		Distribution	Civil structures	0%	0%	15%
	33 kV lines		0%	0%	40%	60%
	11 kV lines		0%	0%	40%	60%
	6.6 kV lines		0%	0%	0%	100%
	L V lines		0%	0%	0%	100%
	Substations/transformer		0%	0%	0%	100%
	Meters		0%	0%	15%	85%
	Smart grid hard ware		0%	0%	15%	85%
	Smart grid soft ware		0%	0%	15%	85%
Others		20%	21%	11%	48%	
OM AALLOC _{i,c} Allocation of O & M Costs	Generation		0%	0%	30%	70%
	Transmission		41%	42%	6%	11%
	Distribution		0%	0%	15%	85%
	Other		20%	21%	11%	48%
IAALLOC i,c, Allocation of Inventories			20%	21%	11%	48%
FAALLOC i,c, Allocation of Fees & Levies			20%	21%	11%	48%

Annexure-I: Public Hearing Procedure

CHAPTER I PRELIMINARY

Title, Extent and Commencement

1. These procedure shall:
 - (1) Be cited as Public Hearing Procedure;
 - (2) Apply to licensees and electricity consumers; and
 - (3) Come into force with effect from 1st March 2016.

Purpose

2. This procedure is to outline the procedures for conducting the public hearing for electricity tariff determination in line with Bhutan Electricity Authority – Tariff Determination Regulation 2016, whenever the Bhutan Electricity Authority decides to conduct a public hearing for tariff determination.
3. This procedure is to provide an opportunity for licensees to present their electricity tariff application and to allow consumers to raise their views and comments over the licensees' electricity tariff applications.

Supersession

4. Any procedure with respective to the public hearing adopted by the Bhutan Electricity Authority shall be superseded by this public hearing procedure.

Authority for Amendment

5. This public hearing procedure shall be amended as and when deemed necessary by the Authority.

CHAPTER II PRE-PUBLIC HEARING PROCEDURE

Tariff Application

6. The Licensee shall submit the tariff application to the Bhutan Electricity Authority as per the provisions of the Tariff Determination Regulation 2016.
7. The Bhutan Electricity Authority shall undertake preliminary review of the tariff application submitted by the Licensees and accordingly, inform Licensees to submit further information/data required, if any.

Notice of Public Hearing

8. The Bhutan Electricity Authority shall upload the tariff application of the Licensees on its website at least twenty one calendar days prior to the public hearing.
9. The Bhutan Electricity Authority shall notify the actual date of public hearing in at least two widely circulated national newspapers including national TV and BEA's website twenty one (21) calendar days prior to the public hearing. The notification shall contain the following information but not limited to:
 - (1) Information from where the Bhutan Electricity Authority – Public Hearing Procedure for Electricity Tariff Determination and registration form(s) can be downloaded.
 - (2) Email address, mail address and fax number for the submission of the form.
10. The Bhutan Electricity Authority shall notify the venue and time of the public hearing in at least two widely circulated national newspapers, national TV and BEA's website at least three calendar days prior to the public hearing.
11. The rescheduling of venue, time and date of the public hearing shall not be undertaken unless some untoward emergency situation occurs and shall be notified to the public through at least one widely circulated national newspaper and national TV as soon as possible.

Registration

12. The participants who wish to attend the public hearing shall submit the duly filled registration **form A** to Bhutan Electricity Authority by e-mail/mail or fax.
13. The registration for the public hearing will be closed for the participants in seven calendar days prior to the public hearing.
14. The interested participants/consumer group wishing to make a presentation before a public hearing shall submit the duly filled registration **form B** by e-mail/mail or fax to Bhutan Electricity Authority at least ten calendar days prior to the public hearing. The participants/consumer group shall submit the presentation copy (hard and soft) along with the duly filled registration **form B**.

15. The selected participants/consumer group for the presentation will be informed through email/phone at least three calendar days prior to the public hearing.
16. Only the registered individuals and parties shall be allowed to attend the public hearing. The Bhutan Electricity Authority may, however, limit the number of participants to a manageable size upon ensuring that all consumer groups are represented for effective public hearing on first-come-first served basis. The consumers shall be categorized within one of the following groups:
 - (1) Low voltage consumers;
 - (2) Medium voltage consumers; and
 - (3) High voltage consumers.

CHAPTER III

PUBLIC HEARING PROCEDURE

General Procedures

17. The public hearing shall be presided over by the Chairman of the Bhutan Electricity Authority and in his absence it shall be presided over by any other member of the Commission appointed by the Bhutan Electricity Authority as a Chairman for that purpose.
18. The quorum required of the Bhutan Electricity Authority Commission for the public hearing shall be at least two-third.
19. The Chairman of the public hearing shall announce the rules of proceedings to ensure order in the house.
20. In order to expedite the public hearing proceedings, participant may nominate a representative to voice their common concerns or issues on behalf of consumer group.
21. All participants raising queries or expressing views shall identify themselves and clarify who they are representing.
22. All queries and expressed views shall be substantive and relevant to the tariff application. The Chairman shall intervene in any irrelevant or repetitive queries and views being expressed at the public hearing.
23. The Bhutan Electricity Authority shall conduct only the hearing and shall neither engage in any debate nor take part in any discussion on the tariff application or the preliminary tariff review result during the public hearing.
24. No other than Bhutan Electricity Authority shall record and maintain the public hearing proceeding.
25. When the public hearing is officially declared closed by the Chairman, no further comments and questions shall be taken into consideration.

Presentation by Licensees

26. The Licensees shall present its tariff application before the public and the said presentation shall not last more than 45 minutes.

Presentation by Consumers

27. The Bhutan Electricity Authority shall select one presentation from each consumer group for end user tariff application and one presentation for generation tariff application.

28. The selected presentation of the participants shall present their presentation before a public hearing. The presentation shall not last more than 45 minutes.

CHAPTER IV

POST PUBLIC HEARING

Comments and Clarifications

29. Any written comments shall be addressed to the Chief Executive Officer, Bhutan Electricity Authority, Post Box No. 1557, Thimphu within twenty one calendar days from the date of public hearing. Any comments received after twenty one calendar days shall not be entertained.
30. The Bhutan Electricity Authority may forward some of the relevant comments/queries to the Licensee for appropriate response(s).
31. The Bhutan Electricity Authority shall not provide any individual response to the written comments and queries raised.
32. The comments received during the public hearing and responses to the comments of consumer(s) by the licensee shall be taken into consideration during the tariff review process.

FORM A

REGISTRATION FORM FOR PUBLIC HEARING	
1. Full Name	
2. CID No./Work permit No/Visa No.	
3. Organization (individuals please write 'self')	
4. Present Address	
5. Email Address	
6. Contact Number	a. Mobile: b. Phone:

7. Please tick the hearing you want to attend

☐

BPC Public Hearing Only

☐

DGPC Public Hearing Only

☐

Both DGPC and BPC Public Hearings

8. Consumer Category

☐

Low Voltage (upto 400V)

☐

Medium Voltage (6.6/11/33 kV)

☐

High Voltage (66kV and above)

Date: _____

Applicant Signature

FORM B

REGISTRATION FORM FOR MAKING PRESENTATION AT PUBLIC	
1. Full Name	
2. CID No. CID No./Work permit No/Visa No.	
3. Organization (individuals please write 'self')	
4. Present Address	
5. Email Address	
6. Contact Number	a. Mobile: b. Phone:

7. Please select the presentation you want to make at the public hearing:

- Low Voltage (up to 400V) ☐
- Medium Voltage (6.6/11/33kV) ☐
- High Voltage (66kV and above) ☐
- Generation ☐

Date: _____

Applicant Signature

BHUTAN ELECTRICITY AUTHORITY

GUIDELINES FOR FILING TARIFF APPLICATIONS

2012

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1. INTRODUCTION

This Guideline outlines the procedure and format for the tariff applications to be used by the Licensees for filing tariff applications to the Bhutan Electricity Authority for the determination of electricity prices in accordance with the Tariff Determination Regulation. Section 2 of the Guideline outlines the procedures and submission requirements for a tariff application. Section 3 consists of a detailed description on the figures the Licensees shall submit in the application forms for filing tariff applications. Section 4 outlines the additional information the Authority requires from the Licensees for reviewing the tariff applications.

2. TARIFF APPLICATION

- 2.1 At least four months prior to the expiry of the period for application of prevailing tariffs charged by a Licensee, the Licensee shall, as per Section 4.1 of the Tariff Determination Regulation, file with the Authority a tariff application in the application form prescribed in the Section 3.
- 2.2 The application shall include the proposal for Miscellaneous Charges for the proposed tariff period and additional information outlined in Section 4.
- 2.3 The Licensee shall propose any necessary amendments to the Tariff Determination Regulation at least three months prior to the submission of the tariff application.
- 2.4 Every application for determination of tariff or for continuation of previously determined tariff shall be accompanied with a tariff application fee as specified in the Regulatory Fees Regulation.
- 2.5 The Licensees shall designate persons responsible for communication with the Authority and provide any necessary clarification or additional information on the tariff application. The Licensee shall provide the clarifications within the date stipulated by the Authority.
- 2.6 Any delay / non-submission of the tariff application / information may attract penalty / fines in accordance with the Section 11.1(vi) of the Electricity Act of Bhutan, 2001.
- 2.7 The Authority shall have the right to use the information submitted by the Licensees as it deems fit including publishing it or placing it on the Bhutan Electricity Authority website or directing the Licensee to display the information on the Licensee's website. The Authority may on request by the Licensee omit publishing any information due to security or trade secrecy reasons.
- 2.8 The Licensee shall submit two hard copies of the Tariff Application and related documents. In addition to the hard copies, the information shall be submitted in electronic form.

3. TARIFF APPLICATION FORMS

- 3.1 The information to be filed by the Licensee shall be in the forms prescribed below:
- i. Tariff application form for Generation Licensees as prescribed in Appendix 1. A Generation Licensee shall submit separate application forms for each plant and one consolidated application form for all plants owned by the Generation Licensee.
 - ii. Tariff application form for Transmission and Distribution Licensee as prescribed in Appendix 2.
- 3.2 The electronic copy of the application forms in Appendix 1 and 2 can be obtained from the Authority.
- 3.3 The Licensee shall propose a tariff period in the “Input” sheet in the application forms. The Reference Year is the last year for which all audited accounts are available.
- 3.4 The return on fixed assets is calculated as the Weighted Average Cost of Capital (WACC) and determined according to Section 6.6.3 in the Tariff Determination Regulation. The equation is the same for both Generation and Transmission and Distribution Licensees.
- i. The WACC is calculated in the “Input” sheet in both application forms by inserting the Cost of Debt and tax parameters.
 - ii. Cost of Equity and the gearing ratio are determined by the Authority.
 - iii. Cost of Debt;
 - a. The Cost of Debt is to be proposed by the Licensee, and shall be calculated as the weighted average interest rate of the Licensees’ current loans, loans which have zero interest rate, loans which will be availed during the tariff period and the Licensees’ liabilities to the customers (i.e. collected security deposits and capacity reserve charges).
 - b. The estimation of the average cost of debt shall be explained by the Licensee. The Licensee shall submit loan details along with legal documents, loan agreements, and contract terms and conditions.
 - c. The Cost of Debt of assets that are work in progress will be covered through Interest during Construction (IDC) at the actual rate and will be capitalized with asset values. The Licensee shall submit detail calculation of IDC. The Licensee shall include IDC when capitalizing the assets.

- iv. The Licensees shall insert the actual Corporate Income Tax as the tax parameter.

3.5 Application form for determination of generation prices

- 3.5.1 The total cost of supply for a generation Licensee is determined as per Section 8.1.1 of the Tariff Determination Regulation. It is determined as the sum of the allowances for operating and maintenance, the depreciation of assets and the return on fixed assets and working capital. The following has to be submitted in the application form:

- i. Determination of O&M Costs

- a. The Licensees shall report the historical O&M costs for the years in the last tariff period and propose an allowance for average O&M costs in the tariff period in figures in the “Input sheet”. The proposed allowance for O&M costs shall be the estimated average O&M costs per year in the tariff period, neither adjusted for inflation, efficiency gains, net investments nor the regulatory fees.
- b. The Licensee shall propose efficiency gain targets for each year in the tariff period and include a justification for the proposal in addition to the percentages submitted in the form.
- c. The Licensees shall propose regulatory fees according to the Regulatory Fees Regulation.
- d. The Licensee shall propose the historical inflation rates as estimated by the National Statistics Bureau in the input sheet. The Licensee shall propose a forecast of the average annual inflation rate for the tariff period. The sources of the forecasted average annual inflation rate shall be submitted in addition to the proposed inflation rate.
- e. The Licensees shall calculate the Current Replacement Cost (CRC) of the assets in the reference year. This information will be used for reviewing the benchmark O&M cost. The CRC shall either be estimated by using current prices on the current assets or by using historical capital expenditure inflated to current price level using a relevant price index. The method and price index used for calculation of the CRC shall be explained. A copy of report on asset revaluation shall be provided to explain the method and price index used for calculation of Current Replacement Cost and the replacement cost in the application document shall be consistent to the excel input sheets. In addition to the above information, the Licensee shall submit historical insurance costs per Plant for the last Tariff period. The Licensee shall also provide any reason for the change in insurance Policy.

ii. Determination of Depreciation:

- a. The Licensee shall submit the gross and net asset value, lifetime, accumulated and annual depreciation, for the reference year as specified in Schedule A- Assets in the application form. This shall be reported for granted and non-granted assets separately. Depreciations on granted assets shall be included in the allowances. The Licensee shall also explain any increase in accumulated depreciation over annual depreciation and must make sure that net asset value is consistent with the depreciations and lifetime.
- b. The asset values and depreciations shall be calculated according to the Tariff Determination Regulation. The data shall be based on audited accounts.
- c. Allowance for depreciation of assets is calculated from the figures submitted by the Licensee in Schedule A – Assets and Schedule B- Investments of the application form.
- d. The Licensee shall submit the investment forecast for the tariff period as specified in Schedule B- Investments of the application form.
 - The Licensee shall submit the detailed and correct Investment plan which shall be consistent with the application form and should submit the total amount of capitalized investment per year per project in the investment Plan. Each project in the investment plan shall be explained in detail.
 - Any adjustments and removals in the Schedule B-Investments shall be explained and supported by necessary documents.
 - The Licensee shall explain any reason for increasing inventories and must define the inventories and mention whether they are included in the Investment plan or not.
 - The diesel generation investment shall be separated due to different depreciation rates.
 - Annual depreciations shall be calculated using depreciation rates as set out in Schedule B of the Tariff Determination Regulation.

iii. Determination of Return on Fixed Assets

- a. The return on fixed assets is determined as the product of WACC and the net value of all fixed assets determined at the start of each year. The net asset value is calculated from the Schedules A and B reported by the Licensee. The allowances for return on fixed assets shall not include any return on granted assets. Any assets that were handed over to other

agencies should be removed from Licensee's Regulatory Asset Base (RAB).

iv. Determination of Cost of Working Capital

- a. The allowance for return on working capital is determined by using the WACC, the Licensees' revenue, proposed arrears and allowance for inventories. Arrears and allowances for inventories shall be proposed by the Licensee in the "Input" sheet. Arrears are the allowed days receivables in days. The arrears for an individual generation Licensee is calculated as weighted average using generation forecast of the plants owned by the Licensees.
 - b. The proposed arrears shall be in average number of days and the Licensees shall submit a justification of the proposal.
 - c. The proposed amount for the inventories shall also be submitted with an explanation on the calculation of the proposed amount.
- 3.5.2 The annual energy volume is determined as per Section 8.1.2 of the Tariff Determination Regulation. The Licensees shall submit the design energy for each generating station in the tariff period in the "Input" sheet. The allowance for auxiliary consumption and availability at each plant is set out in Schedule D of the Tariff Determination Regulation.
- 3.5.3 The average cost of supply is determined as per Section 8.1.3 in the Tariff Determination Regulation and it is the ratio of discounted annual cost of supply to the discounted energy volumes.
- 3.5.4 The Royalty Price is determined as per Section 8.2.3 in the Tariff Determination Regulation. The Royalty Price is determined as average cost of supply less the ratio of the discounted subsidy amounts in Million Ngultrum to the discounted Royalty energy. The Licensees shall submit the following:
- a. Proposal for annual subsidy amount in the "Input" sheet. The Authority shall use the amount of subsidy for each Licensee as determined by the Minister.
 - b. The average annual energy volume for the tariff period in the "Input" sheet. The Royalty Energy volume is determined as per Section 8.2.1 of the Tariff Determination Regulation.
 - c. The additional energy shall be determined as per Section 8.3 of the Tariff Determination Regulation. Any energy delivered by generation Licensee to a distribution Licensee above the royalty energy shall be termed as additional energy.

- 3.5.5 The Licensee shall submit detailed calculation of the average import cost along with volumes and prices. Any power purchase from other Licensee must be supported by legal documents such as Agreements, Memorandums (MoUs) and other relevant documents.

3.6 Application form for determination of end-user prices

- 3.6.1 The annual network cost of the Licensee is determined as per Section 9.3.2 in the Tariff Determination Regulation. According to Section 9.3.1 the costs shall comprise of the sum of the operating and maintenance allowance (O&M), any allowances for fees and levies, the allowance for depreciation, and the allowance for return on assets. The following has to be submitted in the application form:

i. Determination of O&M costs

- a. The Licensee shall report the historical O&M costs for the last tariff period and propose an allowance for average O&M costs for the tariff period in figures in the “Input sheet” for Generation, Transmission, Distribution and Others separately. The Licensees shall explain how the apportioning of the total historical O&M cost to Generation, Transmission, Distribution and Others was done. The proposed for O&M costs allowance shall be the estimated average O&M costs per year in the tariff period, neither adjusted for inflation, efficiency gains, net investments nor the regulatory fees.
- b. The Licensee shall propose efficiency gain targets for each year in the tariff period and include a justification of the proposal.
- c. The Licensee shall propose regulatory fees according to the Regulatory Fees Regulation.
- d. The Licensee shall propose the historical inflation rates as estimated by the National Statistics Bureau in the input sheet. The Licensee shall propose a forecast of the average annual inflation rate for the tariff period. The sources of the forecasted average annual inflation rate shall be submitted with justification in addition to the proposed inflation rate.
- e. The Licensee shall calculate the Current Replacement Cost (CRC) of the assets in the reference year. This information will be used for reviewing the benchmark O&M cost. The CRC shall either be estimated by using current prices on the current assets or by using historical capital expenditure inflated to current price level using a relevant price index. The method and price index used for calculation of the CRC shall be explained.

ii. Determination of Depreciation

- a. The Licensee shall submit the gross and net asset value, lifetime, accumulated and annual depreciation, for the reference year as specified in Schedule A- Assets of application form. The asset values and depreciations shall be

calculated according to Section 6.4 and 6.5 of the Tariff Determination Regulation. The data shall be based on audited accounts. Any investment contributions from the customers are not to be included in the assets.

- b. The Licensee shall submit the investment forecast for the tariff period as specified in Schedule B- Investments of the application form.
 - The Licensee shall submit the detailed and correct Investment plan which shall be consistent with the application form and should submit the total amount of capitalized investment per year per project in the investment Plan. Each project in the investment plan shall be explained in detail. Any adjustments and removals in the Schedule B- Investment shall be explained and supported by necessary documents
 - Any investment contributions from the customers are not to be included in the assets.
 - The Licensee shall treat the capital drawdown amounts as per the investment forecast excluding project financed through grants.
 - The Licensee shall provide detail information on the “Outside the Plan Works”, what are they and how will they be treated in their accounts.
- c. The Licensee shall submit figures for non-granted and granted assets separately. The Licensee shall provide a list of the granted assets. Depreciations on granted assets will be included in the depreciation allowances.
- d. Allowance for depreciation of assets is calculated from the figures in Schedule A – Assets and Schedule B- Investments submitted by the Licensee in the application form.
- e. The allocation factors used for the allocation of asset-related costs, O&M costs, inventories and fees are given in Schedule F in the Tariff Determination Regulation. Any changes to the allocation factors for assets shall be proposed in Schedule A - Assets of the application form and any changes to allocation factors for O&M costs, inventories and fees shall be proposed in the Input Sheet of the application form along with justifications.

iii. Determination of Return on Fixed Assets

- a. The return on fixed assets is determined as the product of WACC and the net value of all fixed assets determined at the start of the year. The net asset value is calculated from the Schedules A- Assets and Schedule B - Investments reported by the Licensee. The allowances for return on fixed assets shall not include any return on rural electrification assets provided through capital grants.

iv. Determination of Cost of Working Capital

- a. The allowance for Return on Working Capital is determined as per Section 9.4.2 of the Tariff Determination Regulation. The Licensee shall propose arrears and allowance for inventories for the tariff period. Both figures shall be reported in the “Input” sheet in the application form.
- b. The Licensee shall propose arrears for HV, MV, LV and Wheeling customers in days along with justification of the proposal. The Licensee shall also provide details of bill delivery and receipt of bill payment.
- c. The proposed amount for the inventories shall also be submitted with justification of the proposed amount.

3.6.2 The Power Purchase Price (PPP) is determined as per Section 9.5.1 of the Tariff Determination Regulation. The PPP is a weighted average price of power purchases from domestic generators at their additional price. The Licensee shall provide the following information:

- i. The Licensee shall propose a figure for the Additional Price in the “Input” sheet.
- ii. The Licensee shall submit the historical energy volume and forecasted energy volume for the tariff period from own generation (mini-/micro-hydels, diesel generators) in the “Own Generation” sheet.
- iii. The expected generation from own generation shall be deducted from the total power purchase forecasted by the Licensee.

3.6.3 The cost of supply for each Customer Group is determined as per Section 9.5.2 of the Tariff Determination Regulation. It is determined by the sum of energy purchase cost valued at the Power Purchase Price, the cost of imported energy valued at the import price, network costs, and the cost of working capital less any subsidies. The Licensee has to submit the following to determine the cost of supply:

- i. The import Price and the average import volume for the tariff period shall be proposed in the “Input” sheet. The Licensee shall submit details on the forecasted power purchase from other Licensees and imports in volumes and prices, along with the Power Purchase Agreement indicating the price.
- ii. The Licensee shall propose the forecasted energy sales for LV, MV, HV and Wheeling in the “Input” sheet, with calculations and assumptions made and the basis for the assumptions reported separately.
- iii. The Licensee shall report historical non-tariff revenues and their sources. The Licensee shall propose non-tariff revenues for the tariff period supported with calculations such as volumes and prices for each category and their sources of these revenues.

- iv. The non-tariff revenue includes all revenue stemming from other sources than tariffs, such as, income from deposit works, rental income, hire charges, miscellaneous charges etc. All non-tariff revenue that is not directly collected from the HV, MV or LV customers shall be allocated to these customer groups based on the same allocations as the cost related to providing the services as prescribed in Schedule F of the Tariff Determination Regulation.
 - v. The Licensee shall propose subsidy amounts per year in the “Input” sheet which are consistent with the proposed tariffs in the “Tariff Structure” sheet. Only under special circumstances and as a transition mechanism will the Authority allow cross-subsidies from one customer group to another.
 - vi. The Licensee shall propose losses as per Schedule E of Tariff Determination Regulation. If the Licensee proposes any other figure for the losses, the proposal shall be supported by justification and method of calculating losses.
- 3.6.4 The Average Price for a consumer group is determined as per Section 9.5.3 of the Tariff Determination Regulation. The average price for each consumer group is determined as the ratio of the discounted costs of supply to the discounted electricity sales, where sales are adjusted for an allowance collection rate. The cost of supply and the electricity sale is determined and proposed as per Section 9.5.2 of the Tariff Determination Regulation. The collection rate is a target set by the Authority as a percentage as per Schedule E of the Tariff Determination Regulation.
- 3.6.5 The Licensee shall propose a price path (average tariff in Nu/kWh) per customer group for the tariff period in the “Output” sheet. The price path shall be consistent with the proposed allowances and subsidies.
- 3.6.6 The Licensee shall propose a tariff structure in the “Tariff Structure” sheet. The tariff structure shall include proposed block-wise energy charges for LV customers, and energy and demand charges for MV and HV customers. The tariff structure shall be accompanied by the billing data assumption for the tariff period. The billing data assumptions shall be consistent with the energy sales forecasts in the “Input” sheet. The average tariffs for LV, MV and HV customers shall be calculated using the proposed tariffs and billing data assumptions, and shall be consistent with the average tariffs calculated in the “Output” sheet.

4. ADDITIONAL INFORMATION REQUIREMENTS

- 4.1 In addition to the information to be submitted according to the forms in Section 3.1 the Licensee shall also submit the following as applicable:
- i. Profit and Loss Account, Balance Sheet and Cash Flow Statement for the previous tariff period.
 - ii. Audit reports of the Royal Audit Authority, Bhutan and the Statutory Auditors for the previous tariff period.

- iii. Brief description of geographic, technical and financial aspects of the assets financed through grants.
- iv. The Licensee shall also provide explanations for assumptions made for calculations of Miscellaneous Charges and data on the frequency and type of the Miscellaneous Charges paid by different consumers during the previous tariff period and projections for the proposed tariff period.

APPENDIX 1 – GENERATION TARIFF APPLICATION FORM

APPENDIX 2 – TRANSMISSION AND DISTRIBUTION TARIFF APPLICATION FORM

Bhutan Electricity Authority



Public Hearing Procedure 2016 for Electricity Tariff Determination

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CHAPTER I

PRELIMINARY

Title, Extent and Commencement

1. These procedure shall:
 - a) Recited as Public Hearing Procedure 2016 for Electricity Tariff Determination;
 - b) Apply to licensees and electricity consumers; and
 - c) Come into force with effect from 1st March 2016.

Purpose

2. This procedure is to outline the procedures for conducting the public hearing for electricity tariff determination in line with Bhutan Electricity Authority – Tariff Determination Regulation 2016, whenever the Bhutan Electricity Authority decides to conduct a public hearing for tariff determination.
3. This procedure is to provide an opportunity for licensees to present their electricity tariff application and to allow consumers to raise their views and comments over the licensees' electricity tariff applications.

Supersession

4. Any procedure with respect to the public hearing adopted by the Bhutan Electricity Authority shall be superseded by this public hearing procedure.

Authority for Amendment

5. This public hearing procedure shall be amended as and when deemed necessary by the Authority.

CHAPTER II

PRE-PUBLIC HEARING PROCEDURE

Tariff Application

6. The Licensee shall submit the tariff application to the Bhutan Electricity Authority as per the provisions of the Tariff Determination Regulation 2016.
7. The Bhutan Electricity Authority shall undertake preliminary review of the tariff application submitted by the Licensees and accordingly, inform Licensees to submit further information/data required, if any.

Notice of Public Hearing

8. The Bhutan Electricity Authority shall upload the tariff application of the Licensees on its website at least twenty one calendar days prior to the public hearing.
9. The Bhutan Electricity Authority shall notify the actual date of public hearing in at least two widely circulated national newspapers including national TV and BEA's website twenty one (21) calendar days prior to the public hearing. The notification shall contain the following information but not limited to:
 - (1) Information from where the Bhutan Electricity Authority – Public Hearing Procedure for Electricity Tariff Determination and registration form(s) can be downloaded.
 - (2) Email address, mail address and fax number for the submission of the form.
10. The Bhutan Electricity Authority shall notify the venue and time of the public hearing in at least two widely circulated national newspapers, national TV and BEA's website at least three calendar days prior to the public hearing.
11. The rescheduling of venue, time and date of the public hearing shall not be undertaken unless some untoward emergency situation occurs and shall be notified to the public through at least one widely circulated national newspaper and national TV as soon as possible.

Registration

12. The participants who wish to attend the public hearing shall submit the duly filled registration **form A** to Bhutan Electricity Authority by e-mail/mail or fax.
13. The registration for the public hearing will be closed for the participants in seven calendar days prior to the public hearing.
14. The interested participants/consumer group wishing to make a presentation before a public hearing shall submit the duly filled registration **form B** by e-mail/mail or fax to Bhutan Electricity Authority at least ten calendar days prior to the public hearing. The participants/consumer group shall submit the presentation copy (hard and soft) along with the duly filled registration **form B**.
15. The selected participants/consumer group for the presentation will be informed through email/phone at least three calendar days prior to the public hearing.
16. Only the registered individuals and parties shall be allowed to attend the public hearing. The Bhutan Electricity Authority may, however, limit the number of participants to a manageable size upon ensuring that all consumer groups are represented for effective public hearing on first-come-first served basis. The consumers shall be categorized within one of the following groups:
 - (1) Low voltage consumers;
 - (2) Medium voltage consumers; and
 - (3) High voltage consumers.

CHAPTER III

PUBLIC HEARING PROCEDURE

General Procedures

17. The public hearing shall be presided over by the Chairman of the Bhutan Electricity Authority and in his absence it shall be presided over by any other member of the Commission appointed by the Bhutan Electricity Authority as a Chairman for that purpose.
18. The quorum required of the Bhutan Electricity Authority Commission for the public hearing shall be at least two-third.
19. The Chairman of the public hearing shall announce the rules of proceedings to ensure order in the house.
20. In order to expedite the public hearing proceedings, participant may nominate a representative to voice their common concerns or issues on behalf of consumer group.
21. All participants raising queries or expressing views shall identify themselves and clarify who they are representing.
22. All queries and expressed views shall be substantive and relevant to the tariff application. The Chairman shall intervene in any irrelevant or repetitive queries and views being expressed at the public hearing.
23. The Bhutan Electricity Authority shall conduct only the hearing and shall neither engage in any debate nor take part in any discussion on the tariff application or the preliminary tariff review result during the public hearing.
24. No other than Bhutan Electricity Authority shall record and maintain the public hearing proceeding.
25. When the public hearing is officially declared closed by the Chairman, no further comments and questions shall be taken into consideration.

BEA Public Hearing Procedure 20164

Presentation by Licensees

26. The Licensees shall present its tariff application before the public and the said presentation shall not last more than 45 minutes.

Presentation by Consumers

27. The Bhutan Electricity Authority shall select one presentation from each consumer group for end user tariff application and one presentation for generation tariff application.

28. The selected presentation of the participants shall present their presentation before a public hearing. The presentation shall not last more than 45 minutes.

CHAPTER IV POST PUBLIC HEARING

Comments and Clarifications

29. Any written comments shall be addressed to the Chief Executive Officer, Bhutan Electricity Authority, Post Box No. 1557, Thimphu within twenty one calendar days from the date of public hearing. Any comments received after twenty one calendar days shall not be entertained.

30. The Bhutan Electricity Authority may forward some of the relevant comments/queries to the Licensee for appropriate response(s).

31. The Bhutan Electricity Authority shall not provide any individual response to the written comments and queries raised.

32. The comments received during the public hearing and responses to the comments of consumer(s) by the licensee shall be taken into consideration during the tariff review process.

FORM A**REGISTRATION FORM FOR PUBLIC HEARING**

1. Full Name			
2. CID No./Work permit No./Visa No.			
3. Organization (individuals please write 'self')			
4. Present Address			
5. Email Address			
6. Contact Number	a. Mobile: b. Phone:		

7. Please tick the hearing you want to attend

☐ BPC Public Hearing Only ☐ DGPC Public Hearing Only
☐ Both DGPC and BPC Public Hearings

8. Consumer Category

☐ Low Voltage (upto 400V) ☐ Medium Voltage (6.6/11/33 kV)
☐ High Voltage (66kV and above)

Date: _____

Applicant Signature

FORM B**REGISTRATION FORM FOR MAKING PRESENTATION AT PUBLIC HEARING**

1. Full Name			
2. CID No. CID No./Work permit No/Visa No.			
3. Organization (individuals please write 'self')			
4. Present Address			
5. Email Address			
6. Contact Number	a. Mobile: b. Phone:		

7. Please select the presentation you want to make at the public hearing:

- Low ☐ Voltage (upto 400V)
- ☐ Medium Voltage (6.6/11/33 kV)
- High ☐ Voltage (66kV and above)
- ☐ Generation

Date: _____

Applicant Signature

Bhutan

Procedural Matters

Bhutan Electricity Authority



Regulatory Fees Regulations 2006

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1 Purpose, scope and commencement

- 1.1 This regulation may be cited as the Bhutan Electricity Authority - Regulatory Fees Regulations, 2006.
- 1.2 The purpose of this regulation is to provide for fee that are payable in accordance with the Act.
- 1.3 This regulation shall extend to the whole of the Kingdom of Bhutan.
- 1.4 It shall apply to all matters within the jurisdiction of the Authority, including all applications pending before the Authority at the date of publication.
- 1.5 This regulation shall come into force from November 1, 2006

2 Interpretation and definitions

- 2.1 For the purpose of this regulation, any word or expression used to which a meaning has been assigned in the Electricity Act of Bhutan, 2001, shall have that meaning, unless explicitly indicated in this regulation.
- 2.2 The following words and expressions shall have the meaning ascribed to them: “**Act**” means the Electricity Act of Bhutan, 2001;
“**Authority**” means the Bhutan Electricity Authority;
“**Bhutan Electricity Authority**” means the authority of that name established pursuant to Part 2 of the Act.
“**Licence**” means a licence issued under the provisions of Part 3 of the Act
“**Licensee**” means any person issued with a license pursuant to Part 3 of the Act; “**Ngultrum**” means the currency of the Kingdom of Bhutan;

3 Fees on applications or petitions

- 3.1 Every application made to the Authority shall be accompanied by fees or charges specified in Schedule 1 of this Regulation. The fees or charges in the schedule once fixed shall remain in force till the Authority through notification changes the fees or charges in some or all cases.
- 3.2 The fees or charges payable under this Regulation shall be paid by means of bank draft or pay order, drawn in favour of the ‘Bhutan Electricity Authority’, payable at Thimphu or may be paid in cash for an amount not exceeding Ngultrum Five Thousand only.
- 3.3 The fee or charges received by the Authority under these Regulations shall be deposited in the specified bank account of the Authority.
- 3.4 Any penalty order by the Authority shall be paid within thirty (30) days of the

order of the Authority.

- 3.5 The penalty shall be payable and the amount shall be deposited in the same manner as provided under Sections 3.2 and 3.3 of this Regulation.

4 Inclusion in Tariff

- 4.1 The licensee shall be entitled to take into account any fee or charges paid by it under this Regulation as an expense in the determination of tariff.
- 4.2 Provided that any penalty paid under the provisions of the Act shall not be allowed as an expense in the determination of tariff.

5 Power to amend

- 5.1 The Authority may, at any time, vary, alter, modify or amend any provisions of this Regulation.

Schedule 1: Fees and Charges

Sl. No	Description	Fees (in Ngultrum)
1.	Permit to Survey under Section 21 of the Act	Nil
2.	Licence application under Section 22.5 of the Act	
	i) Mega (> 1000MW)	i) 500,000.00
	ii) Large (>150 MW - 1000 MW)	ii) 300,000.00
	iii) Medium (>25 MW - 150 MW)	iii) 100,000.00
	iv) Small (> 1 MW - 25 MW)	iv) 50,000.00
	v) Micro/Mini (> 10 kW - 1 MW)	v) 10,000.00
	vi) Pico($\leq$ 10 kW)	vi) Nil
	vii) Transmission	vi) 500,000.00
	viii) Distribution	viii) 500,000.00
	ix) System operation	ix) 500,000.00
	x) Rural Electrification Isolated Grid	x) Nil
	xi) For any combination of Licences	xi) 500,000.00
3.	Annual Licence Fees under Section 11.1(v)	
	i) Generation above 5 MW	i) 10,000 per MW of generation capacity installed or part thereof
	ii) Generation upto 5 MW	ii) 100,000.00
	iii) Transmission or System Operation	iii) 0.2 % of revenues from the sale of electricity and system operation services
	iv) Distribution	iv) 0.2 % of revenues from the sale of electricity
	v) for rural electrification isolated grid	v) 10,000.00
	vi) for any combination of licences	vi) 0.2 % of revenues from electricity tariff.
	Provided that the annual Licence fee shall be payable in advance, at the commencement of the financial year based on estimated revenue for the ensuing financial year as determined by the Authority.	
4.	Other Licence fees	
	i) Application for modification of Licence under Section 30 of the Act	i) 100,000.00
	ii) Application for revocation or transfer of licence under Section 32.3 of the Act	ii) 100,000.00
	iii) Application for determination of tariff under Section 11 (iv) of the Act	iii)
	a. Generation Tariff Determination Fees	a. 2500/MW
	b. Transmission and Distribution Tariff Determination Fees	b. 0.10% of the revenue from electricity tariff claimed by the Licensee.

5.	Miscellaneous	
	i) Application for inspection of Orders/Record of the Authority	i) 100 per day or part thereof
	ii) Supply of copies of documents / Order of the Authority	ii) 5 per page
	iii) Application for review of Orders of Authority not covered elsewhere in these Regulations	iii) 100,000.00
6.	Other applications i.e. application not covered elsewhere in these regulations:	
	i) Applications by Licensees	i) 10,000.00
	ii) Applications by Consumers other than Individuals	ii) 1,000.00
	iii) Applications by individual Consumers	iii) 250.00
7.	Fees or levies not mentioned in the Schedule	As fixed by the Authority



Bhutan Electricity Authority



Dispute Resolution Procedure, 2009

*Approved during the 12th Commission Meeting held
on December 7, 2008*

February 2009

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In exercise of the powers conferred by Section 11.1 of the Electricity Act of Bhutan, 2001 and all powers enabling it in that behalf, Bhutan Electricity Authority hereby makes the following Procedure. This Procedure was approved during the 12th Commission Meeting of the Authority held on December 7, 2008.

1. Title and Commencement

- (i) This Procedure shall be cited as the Dispute Resolution Procedure, 2009.
- (ii) This Procedure shall come into force from the date of its notification in the National Newspaper i.e. February 4, 2009.

2. Scope and Coverage

- (i) This procedure shall apply to settle disputes between Licensees and between Licensees and Customers relating to the enforcement of the Electricity Act of Bhutan, 2001 and Regulations, Codes, Standards and Licences thereof.
- (ii) Nothing in this procedure shall prejudice any right of the parties to have recourse to dispute settlement procedures available under any other Laws of the Kingdom of Bhutan.
- (iii) Once dispute settlement proceedings have been initiated under this procedure or under any other Laws concerning a particular right or obligation of such parties arising under the Electricity Act of Bhutan, 2001, the forum selected by the complaining party shall be used to the exclusion of any other forum for such disputes.

3. Manner in which the Complaint shall be made

A complaint shall be lodged with the Bhutan Electricity Authority Secretariat containing the following particulars and it shall be presented by complainant in person or by his authorized representative or be sent through registered post addressed to the Bhutan Electricity Authority Secretariat or by any other electronic means followed by hard copy:

- (i) The name, description and address of the complainant;
- (ii) The name, description and address of the party complained against or the parties as the case may be;
- (iii) Facts of the complaint;
- (iv) Document in support of the allegation contained in the complaint;
- (v) The relief which complainant claims; and
- (vi) Provisions of the Laws that it considers relevant.

4. Admission or Rejection of Complaints

- (i) Unless otherwise accepted, on receipt of complaint, the Bhutan Electricity Authority Secretariat may by order, allow the complaint to be proceeded with or rejected, provided that a complaint shall not be rejected under this provision unless an opportunity of being heard has been given to the complainant.
- (ii) The admissibility of the complaint shall ordinarily be decided within seven (7) working days from the date on which the complaint was received.

5. Procedure on Admission of Complaint

- (i) The Bhutan Electricity Authority Secretariat on admission of complaint shall send a copy of the complaint within seven (7) working days from the date of its admission to the party complained against directing him to give his response of the case within a period of seven (7) working days or such other period not exceeding another seven (7) days as may be granted by the Bhutan Electricity Authority Secretariat.
- (ii) Where the party complained against, on receipt of complaint, denies or disputes the allegations contained in the complaint or omits or fails to take any action to represent his case within the time given, the Bhutan Electricity Authority Secretariat shall proceed to settle the disputes:
 - (a) On the basis of evidence brought to its notice by the complainant where party complained against denies or disputes the allegation contained in the complaint.
 - (b) Ex-parte on the basis of evidence brought to its notice by the complainant where the party complained against omits or fails to take any action to represent his case within the time given by the Bhutan Electricity Authority Secretariat.
- (iii) The written submissions by a party to the dispute shall be made available to the other parties and each party to the dispute shall have the right to be present when any of the other parties to the same dispute presents its views to the Bhutan Electricity Authority Secretariat.

6. Dismissal of Complaint

- (i) Where the complainant fails to appear on the date of hearing, the Bhutan Electricity Authority Secretariat shall have the right to dismiss the complaint on default.
- (ii) Where during the pendency of any proceeding before the Bhutan Electricity Authority Secretariat, it appears to be necessary, it may pass such interim orders as is just and proper in the facts and circumstances of the case.

7. Hearing of Complaint

- (i) Every complaint shall be heard as expeditiously as possible and Bhutan Electricity Authority Secretariat shall endeavour to give its decision within a period of thirty (30) days from the date of response received from the party complained against when the complaint does not require witness and expert opinion on the case.
- (ii) In the event of complaint being disposed of after the period so specified, the Bhutan Electricity Authority Secretariat shall record in writing, the reason for the same at the time of disposing of the said complaint.

8. Decision by the Bhutan Electricity Authority Secretariat

- (i) Following the consideration of rebuttals, submissions, arguments and inspection, the Bhutan Electricity Authority Secretariat shall provide a reasoned decision to the Parties within ten (10) working days after the conclusion of the substantive hearing.
- (ii) If a party(s) is not satisfied with the decision of the Secretariat, he/she may appeal to the Authority within ten (10) working days.

9. Dispute Resolution Panel (DRP)

- (i) If the Bhutan Electricity Authority Secretariat is not able to resolve the case due to its complex nature, the Bhutan Electricity Authority Secretariat shall forward the dispute to the Dispute Resolution Panel established under this procedure.
- (ii) The Bhutan Electricity Authority Secretariat shall notify the parties stating that the case has been referred to the Dispute Resolution Panel for settlement.

10. Establishment of a Panel

- (i) If the case could not be settled due to the complex nature of the case or on appeal to the decision of the Bhutan Electricity Authority Secretariat, the Authority shall establish a Dispute Resolution Panel within ten (10) days after the receipt of appeal or referral of case by the Bhutan Electricity Authority Secretariat on the ground of complexity.
- (ii) The Panel shall perform its functions in a manner consistent with the provisions of this Procedure and Electricity Act of Bhutan, 2001.
- (iii) From the date of adoption of this Procedure, the Bhutan Electricity Authority Secretariat shall establish and maintain a roster of up to twenty (20) individuals to serve as a member of the Panel under this procedure.
- (iv) The Authority shall select and appoint Panelist from the roster as and when required depending on the nature of the case/dispute.
- (v) A member of the Panel shall:

- (a) have expertise and/or experience in the resolution of disputes arising under that particular law and shall be chosen on the basis of his/her integrity;
 - (b) be selected with a view to ensuring the independence of the panel member, and not be affiliated with or take instructions from any party; and
 - (c) Comply with this procedure.
- (vi) A member of the Panel shall make all disclosures that might be perceived as potential conflict of interest or might be perceived to prejudice the proceedings of the case.
 - (vii) Panelist shall be paid an appropriate amount of fee as determined by the Authority from time to time.

11. Panel Selection

- (i) The Dispute Resolution Panel shall be selected by the Secretariat on approval of the Authority.
- (ii) The Dispute Resolution Panel shall comprise of three members.
- (iii) Within seven (7) working days of the delivery of the complaint to the Dispute Resolution Panel, the Authority shall select and appoint Panelist including a chairperson from the Panel.
- (iv) A person who has conflict of interest shall not be selected as member to the Dispute Resolution Panel concerned with that case.

- (v) In the event of withdrawal of any members, a substitute member shall be nominated by the Bhutan Electricity Authority Secretariat on approval of the Authority.
- (vi) If a party believes that a Panelist is in violation of this procedure, the Parties shall consult the Authority and if they agree, the Panelist shall be removed and a new Panelist shall be selected in accordance with this Procedure.
- (vii) Panelist expenses including travel and subsistence allowance shall be met from the Authority's budget upon approval of the Minister based on the recommendation of the Authority.

12. Rules of Procedure

- (i) Unless the parties otherwise agree, the Panel shall conduct its proceedings in accordance with this Rules of Procedure.
- (ii) The Rules of Procedure shall assure a right to at least one hearing before the Panel and the opportunity to provide written submissions, exhibits and evidence.
- (iii) The parties shall have the right to nominate their representative(s) to attend the case on their behalf.
- (iv) The Panel's hearings, deliberations and decision, and all written submissions to and communications with the Panel shall be confidential to those who are not party to the case.
- (v) The Panel shall study the case and conduct necessary hearings as and when required.

- (vi) If one of the parties, despite having received the notice, fails to appear before the Panel, and the Panel is satisfied that the notice is received and the parties failed to attend without a good cause, it may conduct the hearing, and such hearing shall be deemed to have been conducted in the presence of both the parties.
- (vii) In its proceeding, the Panel shall follow the relevant provision of Electricity Act of Bhutan, 2001 and rules and regulations thereof.
- (viii) The Panel shall meet in a closed door session. The parties to the case shall be present at the meetings/hearings only when invited by the Panel.
- (ix) The deliberation of the Panel and the documents submitted to it shall be kept confidential. A party shall treat as confidential information submitted by another party to the panel which that party has designated as confidential.
- (x) At its first substantive meeting with the parties, the Panel shall ask the party which has brought the complaint to present its case first. Subsequently, the party against whom the complaint has been brought shall be asked to present his point of view.
- (xi) Formal rebuttals shall be made at a second substantive meeting of the Dispute Resolution Panel. The party complained against shall have the right to take the floor first to be followed by the complaining party.
- (xii) The Panel at any time may put question to the parties and ask them for explanation either in the course of meeting/hearing verbally or in writing.

- (xiii) In the interest of full transparency, the presentation, rebuttals and statements referred in this procedure shall be made in the presence of the parties. Moreover, such parties' written submissions shall be made available to the other party.

13. Role of Experts

The Panel may on the request of a party or on its own initiative seek technical advice from any person or body, including qualified independent experts, on any scientific or technical matter raised by a party in a proceeding.

14. Decision of the Panel

- (i) The Panel shall give its decision within ten (10) days after the last hearing.
- (ii) In case the decision of the Panel is not unanimous, then the decision of the majority shall prevail.
- (iii) No member of the Panel shall disclose which Panelists were associated with majority or minority opinions.
- (iv) Unless the Authority decides otherwise, the decision of the Panel shall be made available to the public after it is presented to the parties.

15. Execution of Decision

If in its decision a Panel has determined that a party complained against or the complainant has acted inconsistent with the obligations under the Electricity Act of Bhutan, 2001 and rules and regulations thereof, and has not appealed to the Authority within ten (10) days of the presentation of decision, then the party concerned shall adhere to the decision of the Panel.

16. Appeal

If any of the Parties is not satisfied with the decision of the panel, he or she may appeal to the Authority within ten (10) days of the presentation of decision to the parties.

17. Decision of the Authority

- (i) On appeal, the Authority shall look into the decision of the Panel and a written amendment to the decision may be made within ninety (90) working days after the receipt of decision from the Panel.
- (ii) The Authority shall consider only the points of Law and shall not address the question of facts for making an amendment to the decision of the Panel.

18. Cooperation

The Parties shall at all times endeavor to agree on the interpretation and application of this procedure, and shall make every attempt through cooperation and consultations to arrive at a mutually satisfactory resolution of any matter that might affect its operation.

19. Venue of the Dispute Resolution

The Dispute Resolution proceedings shall be conducted as and when required and in the place designated by the Bhutan Electricity Authority Secretariat.

Interpretations and Definitions

For the purpose of this Regulation, any words or expression used to which a meaning has been assigned in the Electricity Act of Bhutan, 2001, shall have that meaning, unless explicitly indicated in this Regulation.

“Consumer or Customer” means any person who is supplied with electricity for his own use by a Licensee or by any other person engaged in the business of supplying electricity to public under the Act or any other law for the time being in force and includes any person whose premises are for the time being connected for the purpose of receiving electricity with the works of a Licensee, or such other person, as case may be.

“Panelist” means selected member from the Dispute Resolution Panel.

“Working day” means a working day, other than a Saturday or Sunday, or a Public Holiday.

FORM A

APPLICATION FOR FILING COMPLAINT WITH THE BHUTAN ELECTRICITY AUTHORITY SECRETARIAT

Name of the complainant:

Full address of the complainant:

Name and full address of the party complained against:

Facts of the complaint/grievance:

The relief which complainant claims:

List of documents enclosed to support the allegation contained in the complaint:

- 1.
- 2.
- 3.

Declaration

I/We, the complainant(s) herein declare that the information furnished herein above is true to the best of my/our knowledge, information and belief. I/We have not concealed or misrepresented any fact stated in aforesaid columns and the documents submitted herewith. I/We have not brought the subject matter of the present complaint before this Forum earlier. The subject matter of the present complaint has not been decided by any forum/court/arbitrator or any other authority.

Name & Signature of the Complainant (legal stamp)

Place:

Date:

NOMINATION

(If the complainant wants to nominate his/her representative to appear and make submissions on his/her behalf before the Forum, the following declaration should be submitted)

I / We the above named Consumer hereby nominate Mr. / Mrs. ...
.....
.....and whose address is.....
.....as my/our representative in the
proceedings and confirm that any statement, acceptance or rejection
made by him/her shall be binding on me/us. He/She has signed below
in my presence.

ACCEPTED

(Signature of Representative)

Place:

Date:

Name & Signature of Complainant

Bhutan Electricity Authority - Accounting and Reporting Regulations, 2006

Regulations BEA-002-2006
Bhutan Electricity Authority

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1 Purpose

- 1.1 This regulation shall be cited as the Bhutan Electricity Authority - Accounting and Reporting Regulations, 2006.
- 1.2 The purpose of this regulation is to provide for an efficient supervision of Licensees by the Authority, including reporting of financial and technical data related to electricity generation, transmission, distribution and supply and system operation.
- 1.3 This regulation shall extend to the whole of the Kingdom of Bhutan.
- 1.4 All Licensees shall comply with the provisions of this regulation.
- 1.5 The Authority may, in particular cases, give dispensation from this regulation and conditions in licences awarded by the Authority pursuant to the Act.
- 1.6 This regulation shall come into force from 1 January 2007.
- 1.7 This regulation includes the schedules attached to it, which shall be updated by the Authority from time to time, and which form an integral part of this regulation.

2 Interpretation and Definitions

- 2.1 For the purpose of this regulation, any word or expression used to which a meaning has been assigned in the Electricity Act of Bhutan, 2001, shall have that meaning, unless explicitly indicated in this regulation.
- 2.2 The following words and expressions shall have the meaning ascribed to them:-

“Act” means the Electricity Act of Bhutan, 2001;

“Authority” means the Bhutan Electricity Authority;

“Bhutan Electricity Authority” means the authority of that name established pursuant to Part 2 of the Act;

“Licence” means a licence issued under the provisions of Part 3 of the Act;

“Licensed Activities” means the activities with the Licensee is permitted to undertake under the terms of his Licence.

“Licensee” means any person issued with a license pursuant to Part 3 of the Act;

“Non-Tariff Revenue” means revenue from Customers that does not arise from the sale of electricity, such as application fees, connection fees and meter test fees;

“Reporting Schedules” means a detailed reporting format for the submission of technical and financial reports;

3 General Conditions

- 3.1 All Licensees are required to submit periodic financial and technical reports to the Authority regarding their Licensed Activities at the frequency as determined by the Authority, which shall be at least annually.
- 3.2 Annual reports shall be submitted within three months of the close of the accounting year, and quarterly or biannual reports shall be submitted within two months of the end of each quarter or half-year.
- 3.3 Reports shall include the information presented in the Schedules to this regulation. The Authority may periodically update these Schedules.
- 3.4 Software and detailed formats developed by the Authority shall be used for submitting financial and technical reports where applicable.
- 3.5 The annual financial accounts shall be presented in accordance with the provisions of the Companies Act or any other relevant legislation. The Authority may set requirements as to further specification.
- 3.6 The Licensee's auditor shall certify that the annual financial accounts are in accordance with the provisions of these regulations.
- 3.7 The Licensee shall not debit its Licensed Activities with costs related to non-Licensed Activities. The transfer of revenues other than declared profits from Licensed Activities to non-Licensed Activities is not permitted unless explicitly approved by the Authority.
- 3.8 The transfer of funds, including such financial and capital as is made available from Licensed Activities to non-Licensed Activities or other companies, shall take place on market terms.
- 3.9 Internal settlement of services between Licensed Activities and non-Licensed Activities or between different Licensed Activities shall take place on market terms.
- 3.10 Internal transactions between Licensed Activities and non-Licensed Activities or between different Licensed Activities shall be documented by agreements in writing. The Authority may order the use of a particular method of cost calculation or cost allocation.
- 3.11 Where joint fixed assets are utilized, settlement shall be at market price. In the absence of a market price, costs of producing the service, including a reasonable return on capital, shall be employed.

4 Structure of the Accounts and Supplementary Information

- 4.1 The Authority may require the Licensee to separate Licensed Activities into independent business segments with separate budgets and accounts. Where this is required by the Authority, the Licensee shall assign revenues and expenses to the respective business segments so that the operating result for the business segments provides as correct a picture as possible of operations for the year.

- 4.2 Licensees are required to report to the Authority even in cases where the owner(s) is (are) also subject to reporting. A Licensee who has ownership interests in companies subject to reporting shall not incorporate such interests under the business segments.
- 4.3 The names of all companies in which the Licensee has ownership interests and the size of such interests shall be stated, as well as the accounting principles employed when incorporating the said interests in the annual accounts.
- 4.4 The Licensee shall have a register of fixed assets encompassing all such assets. The register shall provide an overview of acquisition cost, acquisition date, depreciation schedule, accumulated depreciation and write-downs or revaluations, net book value, investment contributions and the like.
- 4.5 The following supplementary information shall be reported to the Authority:-
 - i) Detailed information on electricity purchases and sales;
 - ii) Full details shall be given of the principles used for capitalization;
 - iii) Full details shall be given on the principles for dealing with connection fees, investment contributions, government support etc. Connecting fees shall be taken as Non-Tariff Revenue;
 - iv) All forms of remuneration paid by enterprises of a commercial nature for use of installations or rights associated with the Licensee's Licensed Activities shall be specified;
 - v) The Licensee shall state energy supplied to and revenues collected from each tariff or customer category;
 - vi) In the reports, total electricity sales including losses shall match total electricity received.

5 Profit and Loss Account

- 5.1 The Licensee shall report the complete profit and loss account in accordance with the provisions of the Companies Act and generally accepted accounting principles: Provided that depreciation shall be determined in accordance with prevailing regulations concerning tariff determination.
- 5.2 The profit and loss account shall report:-
 - i) Revenues from the sale of electricity;
 - ii) Other revenues from the sale of other services;
 - iii) Energy purchases for resale and own consumption;
 - iv) Purchases and sale of other generation, transmission, system operation and distribution services;
 - v) Expenses relating to staff, repairs and maintenance, and other recurrent expenditures;
 - vi) Revenues and expenses related to customer handling, metering and settlement;
 - vii) Interest earned and interest paid;

- viii) Gains and losses upon disposal of fixed assets;
- ix) Taxation and provision for taxation.

6 Balance Sheet

- 6.1 The Licensee shall report the complete balance sheet in accordance with the provisions of the Companies Act and other relevant legislation: Provided that depreciation shall be determined in accordance with prevailing regulations concerning tariff determination.
- 6.2 Fixed assets, trade debtors, inventory and trade creditors shall be distributed on Licensed Activities and non-Licensed Activities.
- 6.3 Book values for fixed assets shall appear as gross acquisition cost less accumulated depreciations, write-downs. Installations under construction shall not be included in acquisition costs until the installation is capitalized. Opening balances in the accounting year shall match closing balances in the preceding accounting year.
- 6.4 Book values for grant funded assets shall be shown separately and in the same format as for all fixed assets.
- 6.5 Gross acquisition costs shall be depreciated on a linear basis in accordance with the depreciation rates in the Schedule attached hereto.
- 6.6 Other assets and liabilities shall be reported at the same values as those on which the annual accounts are based.
- 6.7 The Licensee may request for an upward or downward revaluation of their fixed assets with the requisite justifications to the Authority.

7 Reporting Physical Assets, Quality and Reliability of Supply

- 7.1 Transmission and distribution installations shall be reported in terms of numerical quantities, for example number of kilometres of line, number of transformers, number of kilometres of underground cables etc. as may be required by the Authority.
- 7.2 Licensees engaged in electricity generation shall specify output per power station.
- 7.3 The number of new connections, reconnections and disconnections shall be reported.
- 7.4 The number and duration of outages shall be reported.
- 7.5 The number of complaints and disputes regarding the Licensed Activities shall be reported.
- 7.6 Further technical reporting requirements may be introduced by the Authority when required.

Schedule I: Contents of Generation Licensees' Reports

The reports prepared by Generation Licensees for submission to the Authority shall be in the format specified by the Authority and should contain, amongst other matters, the following information:-

- i) The current installed and available capacity;
- ii) Energy generation, energy purchases, auxiliary consumption, losses and energy sent out, by month;
- iii) Energy exports energy imports by month;
- iv) Availability measures and outages over the preceding twelve months;
- v) Sales revenue to other licensees, by month and by licensee;
- vi) Energy purchased, by source, and cost of energy purchases;
- vii) Income statement, balance sheet and cash flow statement;
- viii) Asset values by asset category showing gross values; accumulated depreciation; depreciation for the year; additions, disposals and revaluations; and net values;
- ix) Auxiliary consumption and transformation losses;
- x) Capital expenditure undertaken over the past 12 months, with comparison to capital expenditure plan for the period;
- xi) Investment plans for the forthcoming five year period, showing a breakdown by asset category, including any plans for asset disposals or revaluations.
- xii) Details of incidents involving accident, injury and fatality.

Schedule II: Contents of Transmission and Distribution Licensees' Reports

The reports prepared by Transmission and Distribution licensees for submission to the Authority shall be in the format specified by the Authority and should contain, amongst other matters, the following information:-

- i) The Distribution Performance Report, as set out in Section 4.5 of the Distribution Code;
- ii) Distribution installations in terms of numerical quantities, for example number of kilometres of line, number of transformers, number of kilometres of underground cables etc.;
- iii) Customer numbers, new connections, disconnections, reconnections, by Customer Category;
- iv) Energy sales and revenue received, in both financial and technical quantities, broken down by customer category;
- v) Energy purchased, by source, and cost of energy purchases;
- vi) Income statement, balance sheet and cash flow statement;
- vii) Asset values by asset category showing gross values; accumulated depreciation; depreciation for the year; additions, disposals and revaluations; and net values;
- viii) Losses, with estimated breakdown by technical losses at each voltage level and commercial losses;
- ix) Capital expenditure undertaken over the past 12 months, with comparison to capital expenditure plan for the period;
- x) Investment plans for the forthcoming five year period, showing a breakdown by asset category, including any plans for asset disposals or revaluations;
- xi) Details of complaints and disputes;
- xii) Details of incidents involving accident, injury and fatality.

BHUTAN ELECTRICITY AUTHORITY

GUIDELINES FOR PROCESSING OF LICENCES

**PURSUANT TO ELECTRICITY ACT OF
BHUTAN 2001**

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1 Introduction

This Guidelines establishes the procedures and routines to be applied by the Bhutan Electricity Authority (BEA) in processing applications and granting licences to any person or entity intending to carry out activities related to construction, generation, transmission, system operation, distribution, sale, supply and export or import of electricity in Bhutan in accordance to the Electricity Act, 2001.

Rights and obligations of licencees engaged in these activities are defined in provisions set forth in the Act and appropriate regulations in force, and may not be deduced from or imposed through procedures and routines set forth in this Guidelines.

2 General

In processing applications and granting, modifying and revoking licences in accordance with Section 11.2 of the Electricity Act, the BEA shall:

- i) ensure the reliability, quality, security and efficiency of electricity supply;
- ii) encourage competition in generation, transmission and supply of electricity;
- iii) ensure non-discriminatory access to the transmission and distribution system;
- iv) ensure a fair balance of the interests of the public, customers and participants in the electricity sector;
- v) facilitate the development of generation, transmission and distribution of electricity throughout the country;
- vi) ensure the protection of the natural resources, the environment and other public interests affected by the development of electricity supply.

Further, the BEA will perform his functions in a manner that:

- i. is transparent and objective;
- ii. is fair, reasonable and efficient;
- iii. is non-discriminatory; and
- iv. promotes fair competition.

3 Exemptions

The BEA may exempt any person or entity from the requirement to obtain a licence under Section 18 of the Electricity Act. Such exemptions may include, but is not

limited to, the generation of electricity below 500 kilowatt. An exemption may be of general or specific application. The terms, conditions and limitations for exemption would be specified in the appropriate regulations issued by the BEA.

4 Notifications

Any person or entity who intends to implement a project or establish an operation for which a licence is required shall notify the BEA of the intended project or operation as per the Section 20.1 of the Electricity Act. The purpose of such a notification is to inform and provide the BEA an overview of the plans at an early stage in the planning process. As stated in Section 20.2 of the Electricity Act, the notification shall as far as possible contain the information required as per Section 22 of the Electricity Act for the development of the project. When a notification is received, the BEA shall check the contents of document against the referred requirements. The applicant shall then be given a notice as to whether the notification is acceptable or if further information is required within reasonable time after the notification has been received by BEA.

The BEA shall publish the accepted notification in a national newspaper (or other appropriate media) within 3 weeks after the acceptance in order to inform and to call for opinions from the public, affected parties, other authorities and non-governmental organizations (NGOs) regarding the project and its consequences. Opinions and comments could include studying of additional issues in greater details during the subsequent surveys. The BEA shall when it finds it appropriate also publish a notice on its own WebPages. Any dispute over compensation for land or agreements in relation to this specific matter shall not be a part of the BEA's licensing process.

After reviewing the notification, if the BEA considers that the environmental or any other impacts of the potential project or operation are substantial the applicant shall arrange meeting for BEA with appropriate stakeholders and affected parties. The BEA will also visit the project area.

- I. ***Stakeholder consultations:*** The BEA shall inform national affected authorities, stakeholders and NGOs about the notified project and its impacts in the meeting.
- II. ***Field visits/Public meetings:*** The BEA shall also arrange meeting in the project area for the local authorities and locally affected parties. The project sites will also

be visited by the BEA officials to be aware of the particular features of the proposed site.

These meetings may also be used as a forum for information and consultation with affected people and organisations in compliance with Section 22 of the Environmental Assessment Act if relevant. The person or entity responsible for the notification shall participate in these meetings and visits.

Any opinions, proposals or comments of the stakeholders should be presented to BEA, no later than 30 days after the notification has been published by BEA.

5 Permit to Survey

After reviewing the notification and comments received to the notification, the BEA may issue a permit in accordance to Section 21 of the Electricity Act, to the intended applicant to carry out assessments, studies and any other activity that may be necessary to enable the intended applicant to prepare an application for a licence.

The intended applicant must at his own initiative establish any agreement with and/or permission to carry out the necessary activities from affected landowners or holders of other rights that may be affected by the survey. The content of the permission to survey is provided in *Annexure I*.

6 Application for Licence

Based on various studies, investigations and surveys and other assessment(s) conducted, the applicant shall submit an application for licence to the BEA. The applicant shall also provide an executive summary of the proposed project (see Section 6.1.7).

The BEA shall endeavour to process all applications for a licence expeditiously.

6.1 Legal Requirements of the Application

The application for licence shall be accompanied with the following information, in accordance to the Section 22 of the Electricity Act, for appropriate assessment of the application. In addition, the licence application shall be accompanied with copies of all reports, studies, investigation and other relevant documents.

6.1.1 *The legal and financial status of the applicant*

The applicant shall provide relevant documents of its legal establishment. For example, if the company is established as per the Companies Act of Bhutan, the applicant shall provide copies of certificate of incorporation and article of incorporation with other relevant documents. Similarly, if the entity is established as per other relevant laws of the Kingdom of Bhutan and/or policy of the Royal Government, the documents pertaining to the necessary approval/agreement shall be provided.

The applicant shall also provide its last available and approved accounts, and clearly indicate its financial potential to fund the project in an acceptable manner. If the project is going to be funded through external sources, the applicant shall also mention the funding agency and provide all the necessary documents demonstrating the funding mechanism and plan.

6.1.2 *Technical and economic description of the project*

A. Technical Description

The applicant shall provide the technical feasibility report of the project which, in general, shall consist of overall technical description of the project, including the maps, drawings, and land use.

a) Hydropower generation

For a hydropower project, the applicant shall at least provide the following information in the form of technical feasibility report:

- i) Detailed description of the project relating to geography, geology, hydrology, seismology, and environment, etc (the project description should include (i) the geographical information of the project site such as location, landscape, elevation and map coordinates, and other relevant information; (ii) geological information of the project components such as dam, tunnels, surge chambers, penstock, powerhouse, tail race and other structures of the hydropower plant; (iii) hydrological information including the catchment area and the catchment characteristics for efficient use of the annual available water; (iv)

seismological information of the project site; and (v) description related to the construction of camps and access roads, construction power requirements, including the plans for possible public use of the roads);

- ii) Detail description of all main civil structures including the dams and water course installations such as intakes, de-silting chambers and tunnels, headrace tunnels, surge chambers, penstock and pipelines, powerhouse, and tailrace tunnels etc, accompanied with the engineering design/calculation of each structure of plants;
- iii) Detail description of all main hydro electro-mechanical and the switchyard equipments accompanied with the engineering design/calculation and the applied technical standard, where relevant; and
- iv) Description of alternative technical solutions if there are any, but mentioning the preferred solution.

Also, since the capacity of the hydropower plant is based on the hydrology regime, the technical feasibility report must contain detail information on hydrological data and calculations, and design of the hydropower plant capacity. Data from at least one gauging station from the catchment area in question should be included. On the basis of the plan of operation of the reservoir and/or power plant, the following hydrological data must be provided:

- i) variations in water level and rate of flow expressed in terms of contours and in m^3/s ;
- ii) extreme values of water level and rate of flow and frequency and duration ;
- iii) flooded area after inundation, draining of areas and important river sections during normal and extreme years;
- iv) analysis of residual rate of flow and water-covered areas for all affected river sections in normal and extreme years with statistical processing information in the form of graphs (100, 75, 50, 25 and 0 percentiles) showing actual years, (e.g. one «dry», one «average», and one «wet» year) and comparison conditions before and after implementation of the project; and
- v) normal margins of error in the hydrological material used.

The proposals for the ‘Rules of Operation’ related to the following, during the operation phase of the hydropower project, shall also be provided:

- i) Maximum and minimum regulated level of reservoir;
- ii) Rate of minimum flow of downstream of the dam; and
- iii) Water level restrictions.

A proposal for 'Rules of Operation' shall include draw-down strategy, plans for peak power operation, and plan to deal with floods etc.

b) *Grid*

The applicant shall provide detailed technical feasibility report of grid project, which shall include the transmission and distribution infrastructures. The application for the licence to construct the hydropower generation, which has transmission or distribution lines as part of the project shall also provide the detail technical feasibility report for the transmission and distribution infrastructure as per the requirement provided herein. The report shall, beside other information, include the following:

- i) Detailed description of the project, including the route map of the transmission line to be constructed and showing location of each transmission tower or distribution pole where possible; reliable satellite map and/or topographical map of the transmission line route; information on the necessary camps and access roads related to the construction and the subsequent maintenance work for the installation; the transport needs of equipment; and the plan for possible public use of the project facilities such as roads during and after the construction works, if any;
- ii) Detailed description of the transmission or distribution lines project including design and technical specification (substation, transformer, tower/poles, lines, protection system and the associated equipments and structures based on the different topography), together with justification/reasons for such design, technical/scientific calculation and applied technical standards, where relevant;

- iii) Information related to power system studies conducted using the load flow analysis and other power system analysis on the feasibility of the grid project, covering the efficiency, energy security, and reliability aspect; and
- iv) Alternative routing for grid.

B. Economical Description

The applicant shall provide the following information related to the economic description of the projects:

- i) Total cost of projects with cost breakdowns such as land acquisition cost, operation and maintenance cost, civil and electro-mechanical cost, network cost, cost of averting measures, and other tangible and intangible cost to the society and environment etc;
- ii) Overall benefits of the project, including the generated revenue (for example, from domestic market as well as through export), and other socio-economic benefits (for example, electricity supply, access roads, hospitals, schools and other public facilities from the project);
- iii) Description of the analytical methods applied to in the financial and economic calculations and the results from economic analysis and/or calculations (Net Present Value, Economic Internal Rate of Return etc);
- iv) All the basic and important parameters used in the financial and economic analysis including the debt equity ratio, cost of capitals, losses, interruptions, etc; and
- v) Sensitivity analyses with respect to key parameters such as investment cost, load forecast, energy prices etc.

6.1.3 *A description of how the project fits in with the existing and planned electricity supply system*

The applicant shall provide detail information on the arrangement for connecting the proposed project with the existing and/or planned electricity supply system, including the following:

- i) Copies of the connection agreement and other related information/documents;
- ii) Maps, drawing and descriptions; and

- iii) Any additional information related to the description on how the project interacts with the existing and/or planned electricity supply system from the construction and operational perspectives.

6.1.4 The planned time of commencement and completion of the construction of the project

The applicant shall provide detail construction schedule in the form of Gantt Sheet to carry out the construction of the project, including the commencement date and completion date of the project. The applicant is expected to predict and indicate how they are to cope with possible delay factors, such as acquisition of land, transport of heavy or special equipment, challenging weather conditions, and other factors beyond their control. A description of the coordination of different stages should also be included, for example a plan for the transmission lines completion in relation to the commissioning of the power plant etc.

6.1.5 A view of the project's adaptation to the landscape, including necessary maps and drawings

The applicant shall provide detailed information from the perspectives of the project's adaptability in that location/site/landscape. The information shall include detailed characteristics/features of the landscape of the project site, including the following information:

- i) existence of forested areas, human settlements, wildlife, cultural and historical structures or significance with significant physical description of project sites;
- ii) intervention/influence of the project to the landscape and the environment in broad aspect;
- iii) Mechanism/reason for adaptability of the project on that particular site; and
- iv) Comparison of the project area before and after the project.

6.1.6 The impact of the project on public interests and possible mitigation

The impacts of the various structures of the project during the (i) pre-construction period (ii) construction period and (iii) operation period of the project on the public interest should be described in detail with the proposed mitigation measures. In other words, the applicant should provide in detail (i) how the project will impact the public interest; (ii) when the project will impact the public interest; and (iii) how the

applicant is proposing to undertake mitigation measures. The applicant shall provide in detail the impact on the public interest due to:

- (i) pre-construction activities of the project such as construction of approach road, construction of camps and dwellings, electric lines construction etc;
- (ii) construction activities of the project such as the dam, headrace tunnels, surge chambers and penstocks, power house, transmission tower/poles, substation and other structures of the project;
- (iii) operation activities of the project such as dam reservoir, minimum flow on the downstream of the dam, summer flood due to increase river flow, and other operational aspect of the project.

The impacts of the project on public interests may be:

- i) Any public facilities such as roads, bridges, and path;
- ii) All cultural monuments and historical sites of public or national interest;
- iii) Air and water;
- iv) Natural resources such as public land, river, forest including the flora and fauna, minerals and other material deposits;
- v) Any other matter of public interest, including the environment that bears public interest.

The applicant shall describe in detail the proposed acceptable mitigation measures with the environmental management plan for each impact of the project on the public interest as per the Environment Assessment Act of Bhutan and other relevant laws.

6.1.7 A summary and conclusions of assessments and studies, including environmental impact assessments

The applicant shall provide well documented summary and conclusion of the proposed project related to:

- i. Environment Impact Assessment;
- ii. Socio-economic Assessment;
- iii. Technical Assessment including the geology, hydrology and seismology; and
- iv. Any other assessments and studies carried out.

Summary and conclusion provided herein by the applicant should be able to present clear and correct assessment of the proposed project in a very conclusive manner.

6.1.8 *Impacts of the project on private interests, including the interest of affected landowners and holders of other rights*

The applicant shall provide in detail the impact of various structures of the projects on private interests such as the number of households, people, areas, type of properties etc, with the proposed or agreed resolving measures, as the case may be. For example, the applicant shall provide the impact of the project on the private interest and holders of other rights due to:

- (i) pre-construction activities of the project such as construction of approach road, construction of camps and dwellings, construction of electric lines etc;
- (ii) construction activities of the project such as the construction of the dam, headrace tunnels, surge chambers and penstocks, power house, substation, tower/poles and other associated structures;
- (iii) operational activities of the project such as from the dam reservoir, minimum flow on the downstream of the dam, summer flood due to increase river flow, and other operational aspect of the project.

The applicant shall also provide information in detail related to impact on the settlement of the people and on other social conditions, including health.

6.1.9 *Proposed tariff calculation*

The applicant shall provide proposed tariff calculation as per the Tariff Determination Regulation of the Bhutan Electricity Authority and state in detail the sustainability/viability of the project. The applicant shall also provide other relevant documents, including the power purchase agreement, and loan agreement. The information shall be provided as per the Annexure-II: Format to calculate the tariff.

6.1.10 *Consents and permits required under any other law*

The applicant shall provide any consents, permits and clearance required under any other relevant law. This may be, but not limited to, Forestry Clearance from the Ministry of Agriculture and Forest, Environmental Clearance from National Environment Commission, Mine Lease Clearance from Department of Geology and Mines, and necessary clearances from Ministry of Home and Cultural Affairs, Dzongkhag and Gewog.

6.1.11 *Any other documents required by the Authority*

The applicant shall provide Environment Impact Assessment report as mentioned in Section 8.1; Detail Project Report; and any other documents required by the BEA while processing the licence application.

6.1.12 Other legal requirement for application

In line with Sub-section 22.4 of the Electricity Act, the BEA may specify the requirements of an application under subsection 22.1, 22.2, and 22.3 of the Electricity Act according to the type and extent of impact of the project or operation applied for.

The applicant shall provide the following to the BEA:

- i) Two hard copies of the application with complete assessment report;
- ii) One soft copy of the application with complete assessment report on CD;
- iii) An application containing information and content that allows non-expert readers to get the necessary and appropriate information for review and to make up their opinions on the plans.

In accordance to Sub-section 22.5 of the Electricity Act, the application for licence shall be accompanied with the fees as provided in the Regulatory Fees Regulation of the BEA.

6.2 Confirmation of Receipt of the Application

In accordance to Sub-Section 22.6 of the Electricity Act, the BEA shall as soon as possible after receipt of an application either request additional information or confirm in writing to the applicant, that the application is complete in all important aspects. However, the confirmation is subject to a reservation that the BEA may demand further information in case the licensing process renders it necessary.

6.3 Advertisement of the application

In accordance to Sub-section 23.1 of the Electricity Act, the BEA shall within a reasonable time, after confirming that the application is complete in all aspects, publish the application at least in one national newspaper of wide circulation and on its WebPages. As per Sub-section 23.2, a notice published under Sub-section 23.1 shall:

- i. Indicate the receipt of an application for a licence;
- ii. Contain a description of the nature and location of the project applied for;

- iii. Inform the members of the public that the application may, within the limits of commercial confidentiality, be inspected at a office of the BEA or at a public office in the area where the project applied for is supposed to be located; and
- iv. Invite directly affected parties and local authorities in areas affected by the project who object to granting of the licence, whether on personal, environmental or other grounds, to lodge with the Authority an objection or other comments within a specified time, being not less than thirty days from the date of the notice.

In addition, the BEA may initiate the appropriate meetings and information processes, where necessary. The intention of these meetings will be to provide opportunity for an open forum where stakeholders, national and local authorities, and other affected parties can receive appropriate information of the project and present their opinions in a transparent manner. In these meetings, the applicant would be required to present the application and the results from survey/studies and assessment made in order to illustrate the consequences, benefits and disadvantages related to the implementation of the project. Where required, the BEA may present the processing of an application for licence.

6.4 Objection to grant of a licence

Section 24 of the Electricity Act states, '*an affected party may lodge with the Authority an objection to the grant of a licence, setting out the grounds of the objection*'. Therefore, all affected parties and authorities shall provide their opinions, comments or objection to the proposed project to BEA in writing within the published deadline. If any objections are lodged, the applicant shall be invited to comment on the objections and give his/her views. Any views by the applicant shall then be included in the BEA's assessment of the application.

7 Assessment of the Application

Sub-section 25.1 of the Electricity Act states, '*when granting or rejecting applications, the Authority shall take into consideration, as far as adequate for the project applied for:*

- i. *the needs for electricity, or revenues for export of electricity, of the country, region or community;*

- ii. *the impact of the operation of the undertaking on the social, cultural and recreational life of the community;*
- iii. *the needs to protect the environment and to conserve the natural resources;*
- iv. *land use and siting or route of the project;*
- v. *the costs of the project;*
- vi. *the ability of the applicant to operate in a manner designed to protect the health and safety of users of the service for which the licence is required and other members of the public who would be affected by the operations of the applicant;*
- vii. *the technical, economic and financial capacity of the applicant to render the service for which the licence is required;*
- viii. *energy efficiency;*
- ix. *any representations and objections made under section 24;*
- x. *the price or tariff offered (as and when found appropriate); and*
- xi. *other public and private interests affected by the operation for which the licence is required '.*

In order to enable the BEA to provide fair and fast decision, the applicants shall ensure that the applications are accompanied by detailed information from the perspective of Sub-section 25.1 of the Electricity Act.

When granting the licence or rejecting the application, the BEA shall also take into consideration the policies of the Government and any other matter that may be considered likely to have a bearing on the operations of the applicant in accordance to Sub-section 25.2 of the Electricity Act.

In order for the BEA to award a licence, the benefits should normally exceed the negative consequences of the project. While processing the application, the BEA shall also consider the alternatives in order to obtain the most efficient use of the financial and available natural resources. Where the negative consequences are significant, the BEA may still carry out licensing process for constructive discussions between the authorities, applicant, and the affected parties with the aim of agreeing on minor or larger adjustments of the plans and appropriate mitigation measures so as to reduce the negative consequences to acceptable limit, since adjusting the plans or introducing alternative solutions to reduce negative consequences would normally be a more realistic outcome of the licensing process rather than rejecting the application totally.

7.1 Statement of reason for a decision

Based on the application, and comments and opinions presented by stakeholders, affected parties, national and local authorities, and the applicant, the BEA shall decide whether to grant or reject application for licence. After making the decision, the BEA shall in accordance to Sub-section 26.1 of the Electricity Act, produce statement of reasons within thirty days.

The statement of reasons for decision and other necessary relevant documents shall be provided to the applicant by the BEA and it shall be made available to the interested parties on request in accordance to Sub-section 26.2 to demonstrate that the considerations preceding the decision have been fair, reasonable, transparent, objective, and non-discriminatory.

8 Environmental Aspects

8.1 Environmental assessment process

The applicant shall submit Environmental Impact Assessment Report and other related information of the proposed projects required as per the Environmental Assessment Act, to the Secretariat of the National Environment Commission (NEC) for screening.

8.2 Environmental clearance

Section 8 of the Environment Assessment Act states that issuance of an environmental clearances shall be pre-requisite to the issuance of a ‘development consent’. The development consent as per the definition of the Environment Assessment Act is the ‘approval issued or renewed in the form of a licence, lease, or permit for land use or construction’. Therefore, environmental clearance shall be attached by the applicant with the application for licence and it shall be an integral part of the application.

9 Licence

9.1 General

If the BEA after due process, grants a licence with subsequent licence conditions as required by the Sub-section 34.1 of the Electricity Act, the licence conditions shall consist of the terms and conditions for the operation of the licenced activities.

9.2 General conditions and individual conditions

Each licence shall include general and individual conditions. The general conditions are common conditions generally applicable to all the licencees of similar nature, while the individual conditions are applicable to the holder of a specific licence, which are intended to cover the special situations or needs related to specific project. The individual conditions may consist of conditions related to minimum water flow, or special types of poles and/or lines, related to the specific project.

10 Involvement of Various Authorities in the Licensing Process

In addition to the requirement for licence according to the Electricity Act, the planning and implementation of electricity projects will be subject to regulation according to a various additional Acts and/or regulations, managed by different authorities such as the the National Environment Commission pursuant to the Environmental Assessment Act, the authorities pursuant to the Forest and Nature Conservation Act, the authorities pursuant to the Land Act, and the local authorities. As various legal frameworks function side by side, it shall be the legal responsibility of the applicant to obtain all necessary permits and licences before applying for the licence to the BEA or commencement of the proposed project, as the case may be.

11 ANNEXURES

Annexure I

Permit to Survey

The Bhutan Electricity Authority (BEA) pursuant to the Section 21 of the Electricity Act of Bhutan, 2001, hereby grants this **Permit to Survey** to the (herein after referred to as the “Intended Applicant”) to carry out the assessments, studies and other activity to enable intended applicant to prepare for an appropriate application for licence for the development of the Project, subject to following terms and conditions.

1. The Permit to Survey shall be valid till
2. The Intended Applicant shall carry out
3. The personnel of the Intended Applicant carrying out the survey/studies shall be professionals covering all the required specialized fields.
4. All documents prepared as part of the survey/studies shall be the property of the Intended Applicant but may be used by the BEA where necessary.
5. The Intended Applicant shall bear all risks and cover all costs related to the performance of the survey, including all fees and charges for obtaining data and information, cost of field investigations/surveys, design, calculations, analyses, reporting and any other studies conducted pertaining to the Project.
6. The studies shall be carried out by the Intended Applicant to provide all the information required as per Section 22 of the Electricity Act of Bhutan, 2001.
7. It shall be the responsibility of the Intended Applicant to obtain the consents, clearances and permits from the concerned authorities and affected parties as may be required under any other law or policy of the Royal Government before the commencement of the survey/studies.
8. The Intended Applicant shall not carry out any works other than the survey/studies permitted herein.
9. The issuance of this Permit does not grant the right for subsequent investment and development of the Project by the Intended Applicant. Based on the findings of the detailed project studies, the Intended Applicant shall apply for separate approval(s) from the Royal Government and/or the BEA, whichever applicable, for the

development of the Project under appropriate mechanism/policy prior to the actual implementation of the project.

10. Based on the consultation/public meetings held with national, regional and local authorities, stakeholders and other affected parties, the applicant shall conduct the following additional studies and assessment as an integral part of the survey.

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Chief Executive Officer of the Authority

Annexure II GENERATION TARIFF COMPUTATION													
			Hard Cost		Nu/Rs. Million								
Design Energy Generation			Total cost including IDC		Nu/Rs. Million		0		O&M ratio		1.50%		
Auxiliary Consumption			1.20%		Cost of land		Nu/Rs. Million		Inventories ratio		1.00%		
Availability			98.00%		Depreciation		3.33 %		Inflation		5.00%		
Technical losses					IDC add		10.00%		Arrears		60		
Royalty Energy											Tax		
Net saleable energy in MU											WACC		
Domestic sales portion													
Export Price													
Year	Net asset value	Return on Assets	Dep	Capital Cost	O&M Costs	Cost of Losses	Revenue	Inventories	Interest on Working Capital		Total Cost	Sales	Tariffs
									Working Capital	Interest			
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	-	-	-	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-	-	-
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32	-	-	-	-	-	-	-	-	-	-	-	-	-
33	-	-	-	-	-	-	-	-	-	-	-	-	-
34	-	-	-	-	-	-	-	-	-	-	-	-	-
35	-	-	-	-	-	-	-	-	-	-	-	-	-
											Levelized Generation Tariff		

Approved in the 25th Commission Meeting of the Bhutan Electricity Authority held on April 7, 2011.

(Dasho Sonam Tshering)
Hon'ble Chairman

(Karma Tshering)
Member Secretary

BHUTAN ELECTRICITY AUTHORITY

GUIDELINES FOR FINES

(PUNITIVE AND CORRECTIONAL)

PURSUANT TO ELECTRICITY ACT OF BHUTAN

2001

1. Background

One of the functions of the Bhutan Electricity Authority is to impose fines, sanctions or penalties for any breach of provisions of the Act, regulations, standards, codes, licences or contracts to be approved by the Bhutan Electricity Authority and concession agreements entered into between Licensees and the Government as per the Section 11.1 vi), Part 2, of the Electricity Act of Bhutan, 2001.

Therefore, the Bhutan Electricity Authority hereby establishes the Guidelines for the imposition of fines to the Licensees for violations of provisions of the Act, regulations, standards, codes, licences, licence condition, contracts approved or directives issued by the Bhutan Electricity Authority, and concession agreements entered into between Licensees and the Government.

Rights and obligations of Licensees are defined in the provisions set forth in the Electricity Act of Bhutan, 2001 and appropriate regulations in force, and may not be deduced from or imposed through procedures and routines set forth in the Guidelines.

2. Definitions

“**Act**” means the Electricity Act of Bhutan, 2001.

“**Bhutan Electricity Authority**” or “**Authority**” means the authority of that name established pursuant to Part 2 of the Electricity Act of Bhutan, 2001.

“**Correctional fines**” means fines imposed together with an order of correction or rectification. The purpose of such fines is to create a legal situation and the fines will cease to exist when the violation has been stopped, corrected or rectified.

“**Day**” means all days including, Saturdays, Sundays and public holidays.

“**Licence**” means licence issued pursuant to the Electricity Act of Bhutan, 2001.

“**Licensee**” means the holder of a licence issued by the Bhutan Electricity Authority under the provisions of the Electricity Act of Bhutan, 2001.

“Ngultrum” means currency of Bhutan.

“Punitive fines” means fines imposed for violations made in the past that do not take into account amendments or rectifications made by the Licensee.

“Sanction” means negative reaction, including fines and penalties issued by the Bhutan Electricity Authority, which is connected to committed violation(s) of provisions of the Act, regulations, codes, standards, licences, contracts approved or directives issues by the Bhutan Electricity Authority, concession agreements entered into between Licensees.

“Secretariat” means the Secretariat of the Bhutan Electricity Authority established pursuant to Section 9 of the Electricity Act of Bhutan, 2001.

“Violation” means violation(s) by the Licensees of the provisions of the Act, regulations, standards, codes, licences, licence condition, contracts approved or directives issued by the Bhutan Electricity Authority, and concession agreements entered into between Licensees and the Government.

3. Purpose

The purpose of the Guidelines is to assist the Bhutan Electricity Authority in handling cases related to imposition of sanctions - both punitive as well as correctional - for any non-compliance by the Licensees with the provisions of the Act, regulations, standards, codes, licences, licence condition, contracts approved or directives issued by the Bhutan Electricity Authority, and concession agreements entered into between Licensees and the Government. The Guidelines shall assist the Bhutan Electricity Authority to assess the extent and degree of seriousness of the violation at hand.

4. Scope

The Guidelines shall apply to all cases where the Bhutan Electricity Authority handles cases involving licences granted under the Electricity Act of Bhutan 2001.

5. Commencement

The Guidelines shall apply from the day it has been approved by the Authority.

6 General

6.1 The Secretariat shall carry out investigations where necessary on the violation in such a manner that the Licensee is able to present an explanation and supply additional information, if required. All information provided shall be in writing, unless given directly to designated staff within the Secretariat. An investigation of the Secretariat may include but not limited to the following:

6.1.1 Site visits; and

6.1.2 Gathering of information from:

6.1.2.1 Witnesses;

6.1.2.2 Licensee; or

6.1.2.3 Other affected parties.

6.2 The Secretariat shall within a reasonable period of time after the investigation, send notice to the Licensee at his registered address containing the following:

6.2.1 Relevant licence condition or requirement under this Act, regulations, codes, standards or directives issued under this Act to which the breach of the Licensee is related;

6.2.2 Actions, omissions or other facts which, in the opinion of the Bhutan Electricity Authority, constitute a contravention of the licence condition or requirement under this Act, or regulations, codes, or standards made under this Act; and

6.2.3 The period, not less than twenty days from the date of receiving this notice, within which the Licensee has to provide any representation, objection or clarifications to the Secretariat.

6.3 All representation, objections or clarifications received shall be considered before providing a final decision on the violation.

- 6.4 The Secretariat may decide the punitive fine for cases limited to Ngultrum 1,00,000.00, without the prior approval of the Bhutan Electricity Authority.
- 6.5 In cases where the proposed punitive fine is above Ngultrum 1,00,000.00 the Secretariat, shall submit its findings and propose a fine to be decided by the Authority.
- 6.6 The decision on the type and extent of sanction to be imposed should be made as soon as possible.
- 6.7 When handling cases the Bhutan Electricity Authority shall at all times ensure its functions are performed in a manner that coincides with Section 12 of the Act.
- 6.8 The Bhutan Electricity Authority shall impose fines which are similar in similar cases and ensure that the fines imposed are proportionate.
- 6.9 The Secretariat shall ensure that the sanctions imposed including stopping of activities deemed to be illegal, carrying out of corrective measures, and payment of fines are carried out by the Licensee.
- 6.10 Additional separate sanction(s) may be levied upon the Licensee's failure to initiate corrective action, or take other measures, as ordered by the Authority.
- 6.11 All fines, imposed in accordance to the Guideline for violations of the Act, regulations, standards, codes, licences, licence condition, contracts approved or directives issued by the Bhutan Electricity Authority, and concession agreements entered into between Licensees and the Government shall be payable to the Bhutan Electricity Authority within thirty (30) days from the date of issuance of order of the Bhutan Electricity Authority unless otherwise stated.

7. Determination of Punitive Fines

- 7.1 Punitive fines may be imposed to a Licensee violating the provisions of the Act, regulations, standards, codes, licences, licence condition, contracts approved or directives

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issued by the Bhutan Electricity Authority, and concession agreements entered into between Licensees and the Government.

- 7.2 When determining punitive fines, the Bhutan Electricity Authority shall try to the extent possible map the licensee's accrued benefit from the violation in question. Special attention shall be provided to the fact that it shall not be beneficial to violate the provisions of the Act, regulations, standards, codes, licences, licence condition, contracts approved or directives issued by the Bhutan Electricity Authority, and concession agreements entered into between Licensees and the Government.
- 7.3 When the violation is adequately assessed with reference to the Licensee's accrued benefit, the fine shall be set to amount which is greater than the profit to serve the punitive motive. The fine to be imposed will comprise of a base amount with the addition of the punitive element. The base fine shall be equal to the licensee's benefit, while the punitive element of the fine will be determined based on the factors/principles mentioned in the Section 7.4 of the Guidelines.
- 7.4 The following factors may be considered by the Bhutan Electricity Authority to determine the appropriate level of punitive element.
- 7.4.1 Promotion of Interest of Licensee: If the violation was committed by the Licensee to promote the licensee's interests such as to make a larger profit, it will be considered an aggravating factor while deciding on the appropriate size of fine. For instance, a Licensee may have an economic benefit by misinforming the authorities or decide to neglect maintenance.
- 7.4.2 Seriousness of the violation: The violation made by the Licensee which conflicts with moral ethics will have to be regarded as serious violation. Immoral actions of the Licensee should contribute to a larger punitive element. However, if the Licensee has tried to minimize the potential damage with best effort to avoid violation, this will serve as an aspect to reduce the imposed fine.

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- 7.4.3 Internal Control System: If the Licensee has a good internal control system, for example, regular monitoring exercises or appropriate training of staff etc, despite which the violation has occurred, then the punitive element would be expected to be reduced. On the other hand, weak or no efforts from the Licensee to prevent such violation will be considered an aggravating factor.
- 7.4.4 Negligence of Licensee: The degree of negligence of the Licensee on the committed violation will also determine the level of the punitive fines. Lower levels of negligence may result in a smaller punitive element than negligence closer to intent.
- 7.4.5 Degree of Damage: The potential degree of damage caused to (i) Licensee's personnel and property, and (ii) to the third party (life or property) if any, due to the violation shall also influence the size of the fine amount. If the damages are larger than it was possible for the licensee to predict, the size of the fine to be imposed may be reduced. Situations beyond the control of the Licensee shall be taken into consideration and recognize this as a factor that may reduce the punitive element.
- 7.4.6 Repeated Offence: If the violation is a repeated offence, the punitive element may in most cases be aggravated compared to cases previously sanctioned or decided on. It may also be relevant to consider other violations incurred by the Licensee in question, and a case may be treated as a repeated violation even though it is not a violation of the same Licence Condition or provision(s).
- 7.4.7 Financial Capacity of the Licensee: The financial capacity of the Licensee in violation shall also be taken into consideration while deciding the appropriate size of fine. The matter of proportionality, that is, larger fine for Licensee with larger financial capacity and vice-versa, has to be considered in order to create deterrent impact to the Licensee. If the licensee is a subsidiary company, the financial capacity/situation of the whole company shall be considered.
- 7.5 The Bhutan Electricity Authority may waive or reduce any punitive fine for which successful corrective activities were initiated and implemented by the Licensee before the

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violation became known to the Bhutan Electricity Authority. Such activities of Licensee may include remedial procedures put in place to assure that the violation does not occur again.

7.6 A decision in writing to impose a punitive fine shall include the followings, but not limited to:

7.6.1 A summary of the situation, including comments from the Licensee or other interests involved;

7.6.2 Description on the specific violation(s) of provisions of the Act, regulations, standards, codes, licences, licence condition, contracts approved or directives issued by the Bhutan Electricity Authority, and concession agreements entered into between Licensees and the Government;

7.6.3 Written decision of the Bhutan Electricity Authority including its considerations and evaluations; and

7.6.4 Statement on the time limit for payment of imposed fine.

8. Determination of Correctional Fines

8.1 When the Bhutan Electricity Authority is considering the size of a correctional fine, it shall take into consideration the following:

8.1.1 The fine shall be set at a level which is not beneficial for the Licensee to ignore the correctional orders issued by the Bhutan Electricity Authority;

8.1.2 It should be unprofitable for the Licensee to remain passive in respect to the said violation and orders issued by the Bhutan Electricity Authority.

8.2 The correctional fines shall be imposed on a daily basis from a given date and are valid until the correction/rectification of the violation(s). The correctional fine may in most cases not be imposed before the Licensee has had adequate time to follow the orders issued by the Bhutan Electricity Authority.

8.3 The correctional fines shall be fair and proportionate and may be worked out as follows:

- 8.3.1 If the Bhutan Electricity Authority finds, through its investigations, that cost of rectification or benefit accrued due to violation is Nu.100,000.00 and that the Bhutan Electricity Authority anticipates Licensee to complete the rectification work within 20 days, the correctional fine could be set at Nu. 5000 per day (that is, 100000/20).

9. Order of Compliance

The order of compliance shall mention a reasonable time limit for rectification of the violation including but not limited to the following:

- 9.1 Statement of the specific violation of provisions of the Act, regulations, standards, codes, licences, licence condition, contracts approved or directives issued by the Bhutan Electricity Authority, and concession agreements entered into between Licensees and the Government;
- 9.2 Commencement of the violation;
- 9.3 Statement on the summary of the situation, including comments from the Licensee or other interests involved;
- 9.4 Written decision of the Bhutan Electricity Authority, including its considerations and evaluations; and
- 9.5 Statement on the time limit for payment of imposed fine, if any.

Approved in the 25th Commission Meeting of the Bhutan Electricity Authority held on April 7, 2011.

(Dasho Sonam Tshering)
Hon'ble Chairman

(Karma Tshering)
Member Secretary

Bhutan

Miscellaneous Regulations

Bhutan Electricity Authority (Distribution Code)

Bhutan Electricity Authority

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1 Purpose, scope and commencement

1.1 Introduction

1.1.1 This regulation may be cited as the Bhutan Electricity Authority (Distribution Code) Regulations, 2006.

1.1.2 The purpose of this regulation is to enumerate the terms and conditions of supply of electrical energy to Customers served by Distribution Licensees and to provide broad guidelines to both Customers and Distribution Licensees in ensuring uniform practices of standard of supply and rules in extending and maintaining the electricity supply.

1.2 Commencement

This regulation shall come into force from **1st January 2008**

1.3 Objective

The objective of the Distribution Code is to regulate the following activities so that these are undertaken in a safe, reliable and efficient manner:-

- i) The distribution of electricity by a Distribution Licensee for supply to its Customers.
- ii) The connection of a Customer's electrical installation to the Distribution System of a Distribution Licensee.
- iii) The connection of Embedded Generator to the Distribution System of a Distribution Licensee. and
- iv) Transfer of electricity between Distribution Systems.

1.4 Scope

1.4.1 The provisions of this Code shall be applicable to the Licensees and Users of the Licensee's Distribution System as detailed except where an exemption is granted by the Authority. Further any Licensee and Consumers connected or seeking connection with the Distribution System shall comply with the Distribution Code.

1.4.2 This regulation shall extend to the whole of the Kingdom of Bhutan.

1.5 Dispensation

Nothing contained in this Distribution Code shall have effect, in so far as it is inconsistent with the provisions of the Electricity Act of Bhutan, 2001 and Regulations framed under the law.

1.6 Unforeseen Circumstances

If circumstances not envisaged by the provisions of the Distribution Code arise, the Licensee shall, to the extent reasonably practicable, consult with all affected Users to reach an agreement for the further course of action. If agreement between the Licensee and affected Users is not reached in the time available, the Licensee shall follow a prudent course of action, keeping the nature of unforeseen circumstance and the technical parameters of the affected User's system in mind. Under such event, the

affected Users shall comply with the instructions given by the Licensee. The Licensee shall inform the Authority about all such cases and request for incorporation during future revisions.

1.7 Non-Compliance

In case of persistent non-compliance of any of the stipulations of the Distribution Code by any Licensee and/or Users, the matter shall be referred to the Authority for redressal.

1.8 Management of Distribution Code

The Distribution Code and its amendments shall be made by the Authority. The request for amendments, modifications or clarifications in the Distribution Code shall be addressed to the Authority and the decision of the Authority shall be final.

2 Interpretation and definitions

2.1 Definitions

For the purpose of this regulation, any word or expression used to which a meaning has been assigned in the Electricity Act of Bhutan, 2001, shall have that meaning, unless explicitly indicated in this regulation. The following words and expressions shall have the meaning ascribed to them:

“Act” means the Electricity Act of Bhutan, 2001;

“Apparatus” means electrical equipment and includes all machines, fittings, accessories and appliances, which use electricity for functioning;

“Area of Supply” means the area within which a Distribution Licensee is authorised by the Licence to supply electricity;

“Authority” means the Bhutan Electricity Authority;

“Average Power Factor” means the Power Factor measured based on the average over a period and to be calculated as a ratio of kilowatt hour and kilovolt-ampere hour during the same period;

“Bhutan Electricity Authority” means the authority of that name established pursuant to Part 2 of the Act;

“Circuit” means an arrangement of conductor(s) for the purpose of carrying electrical energy and forming a system or branched system;

“Connection Agreement” means an agreement between a User and a Distribution Licensee for connection to the Distribution Licensee’s Distribution System;

“Connection Point” means a point at which a User’s electrical system is connected to the Licensee’s Distribution System;

“Consumer or Customer” means any person who is supplied with electricity for his own use by a Licensee or by any other person engaged in the business of supplying electricity to public under the Act or any other law for the time being in force and includes any person whose premises are for the time being connected for the purpose of receiving electricity with the works of a Licensee, or such other person, as case may be;

“Customer Average Interruption Duration Index” or “CAIDI” means the average interruption duration of sustained interruptions determined in accordance with Section 7.9.1 for those consumers who experienced interruptions during the reporting period, determined by dividing the sum of all sustained consumer interruption durations, in minutes, by the total number of interrupted consumers for the reporting period, or by using the following equation:

$$CAIDI = SAIDI / SAIFI$$

“Day” means a working day, other than a Saturday or Sunday, or a Public Holiday;

“Distribute” means to distribute electricity to Customers’ points of supply using a Distribution System;

“Distribution Licensee” means a person who has obtained a license to distribute electricity in pursuant to Section 22 of the Act;

“Distribution System” means any system consisting mainly of cable, service lines and overhead lines, electrical plant and meters having design voltage of 33 kV and below owned or operated by a Licensee for distribution or for retail supply and used for the transportation of electricity from a transmission system or generating sets or other points to the point of delivery to Consumers, and includes any electrical plant and meters owned or operated by the Licensee in connection with the distribution of electricity. The Distribution System shall not include any part of a transmission system, except where used for the supply of electricity to a single Consumer or group of Consumers;

“Distribution Zone” means an area within the Area of Supply that is normally served by one connection to the Transmission System, or in the case of a ring network, a small number of connections to the Transmission System;

“Earthing” means connection of the electrical appliances with the general mass of earth as to ensure at all times an immediate discharge of energy without danger;

“Embedded Generator” means a generator which is connected to a Distribution System;

“Emergency” means an Emergency due to the actual or imminent occurrence of an event /incident which endangers or threatens to endanger the safety or health of any person or which destroys or damages, or threatens to destroy or damage, any property;

“Generation Licensee” means a person who has obtained a License for generation of electricity pursuant to Part-3 (Section 22) of the Act;

“Grid Code” means a document describing the approach and the responsibilities for planning and operation of power system issued by the Authority in pursuant to Part 10 (Section 89) of the Act;

“High Voltage” means voltage of 66 kV and above;

“Large Consumer” means any Consumer who is directly connected to the Transmission System or whose notified maximum demand exceeds a level of five (5) MW, or such level as the Authority may determine from time to time;

“Licence” means a license issued under the provisions of Part 3 of the Act;

“Licensee” means any person issued with a Licence;

“Load Shedding” means deliberate switching off of electrical loads at distribution level based on system requirement;

“Low Voltage” means voltage not exceeding 400 volts between phase to phase for three phase supply or 230 volts between phase to neutral in case of single phase supply;

“Medium Voltage” means voltages of 6.6 kV or 11 kV or 33 kV;

“Meter” means equipment used for measuring electrical quantity;

“Power Factor” means the ratio of Active Power (kW) to Apparent Power (kVA);

“Rural Area” means any area that is not an Urban Area;

“System Average Interruption Duration Index” or “SAIDI” means the average duration of sustained consumer interruptions (determined in accordance with Section 7.9.1) per consumer occurring during the reporting period, determined by dividing the sum of all sustained consumer interruption durations, in minutes, by the total number of consumers using the following equation:

$$SAIDI = \sum_i R_i \times N_i / NT$$

where:

“ R_i ” is the restoration time for interruption event “ i ”;

“ N_i ” is the number of consumers who experienced a sustained interruption in interruption event “ i ” during the reporting period; and

“ NT ” is the total number of consumers of the Distribution Licensee;

“System Average Interruption Frequency Index” or “SAIFI” means the average frequency of sustained interruptions (determined in accordance with Section 7.9.1) per consumer occurring during the reporting period, determined by dividing the total number of all sustained consumer interruption durations by the total number of consumers using the following equation:

$$SAIFI = \sum_i N_i / NT$$

where:

“ N_i ” is the number of consumers who experienced a sustained interruption in interruption event “ i ” during the reporting period; and

“ NT ” is the total number of consumers of the Distribution Licensee;

“System Operator” means the authorised person/s whose function is defined under Section 39 of the Act;

“Transmission Licensee” means a person who has obtained a Licence for transmission of electricity pursuant to Section 22 of the Act;

“Transmission System” means an electricity network operating at a nominal voltage of 66 kV and above or as deemed by the Authority to be a part of the transmission network;

“Urban area” means any area within a proclaimed municipality;

“User” means any person having an electrical connection to the Distribution System.

2.2 Abbreviations

The following abbreviations shall have the meaning ascribed to them

“AC” means alternating current;

- “BEA” means Bhutan Electricity Authority;
- “CAIDI” means Customer Average Interruption Duration Index;
- “CT” means current transformer;
- “DPR” means Distribution Performance Report;
- “HP” means Horse Power;
- “HV” means High Voltage;
- “kW” means kilowatt;
- “kWh” means kilowatt hour;
- “kVAR” means kilovolt ampere reactive;
- “kVARh” means kilovolt ampere reactive hour;
- “kV” means kilovolt;
- “kVA” means kilovoltampere;
- “LV” means Low Voltage;
- “MV” means Medium Voltage;
- “PT” means potential transformer;
- “SAIDI” means System Average Interruption Duration Index;
- “SAIFI” means System Average Interruption Frequency Index.

3 Conditions of supply

3.1 Objective

The objectives of this Section are to:-

- i) To ensure that the technical, design and operational criteria specified in the Distribution Code and Distribution Performance Standards are fully complied with for new connections or augmentation of existing connections with the Distribution System;
- ii) To establish the general requirements for all Users seeking to connect to the Distribution System, or seeking to modify an existing connection;
- iii) To specify the technical arrangements required at the interface boundary between the Distribution System and the User's plant and equipment that are applicable at all voltage levels;
- iv) To ensure that a new connection to the Distribution System neither exert any adverse effect on the existing Users nor shall a new connection suffer adversely due to existing Users;
- v) To specify the requirements that are applicable to all existing or prospective Embedded Generators, and
- vi) To facilitate data exchange between the Users, who are connected to the Distribution System.

3.2 Scope

The conditions of supply as enumerated in this code shall apply to all Users using or intending to use the Distribution System including:

- i) Distribution Licensees;
- ii) Consumers connected to the Distribution System;
- iii) Embedded Generators.

3.3 Connection Application Procedure

3.3.1 Application for Connection

- 3.3.1.1 An entity seeking connection to Distribution System or an existing User seeking modification to an existing connection shall submit an application for connection to the Distribution Licensee as per the procedures and formats prescribed by the Licensee.
- 3.3.1.2 The applicant seeking a new connection or requesting modification for a connection shall enter into an agreement with the Distribution Licensee. The applicant seeking connection to Distribution System shall also observe the approved procedure as laid down in the terms and conditions of electricity supply by the Distribution Licensee.

3.3.2 Data Requirement

- 3.3.2.1 Any entity seeking connection to a Distribution Licensee's system or an existing User seeking modification in an existing connection shall furnish data (in prescribed format) to the Distribution Licensee. Incomplete and insufficient data by the applicant, unless corrected, shall entitle the Distribution Licensee to refuse connection.
- 3.3.2.2 An Embedded Generator shall provide to the Distribution Licensee information on the Generating Plant and the proposed interface arrangements between the Generating Plant and the Distribution System. The Embedded Generator shall furnish the information for each generating unit (in the format specified by the Licensee) along with their application for connection with Distribution System.
- 3.3.2.3 The Distribution Licensee, when necessary, shall ask for any additional information as may be necessary to permit a full assessment of the effect of the applicant's load on the Distribution System. The applicant shall submit such additional data to Distribution Licensee within the prescribed time.

3.4 Connection Agreement

- 3.4.1 Distribution Licensee and the User shall be responsible for safety as indicated in the Connection Agreement.
- 3.4.2 The Connection Agreement shall lay down the terms and conditions for connection to and use of the Distribution System. The Connection Agreement shall include (but not limited to), as appropriate, the following terms and conditions:-
 - i) A condition requiring both parties to comply with the Distribution Code;
 - ii) Details of connection, technical requirements and commercial arrangements including the schedule of tariff for access and use of the Distribution System;
 - iii) Details of any capital expenditure arising from necessary reinforcement or extension of the system and demarcation of the same between the concerned parties;
 - iv) Site Responsibility Schedule; and
 - v) Minimum requirement on protection.

3.4.3 Site Responsibility Schedule

For each new Connection with Distribution System or modification of existing connection required, Distribution Licensee shall prepare a Site Responsibility Schedule indicating the following for each item of equipment installed at the Connection site as per format specified by the Licensee:-

- i) The ownership of equipment;
- ii) The responsibility for control of equipment;
- iii) The responsibility for maintenance of equipment;
- iv) The responsibility for operation of equipment;
- v) The coordinator at the site;

- vi) The responsibility for all matters relating to safety of persons at site.

3.5 Connection Points and Boundaries

- 3.5.1 Connection to Transmission System: The Distribution Licensee shall comply with connection condition stipulated in the GRID CODE for connection to the transmission system.
- 3.5.2 Connection of Generators with Distribution Systems: Voltage for inter-connection of generators with Distribution System shall be 33/11/6.6 kV or as agreed to with Distribution Licensee. The Connection Point shall be mutually agreed between the generating station and the Distribution Licensee. Generating Company/Generator shall maintain all the terminals, communication and protection equipment provided in the switchyard of generating station.
- 3.5.3 The provision, ownership, operation & maintenance of the metering system between Generation Licensee and Distribution Licensee at inter-Connection Point shall be as per section 5.10. The Distribution Licensee shall maintain all electrical equipment and other assets from the gantry onwards.
- 3.5.4 HV Consumers: The voltage may be three phase 66 kV and above with +/- 10% variation as provided in the terms and conditions of Electricity Supply by the Distribution Licensee. The provision, ownership, operation & maintenance of the metering system between Consumer and Distribution Licensee at Connection Point shall be indicated in the connection agreement mutually agreed.
- 3.5.5 MV Consumers: The Voltage may be 6.6 kV or 11KV or 33kV with +/- 10% variation as provided in the terms and conditions of Electricity Supply by the Distribution Licensee. The provision, ownership, operation & maintenance of the metering system between Consumer and Distribution Licensee at Connection Point shall be indicated in the connection agreement mutually agreed.
- 3.5.6 LV Consumers: The voltage may be single phase 230 Volt between phase and neutral or three phase 400 Volts between phases.
- 3.5.7 The point of commencement of supply of energy to a Consumer shall be at the incoming terminal of the cut-out /other isolating device installed by the Consumer as per the terms and conditions of the electricity supply.
- 3.5.8 The Distribution Metering Code shall govern the metering at the Consumer's premises. The provision of sealing of meters and cut-out/isolating devices shall be as per Section 5.10.

3.6 Technical requirements of Connected Equipment

The equipment connected to the Distribution System shall meet the following requirements:-

- i) All equipment connected to the Distribution System shall be of such design and construction as to satisfy the requirements of the Codes and Standards approved by the Authority;
- ii) Installation and commissioning of all electrical equipment/works shall comply as per standard rules and practices;

- iii) For each new connection, the Distribution Licensee shall specify the Connection Point and the voltage of supply, along with the metering and protection requirements;
- iv) Insulation levels of the Users' equipment shall conform to applicable Standard or Code;
- v) Protection and metering of the connected equipment shall be in accordance with Sections 5.10 and 5.11;
- vi) All equipment conductor cable at the premises of LV & MV Consumers shall also comply with relevant international or other equivalent standards.

3.7 Non-compliance

Notification to Customers

3.7.1 If a Distribution licensee becomes aware of its failure to comply with any obligation under the Code, which can reasonably be expected to have a material or adverse impact, it shall:

- (a) inform the customer likely to be adversely affected by the non-compliance at the earliest but not later than 5 days;
- (b) undertake an investigation of the non-compliance as soon as practicable but in any event within 20 days; and
- (c) advise the customer of the steps it is taking to comply.

3.7.2 If a Distribution licensee becomes aware of a breach of this Code by a Customer, which is not of a trivial nature, the Distribution licensee shall notify the Customer, in writing, of:

- (a) details of the non-compliance and its implications, including any impact on the Distribution Licensee and other Customers;
- (b) actions that the customer could take to remedy the non-compliance;
- (c) a reasonable time period in which compliance must be demonstrated;
- (d) any consequences of non-compliance; and

3.8 DISCONNECTION OF SUPPLY

A Distribution licensee may disconnect supply to a Customer's premises if:

- (a) the Customer has not fulfilled an obligation to comply with this Code as notified under clause 3.7.2 within the reasonable notice period thereof; and

- (b) the Customer fails to comply with the notice or enters into an arrangement to comply but fails to comply with that arrangement.

3.8.1 Health, safety or emergency

3.8.1.1 A Distribution licensee may disconnect supply to a Customer's premises if supply otherwise would potentially endanger or threaten to endanger the health or safety of any person or the environment or an element of the environment or if there is otherwise an emergency.

3.8.1.2 Except in the case of an emergency, or where there is a need to reduce the risk of fire or where relevant regulations require otherwise, a Distribution licensee must not disconnect a Customer's supply address unless the Distribution licensee has:

- (a) given the Customer written notice of the reason;
- (b) allowed the Customer 5 days from the date of receipt of the notice or 10 days from the issue of notice to eliminate the cause of the potential danger; and
- (c) at the expiration of 3.8.1.2(b) another 5 days notice of its intention to disconnect the Customer (the 5 days is to be reckoned from the date of receipt of the notice or 10 days from issue of the notice whichever is earlier).

3.8.2 Customer's request

A Distribution Licensee shall disconnect supply to a customer's premises if the customer has requested disconnection, a customer shall notify the Distribution Licensee 5 days in advance. The Distribution licensee shall disconnect the supply as indicated in its Terms and Condition of Supply of Electricity.

3.8.3 Illegal supply

A Distribution Licensee may disconnect supply to a Customer's premises immediately after serving the disconnection notices if:

- (a) the supply of electricity to a customer's electrical installation is used other than that specified in the connection agreement;
- (b) a customer takes at the customer's premises electricity supplied to another supply address;

- (c) a customer tampers with, or permits tampering with, the meter or associated equipment; or
- (d) any unauthorized tapping of electricity is noticed.

3.8.4 No disconnection

- 3.8.4.1 A Distribution Licensee must not disconnect supply to a customer's supply address except in the case of an emergency or under clause 3.8.3 or otherwise as agreed with a customer.

3.9 Connected Plant Restrictions

3.9.1 Safety

- 3.9.1.1 All equipment of the Users including cables, wiring and overhead lines shall be compatible with safety standards in respect of quality of manufacture; erection and location of installation; and earthing of the installation.
- 3.9.1.2 The Consumers, as per Part 3, Section 43 of the Act, shall comply with Safety Regulations made by the Authority.

3.9.2 Insulation

The Users' systems must be designed with proper basic insulation level. Insulation of all components in service must have adequate insulation strength for the system operating voltages at all times.

3.9.3 Clearances

All overhead lines, equipment and facilities must have adequate horizontal and vertical clearances with respect to ground and with respect to one another as provided in the applicable Standards.

3.9.4 Earthing

All components of Users' systems must be properly earthed as per applicable Rules/Standards. The bodies/cases/trucks/enclosures of all items of equipment shall be properly earthed, with the actual earthing arrangements depending on the machine ratings. Metallic supports of overhead lines and cable sheaths and shields of underground cables shall also be earthed appropriately. Multiple Earth Neutral (MEN) method shall be adopted for earthing of distribution system.

3.9.5 Motor Starters

The starters provided for the motors of the Users shall be of such type and design that the starting current is less than six times the full-load current.

3.9.6 Access to Licensee

The Licensees and their authorized personnel shall have the right to inspect the plant of the User or Consumer to ensure conformity to standards and

restrictions before charging the User's system and periodically thereafter. The Users shall facilitate access to the authorized personnel of the Licensees for the purpose of:-

- i) inspecting, testing, repairing or altering the electric supply lines, meters, fittings, works and apparatus for the supply of electricity belonging to the Licensee; or
- ii) ascertaining the amount of electricity supplied or the electrical quantity contained in the supply; or
- iii) removing where a supply of electricity is no longer required, or where the Licensee is authorised to take away and cut off such supply, any electric supply-lines, meters, fittings, works or apparatus belonging to the Licensee; or
- iv) as necessitated by the Licensee for the performance of his duty.

3.9.7 Unintended and Unscheduled Back-Energisation

The Users shall take adequate precautions to ensure that no part of the Distribution System is energized by the User's system or from another source via the User's system unless the Licensee as an exceptional arrangement requisitions it in writing. The switchgear and controls of the User's systems shall be so designed as to prevent back-energisation.

3.9.8 Harmonic Current

Distribution Licensee shall incorporate suitable clause in the Connection Agreement for restricting the harmonic injection by the Consumer into Distribution System.

3.9.9 Voltage Flicker generated by Consumers

Distribution Licensee shall incorporate suitable clause in the Connection Agreement to restrict the current fluctuations and thereby voltage flicker.

3.9.10 Power Factor

Low Power Factor results in under utilization of capacities of equipment, machines, overhead lines and cables of the Licensees and generators. The Connection Agreement shall specify the limit of Power Factor of the loads. The Power Factor at which energy is imported by any entity as measured at the Connection Point shall not be less than 0.85.

3.10 Interface with Embedded Generators

If the Distribution Licensee has an interface with any generator, the Distribution Licensee and the concerned owner of the generating unit shall also abide by the following provisions:-

3.10.1 Generating Units up to five (5) MW

The owner shall provide suitable protection at the interface to protect his system from any damage due to normal and abnormal conditions in the Distribution System. The owner shall install appropriate metering arrangement for the reactive energy exchanged, in addition to operational metering. The

frequency variations shall be conforming to the provisions of the Grid Code in case the Generating units are kept synchronized with the Transmission System.

3.10.2 Generating units of above five (5) MW

The owner shall provide suitable capacitors to compensate the reactive power drawl. The owner of generating unit shall enter into a Connection Agreement with the Distribution Licensee and if required with Transmission Licensee in the country.

3.11 Operational Labelling

The Distribution Licensee and each User shall be responsible for providing and maintenance of clear, unambiguous signs and labels indicating the numbering and names of equipment/apparatus and Circuits at the substations and connection sites. Each piece of equipment such as a transformer, circuit breaker or an isolator shall be labelled by a unique number.

3.12 Temporary Service Line

Service lines for temporary requirement shall be laid by the Distribution Licensee wherever possible and the cost incurred in providing, laying, maintaining and removing such service lines shall be paid by the User. The Distribution Licensee, however, at its sole discretion, may allow the User to lay, maintain and remove such service line, using the User's own material. The User will be required to pay energy charges and all other charges at the norms fixed by the Distribution Licensee for such temporary service under its Schedule of Rates. Unless otherwise approved by the Licensee in writing, the temporary service shall be defined as installations intended for removal within a period not exceeding two years.

4 Asset Management

4.1 Objective

The objective of this Section is to ensure a good asset management practice by the Distribution Licensee to encourage improvement and innovation in distribution services.

4.2 Good Asset Management practice

A Distribution Licensee shall endeavour to:-

- i) Assess and record the nature, location, condition and performance of its Distribution System assets;
- ii) Develop and implement plans for the acquisition, creation, maintenance, operation, refurbishment, repair and disposal of its Distribution System assets and plans for establishment and augmentation of transmission connections:-
 - to comply with the laws and other performance obligations which apply to the provision of distribution services including those contained in this Distribution Code;
 - to minimise the risks associated with the failure or reduced performance of assets;
 - to minimise costs to Consumers taking into account distribution losses;
- iii) Develop, test, simulate and implement contingency plans to deal with events which have a low probability of occurring, but are realistic and have a substantial impact on Consumers.

4.3 Consumers' electrical installation and equipment

A Consumer shall endeavour to:-

- i) Ensure that the electrical installation and any equipment within its premises:
 - complies with the Distribution Code;
 - is maintained in a safe condition;
- ii) Ensure that protection equipments are effectively coordinated with the Distribution System.
- iii) Ensure that the Distribution System and the reliability and quality of supply to other Users are not adversely affected by its actions or equipment;
- iv) Not allow a supply of electricity to its electrical installation to be used by any other person except in accordance with the Act;
- v) Not bypass/tamper the meter;
- vi) Not allow electricity supplied under a domestic tariff to be used for non-domestic purposes.

4.4 Distribution Licensee's equipment on Consumer's premises

4.4.1 A Consumer must:-

- i) Not interfere with the Distribution Licensee's system including any of the Distribution Licensee's equipment installed in or on the Consumer's premises;
- ii) Provide and maintain in its premises the agreed facility required by the Distribution Licensee to protect any equipment of the Distribution Licensee.

4.4.2 A Consumer must provide to the Distribution Licensee's representatives convenient and unhindered access:-

- i) To the Distribution Licensee's equipment for any purposes associated with the supply, metering or billing of electricity; and
- ii) To the Consumer's electrical installation for the purposes of:-
 - inspection or testing of the Consumer's electrical installation for the purpose of assessing whether the Consumer is complying with the Distribution Code;
 - Connecting, disconnecting or reconnecting supply.

4.4.3 In cases other than emergencies, a Distribution Licensee shall endeavour to access a Consumer's premises at a time which is reasonably convenient to both the Consumer and the Distribution Licensee.

4.5 Distribution Performance Report

4.5.1 Distribution Licensees shall submit to the Authority on an annual basis a Distribution Performance Report (DPR), about the plan to meet predicted demand over the following five years.

4.5.2 The DPR must include the following historical information for each Distribution Zone for the preceding year:-

- i) the supply capacity;
- ii) the historical demand pattern and maximum demand;
- iii) the volumes of energy supplied;
- iv) the loss of load as measured by the CAIDI, SAIDI and SAIFI;
- v) energy exchange with other Distribution Licensees.

4.5.3 The DPR must include the following planning information for each Distribution Zone for the forthcoming five year period:-

- i) The forecast number and type of new connections by customer category, including customers from rural electrification projects, and new Large Consumers, who will be supplied in each Distribution Zone;
- ii) the forecast demand growth in terms of both energy and peak demand;
- iii) a plan for meeting forecast demand including opportunities for Embedded Generators and demand management.

4.5.4 The DPR shall also contain the following investment information for each Distribution Zone for the forthcoming five year period:-

- i) Planned investment, including rural electrification investment;
- ii) Investment measures to improve reliability to Consumers.

4.5.5 Each Distribution Licensee must publish the DPR on its website and, on request by a Consumer, provide the Consumer with a copy.

5 Distribution Operating Code

5.1 Introduction

5.1.1 This section contains the rules, procedures and practices to be followed for safe and efficient operation of the Distribution System by the Distribution Licensee, and Users of the Distribution System. This shall also apply to any electrical interface between two Distribution Licensees. Operational matters pertaining to interfaces between distribution and transmission systems shall conform with the Grid Code.

5.1.2 The following aspects of Distribution System Operation are covered in this section:

- i) System of supply;
- ii) Quality of supply-Monitoring and control of frequency, voltage, and Power Factor;
- iii) Demand estimation;
- iv) Outage Planning;
- v) Contingency Planning;
- vi) Demand Management and Load Shedding;
- vii) Metering and protection;
- viii) Safety Co-ordination;
- ix) Maintenance of substations and Distribution Lines.

5.2 Objectives

The objective of Distribution Operation Code is to achieve the following:-

- i) To establish rules, procedures and arrangements for safe and efficient operation of the Distribution System;
- ii) To enable the Distribution Licensee to coordinate and integrate the operation and maintenance with other Users, Embedded Generators, and Large Consumers connected to Distribution System;
- iii) To ensure safety of persons and properties while work is being done on the Distribution System;
- iv) To provide for the exchange of information.

5.3 Distribution Operating Procedure

5.3.1 To ensure compliance with the provisions of this Code, Distribution Licensees shall develop and maintain Distribution Operating Procedures.

5.3.2 Distribution Licensees shall furnish the copies of the Distribution Operating Procedures to the Authority.

5.4 System of Supply

5.4.1 The declared frequency of AC supply is 50 Hz.

5.4.2 The declared voltage of AC Supply is as follows:-

System of Supply	Voltage Level	Limits of Variation
LV	Single Phase, 230 V between phases and neutral, Three phase 400 V between phases	± 6%
MV	6.6kV, 11kV, 33kV	± 10%
HV	Three phase at 66kV and above	± 10%

5.4.3 The system of supply shall be determined by the Distribution Licensee depending on the contract demand of the Consumer. The system of supply for the contract demands shall normally be as follows:-

Contract Demand *	Supply system
≤10 kW	Single phase, 230 V
>10kW & ≤30 kW	3 phase, 400 V through direct connected meter
>30 kW & ≤100 kW	3 phase, 400 V through direct connected or CT connected meter
>100 kW & ≤300 kW	3 phase, 400 V through CT connected meter
>300 kW & ≤3 MW	6.6kV, 11kV or above through CT/PT connected meter
>3MW & ≤15 MW	33kV or above through CT/PT connected meter

* The Contract Demand in case of LV Consumers is the estimated demand based on the information on the appliances, number of power points, furnished by the Consumer duly verified by the Distribution Licensee (at the time of application for new connection or for increase / decrease in demand, unless such demand is warranted to be furnished by the Consumer for appropriate customer categorization, based on the tariff schedules, revised from time to time by the Distribution Licensee).

5.4.4 The Distribution Licensee may, however, at its discretion, also supply at any other voltage depending on system availability or condition.

5.5 Quality of Supply

5.5.1 Supply Frequency

5.5.1.1 The System Operator shall co-ordinate for maintaining the system frequency between 49.0-50.5Hz.

5.5.1.2 The Distribution Licensee shall comply with the directions of System Operator in its endeavour to maintain the system frequency.

5.5.2 Supply Voltage

5.5.2.1 Distribution Licensee must maintain a nominal voltage level at the point of supply to the Consumer's electrical installation, subject to clause 5.4.2.

5.5.2.2 The Distribution Licensee shall endeavour to control voltage within the allowable tolerance of its variations unless such variations are beyond the control of the Distribution licensee.

5.5.2.3 The Distribution Licensee must monitor and record steady state voltages and voltage variations at each zone substation in its Distribution System which are outside the limitations.

5.5.3 Power factor

5.5.3.1 The Consumers shall maintain an average Power Factor of not less than 0.85.

5.5.3.2 The Distribution Licensee reserves the right to refuse to supply an apparatus, motor or installation in a Consumer's premises where in its opinion the average Power Factor of the installation is less than 0.85.

5.5.3.3 When required by the Distribution Licensee, the Consumer shall take reasonable time, not exceeding three months, to take such effective steps as to raise the average Power Factor of installation to a value not less than 0.85. Notwithstanding this provision, the Distribution Licensee in the interest of system regulation, may at its discretion, disconnect the supply till such remedial measures are taken by the User without giving notice.

5.5.3.4 In the event of such steps not being taken by the Consumer, the Company reserves the right to disconnect at its discretion the supply without prejudice to the right of recovery of penal charges as stipulated in the tariff rates.

5.5.4 Load balancing

5.5.4.1 The Consumer taking three phase supply shall balance the connected load in such a way that the difference in the loading of each phase does not exceed five per cent (5%). In other words, the maximum permissible difference between phases shall be five per cent (5%).

5.5.4.2 In case of continued unbalance in the operating loads for three-phase Consumers, the Distribution Licensee, may at its discretion, notify the Consumer to ensure proper balancing of the operating loads

5.6 Demand Estimation

5.6.1 A Distribution Licensee shall prepare a five year demand forecast on an annual basis and submit this to the Authority.

5.6.2 A Distribution Licensee shall provide such demand forecasts as may be required under the Grid Code.

5.6.3 The basis of demand estimation shall be on following inputs:-

- i) Historical information;
- ii) Typical requirement of HV, MV and estimated demand of LV Consumers on the basis of relevant load data and/or hourly load curves subject to modifications depending upon the communications received from such Users or caused by any contingency. Distribution Licensee may also identify such major Consumers who only shall be required to furnish data pertaining to their installations to the Licensee on demand for the purpose of demand estimation;

- iii) Availability of Embedded Generators;
- iv) Estimation of system losses.

5.6.4 The Distribution Licensee shall consolidate the requirement for the entire Distribution System and shall furnish the same to the System Operator.

5.6.5 The Licensee shall prepare and maintain adequate historical data and shall use scientific techniques and methods for demand estimation.

5.6.6 In the event of any unforeseen event causing change in the demand in the entire Distribution System or at a particular interconnection shall necessitate revision of demand forecast. The revised values of estimated demand shall be promptly intimated

- i) by Users to the Licensee;
- ii) by the Licensee to System Operator.

5.7 Outage Planning

5.7.1 The Distribution Licensee, as far as possible, shall coordinate and match its planned outage program with the Transmission Licensee to minimize outage impact to the Consumers.

5.7.2 The outage programme shall contain identification of lines and equipment of Distribution System (not below 11 kV system) proposed to be taken out of service, date of start of outage, duration of outage and estimated quantum of load curtailment during outage.

5.7.3 Before any line or equipment of 11 kV and above are taken out of service, the Distribution Licensee shall inform the Transmission Licensee even though the same is already included in the approved plan.

5.7.4 The above procedure shall not apply under the following circumstances:

- i) In cases where the estimated drawal at Connection Point is not affected;
- ii) Emergency situations to save plant and machinery;
- iii) In case of unforeseen Emergency situations requiring isolation of line or equipment to save human life;
- iv) Disconnection to be effected on any User's or Consumer's installation due to violation of agreement.

5.7.5 In such cases the System Operator shall be informed wherever the load to the extent of two (2) MW or more is affected.

5.7.6 Outage of Users' Plant

All Users shall submit their tentative outage plans to its Distribution Licensee. The HV and MV Consumers, Embedded Generators shall each indicate three preferred options of the date of commencement of outage. The Distribution Licensee shall endeavour to harmonize the outage plan of its Distribution System elements and the Users' outages and the comprehensive outage plan shall be communicated to the Users. The Distribution Licensee shall endeavour to accommodate the first preference dates of outage commencement of the

Users. The Licensee may convene coordination meetings with the Users before finalizing the outage plan.

5.8 Contingency Planning

- 5.8.1 A contingency situation may arise in the event of a total or partial blackout in the Transmission System. A contingency may also arise on a part of the Distribution System due to local breakdowns in the Distribution System itself. It may also arise due to a breakdown in the Apparatus of the Transmission Licensee at the point of interconnection.
- 5.8.2 The Distribution Licensee shall develop a Contingency procedure to achieve the restoration of the associated Distribution System and associated demand, and re-synchronization of parts of the total system, which have become out of synchronism with each other, at the shortest possible time. The procedure shall be regularly updated with change in distribution network configuration and shall also be made available in the website of the Distribution Licensee. The Distribution Licensee in coordination with the Transmission Licensee and the System Operator shall organize an annual training programme for its operators including mock exercises.
- 5.8.3 The Distribution Licensee shall provide all assistance to the Transmission Licensee for the development of the overall contingency plans.
- 5.8.4 In cases of failure of the Apparatus of the Transmission Licensee, the Distribution Licensee shall immediately contact the authorised person at the substation of the Transmission Licensee, and assess the probable period of restoration and the probable restriction of load drawl from the affected substation. The Distribution Licensee shall effect the demand management plan accordingly.

5.9 Demand Management and Load Shedding

- 5.9.1 Temporary Load Shedding may be resorted to for maintaining the load generation balance as advised by the System Operator. This may also be necessary due to loss of any Circuit or equipment or any other operational contingency like any overloading of line/s or transformer/s
- 5.9.2 The Distribution Licensee shall estimate loads that may be shed in discrete blocks at each Connection Point or in overall Area of Supply. Such Users shall co-operate with the Distribution Licensee in this regard. The Distribution Licensee shall work out the sequence of load shedding operations. In case of automatic load shedding through under frequency relays, the Circuits and the amount of load to be interrupted with corresponding relay settings shall be coordinated with the System Operator and persons in charge of the substations of the Distribution Licensee as necessary.
- 5.9.3 If the duration of unplanned load shedding to any part of the Distribution System exceeds 60 minutes, the affected Consumers at HV, MV level and the essential services such as public hospital, public water works, sewage works, etc. shall be intimated over the telephone wherever possible.

5.10 Metering

This section specifies the procedure for metering in Distribution System with respect to operational metering as well as tariff and commercial metering. This section also specifies the general guidelines for protection of Distribution System.

5.10.1 Operational Metering

The minimum requirement of operational metering at Distribution Licensee's substations shall be as follows for 66kV/ 33kV or 66kV/ 11kV or 33/11 kV substations and transformers:-

- i) 66/33/11 kV bus voltage;
- ii) 66/33/11 kV incoming / outgoing current in each phase and each circuit/feeder;
- iii) Primary and secondary currents in each phase of every transformer;
- iv) Facility to record energy in MWh and MVARh (preferably electronic meters) and preferably frequency at a predefined interval at point of connection with Transmission Licensee.

5.10.2 Tariff and commercial metering

5.10.2.1 Tariff metering shall be provided at the Connection Points between the User's system and the Distribution System and shall be governed by the provision in the agreement with the User.

5.10.2.2 All the meters, instrument transformers (CT/PT), metering cubicles and testing procedures shall conform to the relevant standard as specified by the Authority.

5.10.2.3 All the instrument transformers used in conjunction with commercial (tariff) metering shall also be of appropriate accuracy class and conform to the Codes and Standards approved by the Authority. The rating shall be suitable for catering the burdens of lead wires and metering

5.10.3 At each Connection Point with an Embedded Generator, a Transmission Licensee or another Distribution Licensee, the Distribution Licensee should meter the following quantities:-

- i) Active energy import;
- ii) Active energy export;
- iii) Reactive energy import;
- iv) Reactive energy export.

5.10.4 Each metering point associated with the determination of energy exchanged between the Generation Licensees, Transmission Licensees and Distribution Licensees shall be provided with both main and check meters. The Standard of accuracy of these meters shall conform to the Codes and Standards approved by the Authority.

- 5.10.5 In case of electronic energy metering systems, Data collection devices shall be used to integrate pulses from meters over each integration period, store values, and to transmit the same to the data collection system of the Distribution Licensee. Data shall be collected from both the main and check metering schemes.
- 5.10.6 Voltage failure relays shall be provided to initiate alarm on loss of one or more phases of the voltage supply to the meter.
- 5.10.7 Main and check meters shall be provided at all Connection Points with an Embedded Generator. All the meters shall be tested and calibrated according to the guidelines provided in the relevant Codes/Standards at least once a year. Records of these calibrations and tests shall be maintained for reference.
- 5.10.8 The System Operator shall formulate a metering scheme and procedure covering summation, collection and processing of tariff meter readings at various interconnection sites in consultation with Generation Licensees, Transmission Licensee and Distribution Licensees.
- 5.10.9 The ownership, responsibility of maintenance and testing of these meters shall be as mutually agreed to between the Users and the concerned licensees.

5.11 Protection System

- 5.11.1 No item of electrical equipment shall be allowed to remain connected to the system unless it is covered by the appropriate protection aimed at reliability, selectivity, speed and sensitivity. The Distribution Licensees shall cooperate with the Transmission Licensee to ensure correct and appropriate settings of protection to achieve effective, discriminatory isolation of faulty line/equipment.
- 5.11.2 The settings of protective relays for 33kV, 11kV and 6.6 kV lines shall be such that a fault in any section does not affect the section between the generating unit and the faulty section under all conditions. The Transmission Licensee shall notify the initial settings and any subsequent changes to the Users from time to time. Routine checks on the performance of the protective relays shall be conducted and any malfunction shall be noted and corrected as soon as possible. The malfunctions, changes in the system configuration, if any, and revised settings of relays shall be discussed and finalized in the System Coordination Committee.
- 5.11.3 All generating units and all associated electrical equipment of the Generation Licensee connected to the Distribution System shall be protected by adequate protection, as per relevant Codes and Standards approved by the Authority so that the system does not suffer due to any disturbances originating at the generating unit.
- 5.11.4 Distribution System:- For Power Transformers of HV class in the Distribution System, differential protection shall be provided for 10 MVA and above along with backup time lag over current and earth fault protection. Transformers of 1.6 MVA and above but less than 5 MVA shall be protected by time lag over current and earth fault relays. In addition, all power transformers shall be provided with gas operated relays, winding and oil temperature alarm and or trip protection.

5.11.5 Distribution lines: - All the 33kV, 11kV, and 6.6 kV lines at Connection Points shall be provided with a minimum of over current and earth fault relays as follows:

- i) Plain radial feeders: Non-directional time lag over current and earth fault relays with suitable settings to obtain discrimination between adjacent relay settings.
- ii) Parallel/ring feeders: Directional time lag over current and earth fault relay.

5.11.6 Fire Protection: All adequate precaution shall be taken and protection shall be provided against fire hazards to all apparatus in the System conforming to the relevant Codes/Standards

5.12 Safety Coordination

5.12.1 The Distribution Licensee and the Users of the Distribution System shall observe safety rules and precautions when work is to be carried out on any Apparatus, Switchgear or Circuits in any part of the Distribution System or in any part of the Users system.

5.12.2 The objective of safety coordination is to enforce principles of safety as prescribed and to devise codes and practices to implement the same.

5.12.3 There shall be co-ordination between persons of the Distribution Licensee and its Users, between persons of two Distribution Licensees having common electrical interfaces, for carrying out work on any Apparatus, Switchgear, or Circuits belonging to either party at the point of connection

5.12.4 The Distribution Licensee and all Users and any other Licensee having common electrical interface with the Distribution Licensee shall designate suitable persons to be responsible for safety co-ordination.

5.12.5 The disconnecting device/or devices at each electrical interface, which shall be capable of effectively disconnecting the System of the Distribution Licensee and the other Users and Earthing the respective System at the control boundary shall be identified and marked by the Distribution Licensee and respective User and shall be maintained in good order at all times. Such disconnecting devices shall be provided with electrical and mechanical interlocks to prevent inadvertent switching operations by unauthorized persons

5.12.6 Permission in writing shall be issued by the appropriate persons at the electrical interface to his counterpart for carrying out work on any Apparatus Switchgear or Circuits beyond the electrical interface.

5.12.7 The procedures and check list shall be issued to all concerned by the Distribution Licensee for implementation.

5.12.8 The Distribution Licensee shall prepare a safety manual incorporating all Safety Rules and Safety Precautions applicable to its Distribution System and the User's System and circulate the same among all Users for compliance.

5.13 Maintenance of Sub-stations and Distribution Lines

The Distribution Licensee shall carry out annual/half yearly/quarterly/monthly preventive maintenance works on all equipment such as:

- i) Power Transformers, Distribution Transformers, Voltage Transformers, Current Transformers, Circuit Breakers and Isolators switches and the details of maintenance works carried shall be entered in a register.
- ii) Apart from regular maintenance, the Distribution Licensee shall carry out regular inspection at regular intervals on all 33kV, 11kV and LV lines.
- iii) The Distribution Licensee shall coordinate the maintenance works of all Sub-stations with the Transmission Licensee, so as to minimize interruptions.

6 Embedded generation

6.1 Objective

The objective of this section is to set out the technical compliances to be met by an Embedded Generator.

6.2 Connection Agreement

Distribution Licensee must ensure that its Distribution System has adequate capacity of receiving supply of electricity from an Embedded Generator connected to its Distribution System. The Embedded Generator shall enter into a Connection Agreement with the Distribution Licensee on the terms and conditions of dispatch, connection and disconnection as stipulated by the Distribution Licensee.

6.3 Supply frequency

An Embedded Generator must ensure that its generating units are capable of continuous uninterrupted operation at the system frequency of 50 Hz and variations in accordance with the provisions in the Grid Code.

6.4 Co-ordination and compliance of Embedded Generators

6.4.1 An Embedded Generator must ensure that its generating units, and any equipment within it that is connected to a Distribution System complies with the Distribution Code and is maintained in a safe condition.

6.4.2 An Embedded Generator must ensure that protection equipment is effectively coordinated with the electrical characteristics of the Distribution System.

6.4.3 An Embedded Generator must have:

- i) an excitation control system including voltage regulator; and
- ii) a governor system responsive to system frequency changes.
- iii) safe shutdown arrangement without affecting external electricity supply
- iv) appropriate restart arrangement following loss of external electricity supply and
- v) response to disturbances
- vi) appropriate nameplate with its rating and features.

6.5 Negative sequence voltage

An Embedded Generator must ensure that its unit's contribution to the negative sequence voltage at the point of connection between the Embedded Generator and the Distribution System is less than 1%.

6.6 Fault levels

The Distribution Licensee shall ensure that the fault level contributed by the Embedded Generator shall not exceed the withstand capabilities of the Distribution System.

7 Guaranteed Service Levels

7.1 Objective

- 7.1.1 The Objective of this section is to specify the minimum guaranteed service levels required to be provided by Distribution Licensees. The Distribution Licensee may undertake measures to provide enhanced Guaranteed Service Levels.

7.2 Requirement to meet service levels

- 7.2.1 Distribution Licensees shall maintain the standards of performance specified in this section, provided that any time limits set out here shall refer to the maximum time permitted for performing the activities to which they relate.
- 7.2.2 Any failure by a Distribution Licensee to maintain the standards of performance specified here shall render the Distribution Licensee liable to payment of compensation to a person claiming such compensation under the provisions of the Act.

7.3 Quality of Supply and System of Supply

- 7.3.1 Except with the written consent of the consumer or with prior sanction of the Authority, the Distribution Licensee shall not permit the voltage at the point of supply to vary from the declared voltage in accordance with Section 5.5.2.
- 7.3.2 Except where otherwise previously approved by the Authority, the Distribution Licensee shall give supply of energy in accordance with Section 5.4.

7.4 Period for giving supply

A Distribution Licensee, shall, on an application by the owner or occupier of any premises, communicate the applicable charges to be borne by the applicant, and give supply of electricity to such premises in accordance with the time limits set out below:-

<i>Situation</i>	<i>Communication of charges</i>	<i>Installation of supply</i>
Where supply can be provided from existing distribution network	Within 15 Days of initial application	Within 30 Days of complete application
Where supply requires extension of distribution system	Within 60 Days of initial application	Within 3 months of complete application
Where supply requires a new substation	Within 60 Days of initial application	Within 1 year of complete application

Where a complete application is where the applicant has fulfilled all documentary and deposit requirements.

7.5 Restoration of power supply

7.5.1 In case of the supply disruption, the Distribution Licensee shall restore power supply in Urban and Rural areas in accordance with the time limits set out below:-

<i>Situation</i>	<i>In Urban Areas</i>	<i>In Rural Areas</i>
In the case of burnt meters	1 Day of the receipt of complaint	2 Days of the receipt of complaint
In the case of normal fuse-off calls	1 Day of the receipt of complaint	2 Days of the receipt of complaint
In the case of MV distribution overhead line breakdowns	1 Day of the receipt of complaint	2 Days of the receipt of complaint
In the case of distribution transformer failures	1 Day of the receipt of complaint	2 Days of the receipt of complaint
In the case of underground cable faults	1 Day of the receipt of complaint	2 Days of the receipt of complaint

7.5.2 The period of interruption as a result of any scheduled outage shall be specified in a public notice of such scheduled outage, provided that such scheduled outage shall not normally exceed twelve (12) hours on any day.

7.6 Reconnections

Where the Distribution Licensee has disconnected supply to a consumer for a period of not more than six months, then if such consumer pays all amounts due and payable to the satisfaction of the Distribution Licensee or, in case of a dispute, pays such amounts under protest, the Distribution Licensee shall reconnect supply within:-

- i) One (1) Day from payment of dues by the consumer in Urban Areas; and
- ii) Two (2) Days from payment of dues by the consumer in Rural Areas;

Provided that where the period of disconnection exceeds six months, an application for reconnection of supply shall, after either payment of amounts due or upon settlement of dispute, be treated as a fresh application for supply of electricity under the provisions of the Act.

7.7 Consumer Charter/Service

7.7.1 Where a Distribution Licensee makes an appointment with a Customer, he shall keep this appointment in good faith and shall not fail to keep this appointment unless there is a valid reason.

7.7.2 Every authorised representative of the Distribution Licensee shall visibly display his name-tag and, if so required by a consumer, produce for scrutiny, proof of identity and authorization of the Distribution Licensee for the purpose of any interaction with a consumer.

7.7.3 The Distribution Licensee shall maintain, in every specified Division within the Area of Supply, at least one consumer service centre which shall be open for not less than eight (8) hours a day, on all Days of the week, for essential services to be provided to consumers and with a collection facility for collection of payments from consumers.

7.7.4 Besides the Distribution Code, any other approved Terms and Conditions of Supply along with the prevailing approved tariff schedule shall be made available on demand by the Distribution Licensee to any consumer, on payment of reproduction charges, at any of the offices or Consumer Service Centres of the Distribution Licensee.

7.8 Other Services

7.8.1 Reading of each consumer's meter shall be undertaken by an authorised representative of the Distribution Licensee at least once in every three (3) months.

7.8.2 Any change of name or change of tariff category shall be effected by the Distribution Licensee before the expiry of the second billing cycle after the date of receipt of application.

7.8.3 Where the consumer applies for closure of account with the Distribution Licensee, the Distribution Licensee shall, subject to satisfaction of all amounts due from the consumer, repay all outstanding amounts due to the consumer within a period of thirty (30) Days from the date of receipt of such application for closure of the account.

7.9 Reliability Indices

7.9.1 The Distribution Licensee shall calculate the reliability of his distribution system on the basis of number and duration of sustained interruptions in a year, using the following indices:-

- i) System Average Interruption Frequency Index (SAIFI);
- ii) System Average Interruption Duration Index; and (SAIDI)
- iii) Customer Average Interruption Duration Index (CAIDI)

Provided that while calculating the above indices, the following types of interruptions shall not be taken into account:-

- i) Scheduled outages;
- ii) Momentary outages of a duration of less than three minutes;
- iii) Outages due to failure of the grid;
- iv) Outages due to reasons described in Section 7.10.1 below.

7.9.2 The Distribution Licensee shall maintain data on the reliability indices specified in Section 7.9.1 above for each Distribution Zone on a monthly basis.

7.9.3 The Distribution Licensee shall, within a period of three (3) months from the date of compliance with these Regulations, put up, at the end of each month, such monthly information on reliability indices on the internet website of the Distribution Licensee and shall submit such information to the Authority at the end of each financial year in its DPR.

- 7.9.4 The Authority shall fix standards of reliability to be achieved by the Distribution Licensee on the basis of data collected for one year from the date of compliance with these Regulations.

7.10 Exemptions

- 7.10.1 These Guaranteed Service Levels shall not apply where, in the opinion of the Authority, the Distribution Licensee is prevented from meeting his obligations under these Regulations by cyclone, floods, storms or other occurrences beyond the control of the Distribution Licensee: Provided that the Distribution Licensee shall not be excused from failure to maintain the standards of performance under these Regulations where such failure can be attributed to negligence or deficiency or lack of preventive maintenance of the distribution system or failure to take reasonable precaution on the part of the Distribution Licensee.
- 7.10.2 A Distribution Licensee may submit an application to the Authority for relaxation of the Guaranteed Service Levels, detailing:-
- i) The description of the interruption and reasons why the Distribution Licensee considers it ought to be relaxed; and
 - ii) Evidence of the impact of the interruption on the Distribution Licensees Reliability Performance or Guaranteed Service Levels.
- 7.10.3 The Authority may, by general or special order, exempt the Distribution Licensee from any or all of the Guaranteed Service Levels for such period as may be specified in the said order.

7.11 Determination of Compensation

- 7.11.1 Where the Distribution Licensee finds that it has failed to meet the standards of performance specified under these Regulations, either of its own knowledge, or upon written claim filed by any person affected, the Distribution Licensee shall be liable to pay such person and all other persons similarly affected, such compensation as has been determined by the Authority in Appendix A to these Regulations. The Authority may revise the compensation rates periodically.
- 7.11.2 Failure by the Distribution Licensee to pay the compensation in accordance with Section 7.11.1 shall constitute a dispute, which shall be dealt with in accordance with the procedure set out in the Bhutan Electricity Authority (Dispute Resolution) Regulations 2006.
- 7.11.3 The payment of such compensation shall be made by the Distribution Licensee within thirty (30) days of a direction issued by the Authority:
- 7.11.4 No claim for compensation shall be entertained if the same is filed later than a period of sixty (60) days from the date of rectification of the deficiency in performance standard.

8 Information exchange

8.1 Objective

This section describes the various obligations to be maintained by the Distribution Licensee as well as Consumers to evolve a process of transparent information exchange so as to facilitate better interaction for planning and operational function.

8.2 Distribution Licensee's obligations

8.2.1 The Distribution Licensee shall provide a Customer Charter to each HV and MV Consumer and the Authority:-

- i) on request;
- ii) at least once every 5 years; and
- iii) to each Consumer at the time the Consumer is connected.

8.2.2 The Distribution Licensee's Customer Charter must summarize all current rights, entitlements and obligations of Distribution Licensees and Consumers relating to the supply of electricity, including:-

- i) the identity of the Distribution Licensee;
- ii) the Distribution Licensee's Guaranteed Service Levels;
- iii) and other aspects of their relationship under the Distribution Code and other relevant Codes and Regulations approved by the Authority.

8.2.3 The Distribution Licensee must provide information on reliability of supply including where applicable an explanation for any interruption to supply (whether planned or unplanned but excluding breakdowns) to the HV/MV Consumer's premises or through its website. If the Consumer requests that such information or explanation be in writing, it must be given in writing within twenty (20) Days of the request. In the event of any planned interruption of supply in the LV service area, the Distribution Licensee shall at least two Days in advance inform through local newspapers or in some other form about the affected area, brief reasons for the interruptions and tentative duration.

8.2.4 If the Distribution Licensee is required to undertake a specific test on the request of the customer to determine the quality of supply, the Distribution Licensee may levy charges for this service in accordance with its approved statement of charges.

8.2.5 If the results of the test under section 8.2.4 show that the Distribution Licensee is not complying with its obligations under the Code, it must take appropriate remedial action and the charges levied by it for carrying out the tests shall be refunded.

8.2.6 On request by a Consumer, the Distribution Licensee must provide the Consumer or the Consumer's electrician with reasonable information on the Distribution Licensee's requirements in relation to any proposed new electrical installation of the Consumer or changes to the Consumer's existing electrical installation, including appropriate advice about supply extensions.

8.3 Consumer's obligations

A Consumer must inform its Distribution Licensee as soon as practicable if there is any:

- i) proposed change to wiring or plant or equipment in the Consumer's electrical installation which may affect the quality of the supply of electricity to any other person;
- ii) change affecting access to the Distribution Licensee's equipment located at the Consumer's supply address;
- iii) major change to the quantity of electricity likely to be used by the Consumer at the Consumer's supply address.

8.4 Planning information

8.4.1 The User on request from the Distribution Licensee, shall provide details of loads connected or planned to be connected to the Distribution System which are required for the purpose of the Distribution System planning. The Distribution Licensee shall assist the LV consumers to furnish the information required, such as:-

- i) The location /address of the Consumer at which the loads are connected or proposed to be connected
- ii) Expected maximum demand in kVA or kW
- iii) Existing load in kWh and kVARh
- iv) Existing peak loads; and hourly load profile in kW/kWh
- v) Anticipated new loads;
- vi) Any proposed changes in load scheduling; and
- vii) Annual planned outages programme.

8.4.2 The Distribution Licensee must on request from another Distribution Licensee provide such information concerning a point of connection as the other Distribution Licensee may reasonably require for the purpose of the integrated planning of the system.

8.5 Confidentiality

The Distribution Licensee shall ensure that any classified information obtained as a result of its activities shall not be revealed to anyone, except for persons who are authorised to receive such information. The Distribution Licensee shall also ensure that such information is not used for conducting any other activities, other than the licensed activity, except:-

- i) With the prior written consent of the person or business entity to whose affairs the information relates;
- ii) If the information is already known to the public;
- iii) If the Distribution Licensee is required or permitted to disclose the information to comply with these license conditions, under the order of the Authority or any effective legislation; or
- iv) When the information is required to be disclosed in the normal course of performing licensed activity.

9 Incident / Accident Reporting

9.1 Introduction

This Section covers procedure of incident / accident reporting in the event of its occurrence in Distribution System by User to Licensee and Licensee to User and the Authority.

9.2 Accident Reporting

9.2.1 If any accident occurs in connection with the Distribution System or supply or use of electricity in or in connection with, any part of the electric lines or electrical plant of any person and the accident results or is likely to have resulted in loss of human or animal life or in any injury to a human being or an animal, the Distribution Licensee shall give notice of the occurrence and of any such loss or injury actually caused by the accident to all concerned in such form and within such time as may be prescribed by the Authority .

9.2.2 The Authority may, if it thinks fit, by order appoint an Electrical Inspector, to inquire and report:-

- i) As to the cause of any accident affecting the safety of the public, which may have been occasioned by or in connection with, the distribution, supply or use of electricity, or
- ii) As to the manner and extent to which the provisions of the Act or rules and regulations made hereunder or of any Licensee, so far as those provisions affecting the safety of any person, have been complied with.

9.2.3 The Distribution Licensee, Consumers and agreed parties shall provide access to information, entry to the premises for investigating the accident by the Inspector appointed by the Authority.

9.3 Incident Reporting

9.3.1 The Distribution Licensee shall send a preliminary report to the Authority of all the significant Incidents in the Licensee's Area of Supply, which results in interruption to service, substantial damage to equipment within one week of its occurrence followed by a detailed report within one month.

9.3.2 The Distribution Licensee and the Users shall establish a format and procedure for exchange of information.

9.3.3 The Users shall furnish information to the Distribution Licensee regarding any major incident occurring in their Systems promptly.

9.4 Reporting Procedure

9.4.1 All reportable incidents occurring in the lines and equipments of 33 kV and below substations shall be promptly reported orally by the Licensee whose equipment has experienced the incident, to all other significantly affected Users identified by the Distribution Licensee as well as to the Transmission Licensee. If the reporting incident is of significant nature, the written report shall be submitted within two hours duly followed by a comprehensive report within five (5) working days of the submission of the initial written report.

9.4.2 The Transmission Licensee, may call for a report from any Distribution Licensee on any reportable incident affecting other Users and particularly in case such User whose equipment might have been a source of the reportable incident.

9.4.3 The Major incidents that would affect the distribution and supply system are:-

- i) Major breakdowns in the Distribution System having supply interruption for more than 12 hours at a stretch.
- ii) Major breakdowns in lines/cables/equipment
- iii) Any other incident which the Licensee may consider worth reporting with regard to safe and reliable operation of the Distribution System.

The reportable significant incidents, however, shall not be limited to the above categories only and may also be determined by the concerned Licensee.

9.4.4 The format for such a report shall typically contain the following:-

- i) Location of the incident;
- ii) Date and time of the incident;
- iii) Plant or Equipment involved;
- iv) Supplies interrupted and the duration wherever applicable;
- v) Amount of Generation lost, wherever applicable;
- vi) System Parameters before and after the incident, (Voltage, Frequency, Load, Generation, etc.);
- vii) Network configuration before the incident or outage;
- viii) Relay indications and performance of protection;
- ix) Brief description of the incident;
- x) Estimated time of return to service;
- xi) Any other relevant information;
- xii) Suggested remedial measures;
- xiii) Name and designation of the reporting person.

9.4.5 The report shall contain sufficient detail to describe the event to enable the recipient to assess the implications and risks arising out of the same. The recipient may ask for clarifications and additional information wherever necessary and it is obligatory that the reporting User shall put his best efforts and provide all the necessary and reasonable information.

- 9.4.6 In case of a request by either party, the oral report shall be written down by the sender and dictated by way of a telephone message or sent by Fax/e-mail to the recipient. In case of an Emergency the report can be given only orally and followed by written confirmation.

Appendix A: Compensation for Failure to Meet Standards of Performance

A.1 Quality of supply

<i>Situation</i>	<i>Standard</i>	<i>Compensation</i>
Maintenance of voltage within the specified range of the declared voltage.	HV: $\pm 10\%$	Nu. 100 per week or part thereof for which voltage varies beyond the specified range
	MV: $\pm 10\%$	
	LV: $\pm 6\%$	

A.2 Communication of applicable charges for connection

<i>Situation</i>	<i>Standard</i>	<i>Compensation</i>
Where supply can be provided from existing distribution network	Within 15 Days of initial application	Nu. 100 per week or part thereof
Where supply requires extension of distribution system	Within 60 Days of initial application	Nu. 100 per week or part thereof
Where supply requires a new substation	Within 60 Days of initial application	Nu. 100 per week or part thereof

A.3 Installation of supply

<i>Situation</i>	<i>Standard</i>	<i>Compensation</i>
Where supply can be provided from existing distribution network	Within 30 Days of complete application	Nu. 100 per week or part thereof
Where supply requires extension of distribution system	Within 3 months of complete application	Nu. 100 per week or part thereof
Where supply requires a new substation	Within 1 year of complete application	Nu. 100 per week or part thereof

A.4 Restoration of supply and reconnection

<i>Situation</i>	<i>In Urban Areas</i>	<i>In Rural Areas</i>	<i>Compensation</i>
In the case of burnt meters	1 Day of the receipt of complaint	2 Days of the receipt of complaint	Nu. 100 per Day or part thereof
In the case of normal fuse-off calls	1 Day of the receipt of complaint	2 Days of the receipt of complaint	Nu. 100 per Day or part thereof
In the case of MV distribution overhead line breakdowns	1 Day of the receipt of complaint	2 Days of the receipt of complaint	Nu. 100 per Day or part thereof
In the case of distribution transformer failures	1 Day of the receipt of complaint	2 Days of the receipt of complaint	Nu. 100 per Day or part thereof
In the case of underground cable faults	1 Day of the receipt of complaint	2 Days of the receipt of complaint	Nu. 100 per Day or part thereof
Reconnections	1 Day from payment of dues	2 Days from payment of dues	Nu. 100 per Day or part thereof

A.5 Customer Charter

<i>Situation</i>	<i>Compensation</i>
Keeping of appointment with Customer	Nu. 50 for each instance of default
Visible display by authorized representative of Distribution Licensee of name-tag and, if required by Consumer, produce proof of identity and authorization	Nu. 50 for each instance of default

A.6 Other Services

<i>Situation</i>	<i>Standard</i>	<i>Compensation</i>
Reading of customer's meter	Once every 3 months	Nu. 100 per month or part thereof
Change of name or tariff category	Second billing cycle	Nu. 100 per week or part thereof
Closure of account	30 Days	Nu. 100 per week or part thereof

Approved in the Eighth Commission meeting held on the 25th day of the 8th Month of the Female Fire Hog Year corresponding to 5 October, 2007.

(Yeshi Wangdi)

(Pem Dorjee)



Bhutan Electricity Authority



Safety Regulation 2008

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1 Purpose

- 1.1 This Regulation shall be cited as Bhutan Electricity Authority – Safety Regulation, 2008.
- 1.2 This Regulation makes provisions for the design, construction, operation and maintenance of electric power plant and equipment in a manner that is Electrically Safe.
- 1.3 This Regulation shall extend to the whole of the Kingdom of Bhutan.
- 1.4 All holders of a Generation Licence, Transmission Licence, Distribution Licence or System Operation Licence shall comply with the provisions set forth in this Regulation.

2 Commencement

- 2.1 This Regulation shall come into force from 1st July, 2008.

3 Dispensation

- 3.1 The Authority may, in particular cases, give dispensation, either in part or in full, from this Regulation and from Licence Conditions issued by the Authority under the Electricity Act of Bhutan, 2001.
- 3.2 For the avoidance of doubt, this Regulation shall not apply to the construction of civil works for power generation plants prior to the commencement of plant commissioning activities or to the installation and maintenance of electrical equipment on consumers' premises.

4 Interpretation

- 4.1 For the purpose of this Regulation, any word or expression used to which a meaning has been assigned in the Electricity Act of Bhutan, 2001, shall have that meaning, unless explicitly indicated in the Regulation. Further reference is made to the definitions in Section 5 of this Regulation.

5 Definitions

“**Authority**” means the Bhutan Electricity Authority;

“**Business day**” means a day, other than a Saturday or Sunday, or a public holiday;

“**Electrically Safe**” means no significant risk of injury or death to any person, or of damage to any property, as a result of the use of electric power and electrical equipment;

“**Licence**” means a Generation Licence, Transmission Licence, Distribution Licence or System Operation Licence issued by the Authority under the Electricity Act of Bhutan, 2001;

“**Licensee**” means the holder of a Licence issued by the Authority under the Electricity Act of Bhutan, 2001;

“**Safety Audit**” means an audit undertaken by, or on behalf of the Authority, of the effectiveness of a Licensee’s Safety Management System or of the extent of compliance with a Licensee’s Safety Rules;

“**Safety Indicator**” means an indicator, defined by the Authority, which measures a particular aspect of a Licensee’s safety performance;

“**Safety Management System**” is the means by which a Licensee ensures that employees and contractors comply with its Safety Rules;

“**Safety Records**” means records kept by Licensees during the normal course of business and relating to their operating performance in respect of safety;

“**Safety Reports**” means reports prepared by a Licensee on issues relating to electrical safety in compliance with the requirements of the Authority;

“**Safety Rules**” means procedures or work instructions issued by a Licensee to ensure that the operation, maintenance and testing of power plant and equipment under the control of the Licensee is undertaken in a manner that is Electrically Safe; and

“**Serious Safety Incident**” means an incident arising from the design, construction, operation or maintenance of a electric power plant or equipment that:

- (a) Results in the death of any person;
- (b) Results in an injury to any person which results in disability;
- (c) Causes damage to property other than property belonging to a Licensee.

6 Responsibilities of the Authority

- 6.1 The Authority shall take all lawful steps necessary to ensure that the generation, transmission, and distribution of electricity within the Kingdom of Bhutan is undertaken in a manner that is Electrically Safe.
- 6.2 In exercising its responsibility under Clause 6.1 of this Regulation, the Authority shall establish a regulatory framework that ensures that the design, construction, operation and maintenance of electric power plant and equipment by Licensees are undertaken in manner that is Electrically Safe.
- 6.3 The regulatory framework may include:
- (i) Issuance of standards, codes or guidelines that specify safety requirements or procedures relevant to the design, construction, operation and maintenance of electric power plant and equipment by Licensees;
 - (ii) Setting of minimum standards of competence for persons responsible for the design, construction, operation and maintenance of electric power plant and equipment;
 - (iii) Audits of the operations of Licensees to determine the extent to which these operations are undertaken in a manner that is Electrically Safe and that complies with relevant standards, codes and guidelines and with Safety Rules;
 - (iv) Promotion of electrical safety issues to increase public awareness of electrical hazards and the need for electrical workers to adopt safe working practices;
 - (v) A regime where Licensees are required to report to the Authority on their safety performance; and
 - (vi) Compilation and dissemination of safety statistics in relation to the operations of Licensees.

7 Responsibilities of Licensees

- 7.1 Licensees shall undertake their operations in a manner that is Electrically Safe and in a manner that complies with the Authority's regulatory framework and the Licensee's own Safety Rules.
- 7.2 Notwithstanding the provision of Clause 3.2 of this Regulation, Licensees shall ensure that all power plant and equipment under their control is designed and

constructed in a manner that will enable it to be operated and maintained in an Electrically Safe manner in accordance with the requirements of this Regulation.

- 7.3 Licensees shall issue Safety Rules for the design, construction, operation and maintenance of power plant and equipment under their control in a manner that is Electrically Safe. The Safety Rules shall
- (i) comply with relevant standards, codes and guidelines issued by the Authority,
 - (ii) be consistent with good industry practice, and
 - (iii) be relevant in that due account is taken of the structure of a Licensee's organization and the specific arrangements in place to manage its operations.
- 7.4 Licensees shall put in place a Safety Management System to ensure compliance with their Safety Rules.
- 7.5 Licensees shall keep Safety Records and provide Safety Reports as required by the Authority.
- 7.6 Licensees shall provide safety equipment as required by its Safety Rules and by the Authority's standards, codes and guidelines and shall also regularly inspect and test these equipment as recommended by the manufacturers, and shall maintain records of all safety inspections and tests.
- 7.7 Licensees shall report Serious Safety Incidents to the Authority.
- 7.8 Licensees shall assist the Authority in the conduct of any Safety Audit or investigation into a Serious Safety Incident and provide all information reasonably required by the Authority during any Safety Audit or investigation of any Serious Safety Incident.

8 Safety Code

- 8.1 The Authority shall publish a Safety Code that shall set out the minimum safety requirements to be met by Licensees. Failure by a Licensee to comply with relevant requirements of the Safety Code shall be a breach of its License conditions.
- 8.2 The Authority may also issue other safety standards and guidelines it considers appropriate.

- 8.3 In developing the Safety Code and other safety standards and guidelines, the Authority shall consult with Licensees and other stakeholders. Submissions received during the consultation process may be considered by the Authority before the Safety Code or other safety standards or guidelines are finalized and issued.
- 8.4 The Safety Code and other safety standards and guidelines may be amended by the Authority as it deem necessary.

9 Safety Rules

- 9.1 Each Licensee shall issue a set of documented Safety Rules that employees and contractors are required to follow in the design, construction, operation and maintenance of electric power plant and equipment under the control of the Licensee.
- 9.2 The Safety Rules shall take due account of the nature of the electric power plant and equipment owned and operated by the Licensee and also the structure of the Licensee's organization.
- 9.3 Safety Rules shall incorporate good industry practice.
- 9.4 Safety Rules shall be reviewed by the Licensee on a regular basis and updated as required.
- 9.5 Licensees shall put in place a Safety Management System that ensures compliance with its Safety Rules by employees and contractors. The effectiveness of this system may be audited by the Authority.
- 9.6 A Safety Management System may include lawful provisions for disciplining employees for willful non-compliance with the Safety Rules. Such provisions may include a range of penalties, including dismissal for serious breaches.

10 Safety Audits

- 10.1 The Authority may audit the compliance of employees and contractors with a Licensee's Safety Rules and the effectiveness of a Licensee's Safety Management System. The frequency and scope of Safety Audits shall be determined by the Authority.
- 10.2 Safety Audits may be undertaken by the Authority's own staff or by an appropriately qualified contractor engaged by the Authority for the purpose. The costs associated with a Safety Audit shall be paid by the Licensee.

- 10.3 The Authority shall normally give a Licensee reasonable notice of its intention to undertake a Safety Audit. However, the Authority may undertake a Safety Audit without prior notice should it be warranted.
- 10.4 The Authority shall give a Licensee an opportunity to comment on the report of a Safety Audit prior to the finalization of the report.
- 10.5 The Authority may require a Licensee to take, at the Licensee's own cost, appropriate corrective action to address any findings of a Safety Audit.

11 Investigation of Serious Safety Incidents

- 11.1 All Serious Safety Incidents shall be reported to the Authority no later than the end of the next Business Day following the occurrence of the Serious Safety Incident.
- 11.2 The Authority may require a Licensee to investigate, or may itself investigate, any Serious Safety Incident.
- 11.3 Where the Serious Safety Incident results in a fatality, an investigation pursuant to Clause 11.2 of this Regulation shall be carried out. Where the Serious Safety Incident does not involve a fatality, the Authority may decide whether an investigation shall be undertaken.
- 11.4 The Authority may engage an appropriately qualified contractor to undertake an investigation into a Serious Safety Incident on its behalf.
- 11.5 Licensees shall not destroy evidence that may be relevant to an investigation into a Serious Safety Incident without the prior consent of the Authority, and shall comply with all reasonable requests of the Authority in relation to the conduct of any such investigation.
- 11.6 A written report shall be prepared on each investigation into a Serious Safety Incident. The report shall identify the probable cause of the Serious Safety Incident and shall make recommendations on corrective actions to be taken to reduce the risk of similar events occurring in the future to the extent that this is appropriate.
- 11.7 The Authority may require a Licensee to take corrective actions as a result of the findings of an investigation into a Serious Safety Incident.
- 11.8 All costs associated with an investigation into a Serious Safety Incident shall be borne by the Licensee.

12 Safety Reporting

- 12.1 The Authority may require Licensees to regularly report to it on the safety of their operations, and may specify the format, frequency and content of such Safety Reports.
- 12.2 The Authority may determine and define a set of standard Safety Indicators to be reported by Licensees in their Safety Reports.
- 12.3 Licensees shall maintain all Safety Records necessary to ensure the accuracy of Safety Reports.

13 Safety Awareness

- 13.1 The Authority shall raise public awareness of the hazards associated with the operation of electric power plant and equipment. It shall also work with Licensees to minimize the risks to the general public.
- 13.2 The Authority may, either on its own initiative or in partnership with Licensees, undertake public awareness campaigns or workshops designed to raise awareness of risks inherent in the transmission, distribution and use of electrical energy and to minimize the risks to the general public.
- 13.3 Nothing in this Regulation shall (i) limit the responsibility of Licensees to design, construct, operate and maintain their power plant and equipment in a manner that minimizes the risk to the general public, (ii) limit or reduce the obligations and responsibilities of Licensees under any law, (iii) indemnify Licensees from any legal liability or (iv) prevent Licensees from undertaking their own public awareness campaigns independently of the Authority.

Approved in the Ninth Commission Meeting held on March 28, 2008.



Bhutan Electricity Authority



Safety Code 2008

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1 Purpose

- 1.1 This Safety Code specifies the Authority's minimum electrical safety requirements for the design, construction, operation and maintenance of electric power plant and equipment under the control of Licensees. These minimum requirements shall be incorporated by Licensees into the Safety Rules and Safety Management Systems developed by Licensees in accordance with the requirements of the Safety Regulation.
- 1.2 This Code is concerned only with electrical safety and does not impose requirements on Licensees in respect of non-electrical safety risks arising from the design, construction, operation and maintenance of electric power plant and equipment under the control of Licensees. Licensees are expected to manage non-electrical safety risk in accordance with good industry practice and the requirements of relevant laws of Bhutan.

2 Interpretation

- 2.1 For the purpose of this Code, any word or expression used to which a meaning has been assigned in the Safety Regulation shall have that meaning, unless explicitly indicated in the Code. Further reference is made to the definitions in Section 3 of this Code.

3 Definitions

“**Authority**” means the Bhutan Electricity Authority;

“**Bare Conductor**” means any conductor that is uninsulated or insulated to less than its full working voltage;

“**Competent Person**” means a person who can demonstrate to the Licensee knowledge of the hazards present in the workplace and that he or she has the necessary knowledge, skills and experience to undertake assigned work in a manner that is Electrically Safe and in compliance with the Safety Rules;

“**Electrically Safe**” means no significant risk of injury or death to any person, or of damage to any property, as a result of the use of electric power plant and equipment;

“**High Voltage**” means any voltage of 66 kV and above;

“**Licence**” means a Generation License, Transmission License, Distribution License or System Operation License issued by the Authority under the Electricity Act of Bhutan, 2001;

“**Licensee**” means the holder of a Generation License, Transmission License, Distribution License or System Operation License issued by the Authority under the Electricity Act of Bhutan, 2001;

“**Low Voltage**” means any voltage not exceeding 400 volts between phase to phase for three phase supply or 230 volts between phase to neutral in case of single phase supply;

“**Medium Voltage**” means any voltages of 6.6 kV or 11 kV or 33 kV;

“**Minimum Approach Distance**” means the minimum distance when approaching live Bare Conductors that shall apply to employees, contractors or other persons without the use of special safety precautions;

“**Safety Equipment**” means tools or other equipment specifically designed to protect persons from potential hazards;

“**Safety Management System**” is the means by which a Licensee ensures that employees and contractors comply with its Safety Rules;

“**Safety Observer**” means a person responsible for continuously observing a person who is within the Minimum Approach Distance of a live Bare Conductor to ensure that the person does not inadvertently contact the live Bare Conductor;

“**Safety Officer**” means the senior staff of the Licensee responsible for the operation of the Safety Management System and for liaison with the Authority on matters relating to electrical safety;

“**Safety Regulation**” means the regulation developed by the Authority in pursuant to the Electricity Act of Bhutan, 2001;

“**Safety Rules**” means the procedures or work instructions issued by a Licensee to ensure that the operation, maintenance and testing of power plant and equipment under the control of the Licensee is undertaken in a manner that is Electrically Safe;

“**Serious Breach**” means a non-compliance with the Safety Rules of a nature that could result in serious injury to any person or damage to property other than that of the Licensee;

“**Tagged**” means marked to safeguard against an inadvertent change to the state of isolation or earthing point;

“**Test Permit**” means the permit for access equipment that is not available for service but that may need to be energized or operated for testing. Under a test permit a work party has temporary access for work activities to specific isolated equipment, which is in a defined state; and

“**Work Permit**” means a permit for access to, and work on or within the Minimum Approach Distance of, equipment that has been isolated for work other than testing under a Test Permit. Under a Work Permit, a work party has temporary access to specific isolated equipment, which is in a defined state.

4 Safety Rules

- 4.1 Licensees shall prepare Safety Rules in accordance with the requirements of the Safety Regulation. Safety Rules shall be specific to the Licensee’s organization and shall reflect both the type of electric power plant and equipment under the control of

the Licensee and the management structure and arrangements of the Licensee's organization.

- 4.2 Safety Rules shall ensure that work in the vicinity of electrical apparatus is undertaken in a manner that is Electrically Safe.
- 4.3 Safety Rules shall include requirements to ensure that precautions, such as roping off work areas or displaying warning signs, are taken to minimize risk to the general public when work is undertaken in a publicly accessible location and shall identify additional precautions necessary when a work site, such as a ground excavation, is left unattended.
- 4.4 The Licensee shall determine the scope and content of the Safety Rules, which shall cover electrical safety and may also cover non-electrical safety. The Safety Rules shall include the following:
 - (a) Safety awareness;
 - (b) Identification of hazards;
 - (c) Safety equipment;
 - (d) Access control;
 - (e) Minimum approach distances;
 - (f) Work permits;
 - (g) Test Permits;
 - (h) Isolation and earthing;
 - (i) Work on equipment requiring special precautions.
- 4.5 The scope and content of the Safety Rules need not be limited by the requirements of this Safety Code.
- 4.6 Notwithstanding the Clause 4.3 of this Code, the Safety Rules shall include all requirements of this Safety Code to the extent that they are relevant to plant and equipment under the control of the Licensee.

5 Safety Management System

- 5.1 Licensees shall implement a Safety Management System to ensure compliance with their Safety Rules.
- 5.2 The Safety Management System shall include as a minimum requirement the following features:
 - (i) a process by which employees and contractors are trained in the need for electrical safety and in the requirements of the Safety Rules that relate to the work to be performed;
 - (ii) a means by which compliance with Safety Rules is monitored by the Licensee on a regular basis;
 - (iii) a process for disciplining employees and contractors who fail to comply with the Safety Rules where the non-compliance is a Serious Breach;
 - (iv) a process for the regular inspection and testing of Safety Equipment; and

(v) a process by which Safety Rules are regularly reviewed and updated.

- 5.3 All Licensees shall designate a senior staff as its Safety Officer. The Safety Officer shall be responsible for the operation of the Safety Management System and for liaison with the Authority on issues relating to electrical safety. Licensees shall inform the Authority of the name and telephone number of their Safety Officer.

6 Safety Equipment

- 6.1 Safety rules shall specify the Safety Equipment to be used by employees and contractors when doing particular types of work.
- 6.2 Licensees shall provide employees with Safety Equipment as required by their Safety Rules.
- 6.3 Safety Equipment shall be inspected and, where appropriate, tested on a regular basis to ensure that it is still fit for service. Equipment that is found not to be fit for service shall be withdrawn and replaced. Records shall be kept of all safety inspections and tests.
- 6.4 Failure to use Safety Equipment in accordance with the Safety Rules shall be regarded as a Serious Breach of the Safety Rules that may be subject to disciplinary action.

7 Access Control

- 7.1 Medium or High Voltage switchyards and other Medium or High Voltage equipment that is located less than 3 meters above ground level shall be surrounded by a locked enclosure to prevent unauthorized access. Control buildings and buildings containing Medium or High Voltage electrical equipment shall also be locked.
- 7.2 Keys allowing access to control rooms, switchyards and enclosed Medium or High Voltage equipment shall be issued only to Competent Persons. Other persons shall enter such areas only when under the direct and continuous supervision of a Competent Person.

8 Equipment Design and Construction

- 8.1 All electric power plant and equipment shall be designed and constructed in accordance with good industry practice to minimize the hazard to employees and to the general public.
- 8.2 Installations and equipment shall be designed so that metallic parts that might potentially become energized at a voltage above 125 volts alternating current shall be connected to earth. In particular:
- (i) Medium and high voltage installations shall incorporate an earth system that (a) ensures the effective operation of protection devices, (b) limits step and touch potentials to safe levels, and (c) prevents danger due to the transfer of hazardous voltages through metallic conductors such as pipelines, fences etc located in the vicinity of the installation;

- (ii) Metal poles and towers of overhead transmission and distribution lines shall be effectively connected to earth;
 - (iii) An earth connection shall be provided at all consumer installations with an earth resistance sufficiently low to provide adequate current to ensure the reliable operation of protective devices; and
 - (iv) Neutral conductors of low voltage supply systems shall be connected to earth at the source of supply and at each consumer installation. In no case shall a neutral conductor be connected to earth at less than two locations.
- 8.3 Any live conductor of Medium or High Voltage electrical plant or equipment shall be protected by an automatic protective device.
- 8.4 Overhead electrical conductors shall at all times have a minimum clearance above ground level in accordance with Table 1 below:

Table 1: Overhead Electrical Conductor Clearances

Particulars	220 kV	132 kV	66 kV	33 kV	11 kV	LV
Ground clearance						
Across street	7.0 m	6.1 m	6.1 m	6.1 m	6.1 m	5.5 m
Along street	7.0 m	6.1 m	6.1 m	5.8 m	5.8 m	5.5 m
Elsewhere	7.0 m	6.1 m	5.5 m	5.8 m	5.8 m	4.6 m*
Separation between phases						
Horizontal	8.4 m	6.8 m	3.5 m	1.5 m	0.7 m	#
Vertical	4.9 m	3.9 m	2.0 m	1.5 m	0.6 m	#
Clearance from buildings						
Horizontal	3.7 m	2.8 m	2.1 m	1.8 m	1.2 m	#
Vertical	5.5 m	4.6 m	4.0 m	3.7 m	2.5 m	#

Note:

* *Applies to new construction with fully insulated conductors. For bare conductors minimum clearance should be 5 metres (m- metres).*

Not applicable to fully insulated ABC conductors.

** *The above clearances have been referred from Bureau of Indian Standards (BIS).*

- 8.5 The minimum depth of burial below ground level of underground electric power cables shall be in accordance with Table 2 below. Underground cable shall be protected by suitable mechanical protection such as bricks or concrete tiles, positioned directly above the cable along its whole length.

Table 2: Depth of Burial of Underground Cable

Particulars	Minimum Depth
33 kV	1.0 metre
11 kV	1.0 metre
LV	0.6 metre

9 Minimum Approach Distances

- 9.1 Safety Rules shall include a table of Minimum Approach Distances, which shall specify the minimum distance employees must maintain between themselves and any live Bare Conductor, unless following an approved industry procedure and using appropriate safety equipment. Minimum Approach Distances shall apply to any part of the employee's body or clothing and to anything in contact with the employees such as vehicles, tools and ladders.
- 9.2 Minimum Approach Distances shall not be less than the values in Table 3 below:

Table 3: Minimum Approach Distances

Nominal Design Voltage (kV)	Minimum Approach Distance (metre)
400	8.3
220	5.5
132	4.2
66	2.8
33	2.1
11	1.5
0.4	0.5

Note: The above minimum approach distances have been derived by adjusting values typically used in other jurisdictions to allow for the high altitudes in many parts of Bhutan.

- 9.3 No person shall work within the Minimum Approach Distance of a Bare Conductor, unless (i) the conductor has first been isolated and earthed in accordance with Section 12 of this Code, or (ii) the work is being undertaken in accordance with an approved industry safety procedure, or (iii) a Safety Observer ensures the person stays well clear of the live Bare Conductor, and acts in a safe manner. The Safety Observer shall remain outside the Minimum Approach Distance at all times.

10 Work Permit

- 10.1 Licensees shall establish a Work Permit system designed to ensure the safety of employees, contractors and other personnel working on or near electrical plant or equipment controlled by the Licensee when the plant or equipment is energized or put into service. The system shall be designed to ensure that before a Work Permit is issued, measures are taken to ensure that the plant or equipment cannot be energized or put into service. These measures shall remain in place until all Work Permits issued to employees and contractors have been returned. Safety Rules shall describe the operation of the Work Permit system and the measures to be taken to ensure that plant and equipment cannot be energized while a Work Permit is in place.
- 10.2 All personnel, except those working under close supervision, who are required to work within, or close to, plant or equipment for which Work Permits are required, shall be trained in the operation of the Work Permit system.
- 10.3 Special safety precautions are necessary to protect personnel who are working on or near Medium or High Voltage Bare Conductors, since it is possible for hazardous voltages to be induced in the conductors even though the primary supply source is switched off and locked. These precautions are described in Section 12 of this Code.
- 10.4 Where equipment being worked on needs to be energized or operated for testing, Safety Rules shall provide for a Test Permit in accordance with the requirements of Section 13 of this Code.
- 10.5 Licensees shall develop their own procedures and instructions for the issue and return of Work Permits and Test Permits. However the following minimum requirements shall apply:
 - (i) All Work Permits and Test Permits for a particular generation plant or area of a transmission or distribution network shall be issued from a single location;
 - (ii) A written record shall be kept of all Work Permits and Test Permits issued. As a minimum the record shall include:
 - (a) The day and time the permit is issued;
 - (b) The name of the person to whom the permit is issued;
 - (c) The location where the work is to be carried out, the point or points of isolation and any other required safety precautions;
 - (d) The day and time the permit is returned; and
 - (e) The day and time the plant or equipment is returned to service.
- 10.6 The employee receiving a Work Permit shall inform the permit issuer once work has been completed and the equipment can be returned to service. Such information shall not be given until all men and tools are clear of the equipment and all temporary earths and other safety precautions have been removed. Following return of a Work Permit, equipment shall not be returned to service except under the instruction of the permit issuer.
- 10.7 Notwithstanding the requirements of Clause 10.6 of this Code, in situations where direct communication from the work location between the issuer of a Work Permit and the

person holding the permit is not possible, permission to return to service on completion of the work may be given at the time a permit is issued. In this case, the situation must be recorded on the written record of the permit required under Clause 10.5(ii) of this Code, and the person holding the Work Permit must advise the issuer that the plant or equipment has been reenergized as soon as reasonably possible after reenergization.

11 Test Permit

- 11.1 A Test Permit shall be issued where equipment that is being worked on must be reenergized or operated for testing before it is made available for service. A Test Permit shall only be issued if both the issuer and the recipient are satisfied that the testing can be carried out safely.
- 11.2 A Test Permit shall only be issued after all Work Permits relating to the plant to be tested have been returned to the permit issuer. Only one Test Permit on a plant item shall be issued at any time.
- 11.3 The requirements of Clause 10.5 of this Code apply to the issue of Test Permits. In addition, the documentation required under Clause 10.5(ii) shall record any special safety measures to be put in place during the period of the test.
- 11.4 The recipient of a Test Permit shall inform the permit issuer in writing once testing has been completed.

12 Isolation and Earthing

- 12.1 Prior to commencing work on de-energised Medium and High Voltage electrical equipment, isolation and earthing shall be applied to prevent hazard from causes that include but are not limited to:
 - (i) Inadvertent reconnection to the supply;
 - (ii) Interconnection with other parts of the power system or any other power system such as a back feed from a transformer;
 - (iii) Stored charge in capacitors, power cables and bushings;
 - (iv) Induction from adjacent circuits, atmospheric conditions or direct lightning strike; and
 - (v) Back feed from secondary circuits such as voltage transformers.

This may require isolation and earthing to be applied at a number of points around the equipment to be worked on, and not only at the point at which it is normally energized.
- 12.2 When disconnectors or other equipment are used to form isolation points for plant and equipment on which a work permit is to be issued, the equipment shall be:
 - (i) Locked in the open position where practicable; and
 - (ii) Tagged.

- 12.3 Earth switches or other dedicated earthing equipment shall be used where available but should not be relied on to protect a worksite unless:
- (i) The earth switch is locked in the earthed position and Tagged; and
 - (ii) The earthing equipment is visible from the work site.
- 12.4 Where the earthing point is not visible from the work site, properly designed portable earth connections shall be applied. All phase and neutral conductors shall be bonded together and connected to earth. It is not acceptable to earth only the conductor being worked on or to provide a separate earth connection for each conductor.
- 12.5 Conductors shall be proven deenergized on all phases prior to the application of portable earths to any set of conductors where an earth is not visible on those conductors at that location.
- 12.6 For work on overhead lines, portable earths shall be applied on both sides of the work location. One set of earths shall be placed as close as possible to the work site and shall be visible from it.

13 Work on Equipment Requiring Special Precautions

- 13.1 Before work starts on any power cable, it shall be identified beyond doubt before commencing work, and the person in charge of the work site shall be satisfied that safety measures have been applied to the correct cable. If positive identification is not possible the cable shall be spiked before the cable is cut or opened. Spiking shall be done using a proprietary cable spiking tool, which shall be operated in accordance with the manufacturer's recommendations.
- 13.2 Before any work (except testing) is undertaken on the windings or terminals of a distribution transformer, the transformer shall be isolated from the Medium or High Voltage supply on all phases and the Medium or High Voltage terminals shall be earthed and short circuited. The Low Voltage terminals or conductors shall also be isolated since inadvertent energization of the Low Voltage connection of a transformer can cause full line voltage to arise on the Medium or High Voltage side.
- 13.3 The secondary circuit of a current transformer shall not be open circuited while the primary side is live. The secondary terminals shall be short circuited before carrying out work on any part of the secondary circuit.
- 13.4 When working on earth or neutral conductors or connections care must be taken to avoid hazards arising from possible differences in voltage. If insulating gloves are not used, a bond should be applied across any proposed connection or disconnection before the connection or disconnection is made.
- 13.5 Metallic communication circuits that do not form part of an earth conductor but runs on the same poles, as live conductors shall be regarded as live.

14 Connection of Supply to Consumer Premises

- 14.1 A holder of a Distribution License shall not connect supply to a consumer's premises if the Licensee reasonably considers that the consumer's electrical installation is potentially hazardous.

Approved in the Ninth Commission Meeting held on March 28, 2008.

About SARI/EI

The US Agency for International Development (USAID) initiated the South Asia Regional Initiative for Energy (SARI/E) program in the year 2000 to promote Energy Security in the South Asia region, working on three focus areas: Cross Border Energy Trade (CBET); Energy Market Formation; and Regional Clean Energy development. The program covers the eight countries in South Asia, viz. Afghanistan, Bangladesh, Bhutan, India, The Maldives, Nepal, Pakistan and Sri Lanka.

The fourth and current phase of the program, called South Asia Regional Initiative for Energy Integration (SARI/EI), is aimed at advancing regional grid integration through cross border power trade. This phase is being implemented by Integrated Research and Action for Development (IRADe), leading South Asian Think Tank. SARI/EI program was recently extended to 2022 and is a key program under USAID's Asia EDGE (Enhancing Growth and Development through Energy) Initiative. In its extended phase, SARI/EI will focus on moving the region from bilateral to trilateral and multilateral power trade, and establishing the South Asia Regional Energy Market (SAREM).

About USAID

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About (IRADe)

IRADe, located in Delhi, is a non-profit and fully autonomous institute for advance research. IRADe's multidisciplinary research and policy analysis aid action programs. It is a hub for a network of diverse stakeholders. Established in 2002, the institute is recognized as an R&D organization by the Department of Scientific and Industrial Research and Ministry of Science and Technology of the Government of India.

The Ministry of Urban Development has accorded IRADe the status of Centre of Excellence for Urban Development and Climate Change. Through the SARI/EI program, IRADe is pushing the envelope for sustainable energy access through experts and members from South Asia.

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