Regulatory Oversight in Performance Standards of Utilities

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Main Questions to be addressed

- What lessons can be learned from the regulatory reform processes in the electricity sector in South Asia Region?
  - Are they effective in developing efficient domestic and regional utilities
  - Can other public interests be also accomplished
  - What conditions are needed for the success of the regulatory reform processes

Regulatory Governance

- The establishment of state electricity regulators under the 1998 Electricity Regulatory Commission Act, and, subsequently, the Electricity Act of 2003 (EA 2003) (which superseded it) was intended to reduce government control over the power sector and to de-link it from electoral politics

- The EA 2003 aimed to create
  - an independent,
  - unbiased, and
  - transparent governance framework

  that balanced consumer and investor interests, specifically by removing regulation and tariff determination from the purview of the government

Regulatory Governance – Performance of the sector

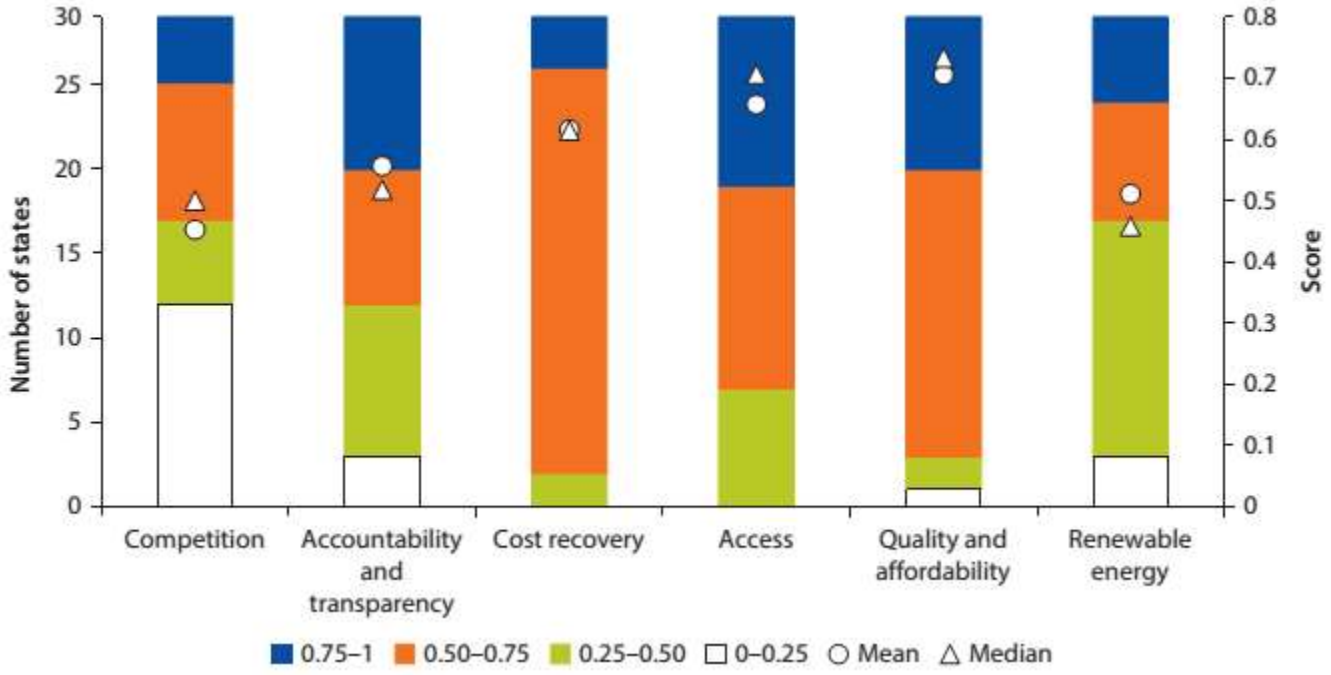
- However, the performance of the sector has remained
  - lackluster, leading to questions about the de facto accountability and independence of the state electricity regulatory commissions (SERCs) and
  - their role in developing and maintaining an operating environment that creates incentives for long-term efficient operation while meeting service delivery targets

- Another issue is that almost all state-level power utilities in India remain state owned, removing the market context for independent regulation and raising questions about the extent to which a regulator can even influence the actions of a state - owned utility,

Reforms Index

- The implementation of reforms index comprises:
  - Introduction of competition – “Competition”
  - Enhanced accountability and transparency – “Accountability and Transparency”
  - Cost Recovery and Commercial Viability – “Cost Recovery”
  - Access to Electricity and Rural Electrification – “Access”
  - Improved quality of service and affordability of supply – “Quality and affordability”
  - Promotion of Renewable Energy – “Renewable Energy”

State Performance on Reform Areas



Progress on Reform Implementation – Top Five and bottom five states by reform area

Competition	Accountability and transparency	Cost recovery	Access	Quality and affordability	Renewable energy	
Rajasthan	**Maharashtra**	**Delhi**	**Delhi**	Mizoram	Orissa	Top five
Maharashtra	**Gujarat**	Assam	Goa	**Orissa**	Punjab	
Madhya Pradesh	Rajasthan	Himachal Pradesh	Andhra Pradesh	**Delhi**	Kerala	
Gujarat	**Orissa**	**Maharashtra**	Chhattisgarh	Goa	**Maharashtra**	
Punjab	West Bengal	West Bengal	*Sikkim*	Assam	**Madhya Pradesh**	
Jharkhand	Mizoram	*Nagaland*	*Other*	Tripura	Goa	Bottom five
Other	Goa	Tamil Nadu	Punjab	*Nagaland*	Chhattisgarh	
Goa	*Nagaland*	Meghalaya	*Nagaland*	*Other*	West Bengal	
Sikkim	*Other*	Kerala	*Other*	*Other*	*Sikkim*	
Other	*Sikkim*	Rajasthan	*Manipur*	*Sikkim*	*Other*	

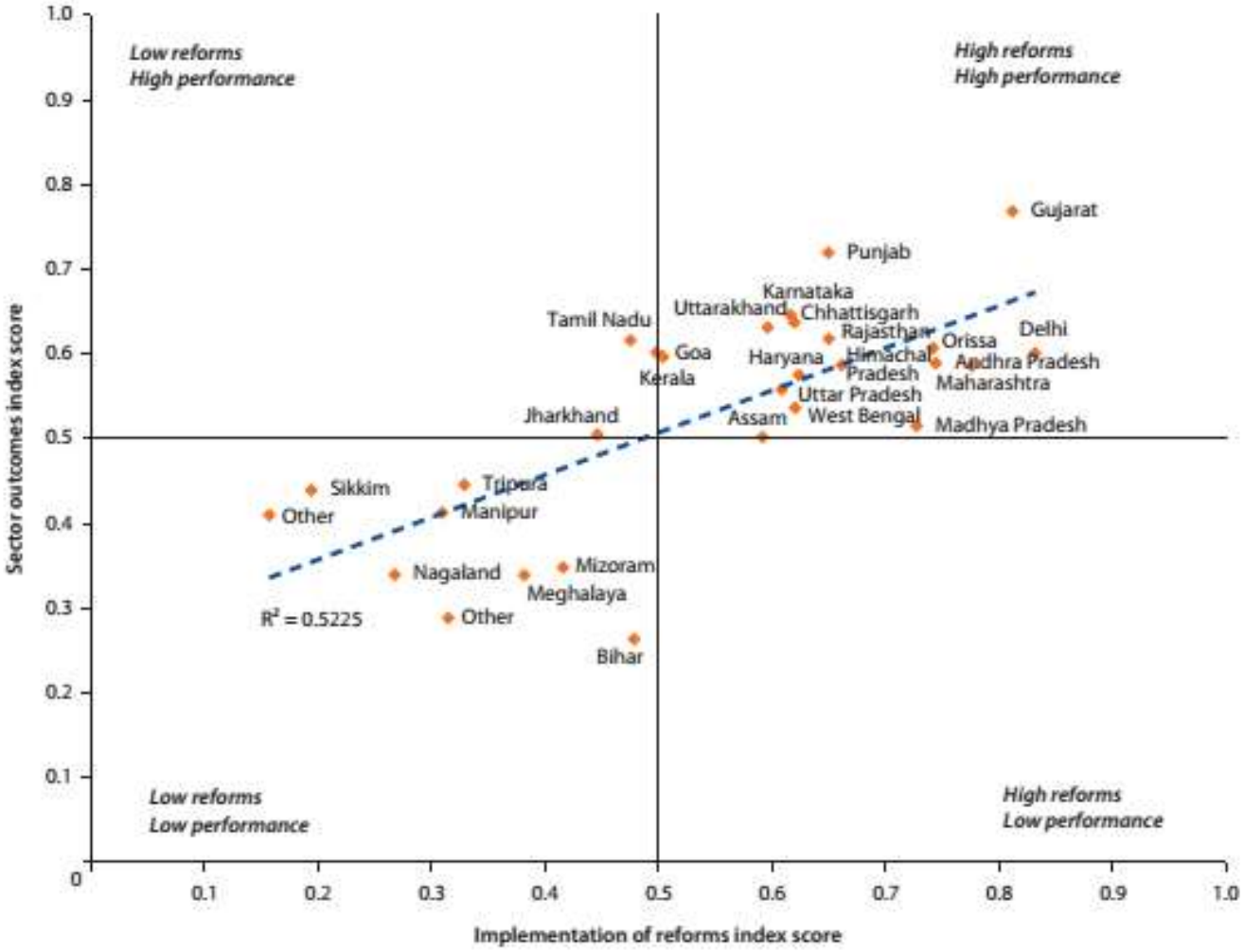
Bolded states are in the top five overall; italicized states are in the bottom five overall.

Source: http://dx.doi.org/10.1596/978-1-4648-0233-1 'More Power to India – WB Report

Sector Outcome Index

Stakeholder	*Objective/expectation*	*Performance indicator*
Customers and citizens	Power availability	Gap between electricity demand and supply
	Efficient service delivery	Aggregate technical and commercial losses
	Affordable power	Average difference between cost of supply and subsidy from 2005/06 to 2010/11
State government	Reduction in burden to exchequer	Reduction in subsidy support per unit of input energy from 2005/06 to 2010/11
	Access to electricity	Household electrification rate
	Environmental concerns	Solar renewable purchase obligation compliance
		Share of identified nonsolar renewable energy potential harnessed
Investors and lenders	Sector openness	Extent of private sector participation in installed generation capacity
		Extent of private sector participation in planned generation capacity additions
		Extent of private sector participation in distribution
	Sector viability	Trend in cash losses per input unit 2005/06–2010/11
		Debt-to-equity ratio
		Average net profit margin from 2005/06 to 2010/11
	Competition in last-mile delivery	Share of open access applications implemented
		Number of transactions on power exchanges

Relationship between Reform Implementation and Outcomes



Contrast: Paper vis-à-vis Practical Situation

- Reform has progressed quite well on paper, but full separation with functional independence has not occurred
  - State power utilities rarely face the accountability pressures that commercial enterprises do from equity owners or creditors
  - Most are publicly owned, with the ownership vested in state government and unlisted, so not subject to the discipline of stock markets

- Hence the incentives and responses of publicly owned firms to regulatory rules differ from those of privately owned utilities

"Unless the internal governance of the utility focuses on performance, the regulator is unlikely to be able to improve performance"

Regulatory Governance

- SERCs have struggled to achieve true autonomy from state governments
- Many SERCs appear to fall short on the resources needed to carry on their functions
- Lack of use of appropriate IT systems
- Yet to implement adequate transparency measures or create framework for meaningful public input to the regulatory process

- Perhaps

  “ There is no clear accountability mechanism to govern the SERCs themselves”

SERC Mandate

- SERCs are expected to prevent state intervention in the sector and protect the interests of different stakeholders by regulating the operations of power utilities and the tariff
- Key Responsibilities:
  - Issuing Licenses for distribution and intra-state transmission
  - Ensure nondiscriminatory open access
  - Promote competition and support the development of multi-buyer market and power trading
  - regulating and rationalizing tariffs to cover costs
  - Implementing MYT – to reduce uncertainty and encourage investment
  - Establishing and monitoring standards for licensee service quality and reliability
  - Protect consumer interests

World Bank Analysis of SERCs performance

Index	Component	Requirement for a score of 1[a]	Average score of all SERCs[b] (%)
	SERC implementation of key regulatory mandates (average score is 74%)		
Tariffs	• From 2007/08 to 2009/10, the number of years the SERC published a tariff order more than 120 days after receiving the utilities' annual revenue requirement filings	Zero or one year	47
	• Share of years in existence (or years since 2000/01, whichever is less) in which the SERC published a tariff order	More than 66%	
	• Does the 2010 average billed tariff equal or exceed operating cost recovery?[c]	Yes	
	• Has a cost of supply study been conducted?	Yes	
	• Has a multiyear tariff order been issued?	Yes	
Protection of consumer rights	• Does the SERC have an ombudsman? • Has the state advisory committee been established? • Have Guidelines on Consumer Grievance Redressal Forum been notified?	Yes (1 point per item)	99
Standards of performance	• Has the SERC issued regulations on standards of performance? • Are penalties for noncompliance clearly defined? • Does the SERC monitor compliance with standards? • Does the SERC issue penalties for noncompliance?	Yes (1 point per item)	70
Other regulations	Has the SERC issued regulations on: – Supply code? – Trading? – Metering? – Multiyear tariff? – Intra-state availability-based tariff?	Yes (1 point per item)	71

World Bank Analysis of SERCs performance

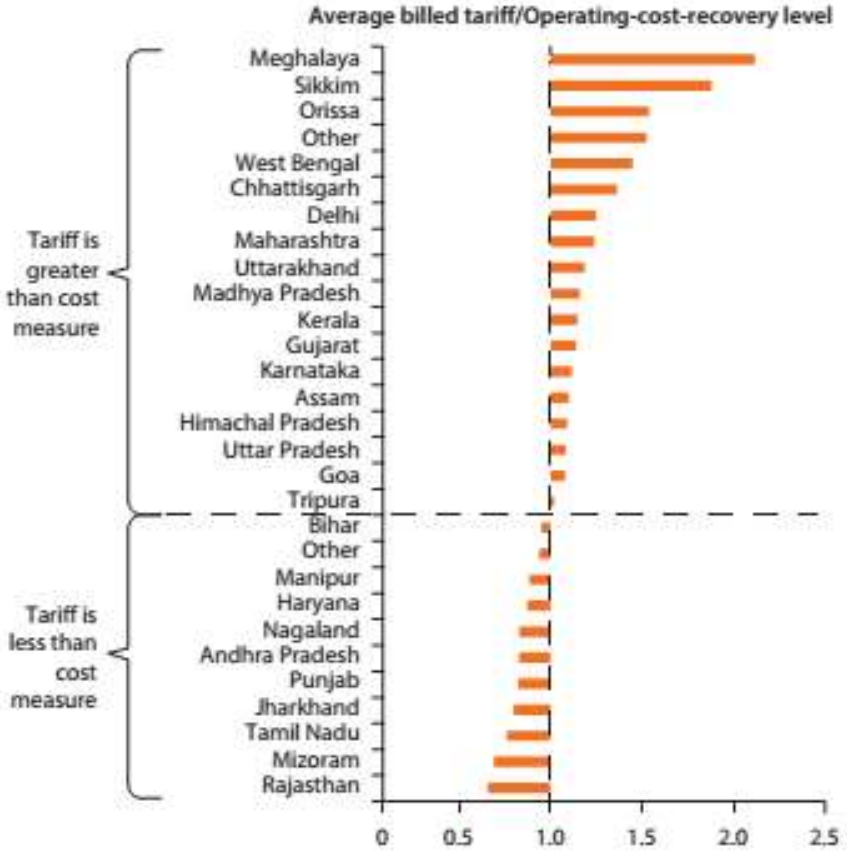
Open access	• Have open access regulations been issued?	Yes	82
	• Has an open access surcharge been determined?	Yes	
	• Has an open access wheeling charge been determined?	Yes	
	• Has an open access transmission charge been determined?	Yes	
	• Have open access applications been received?	One or more applications	
Renewable energy and energy efficiency	• Have renewable energy regulations been notified?	Yes (1 point per item)	75
	• Are renewable purchase obligations technology-specific?		
	• Does the SERC monitor compliance with renewable purchase obligations?		
	• Does the SERC issue penalties for noncompliance?		
	• Has a feed-in tariff been determined?		
	• Does the SERC have measures or incentives to promote consumer demand-side management?		
	• Does the SERC have a provision for time-of-day tariff?		
	• Have regulations on energy efficiency and demand-side management been issued?		
	• Have time-of-day metering regulations been issued?		

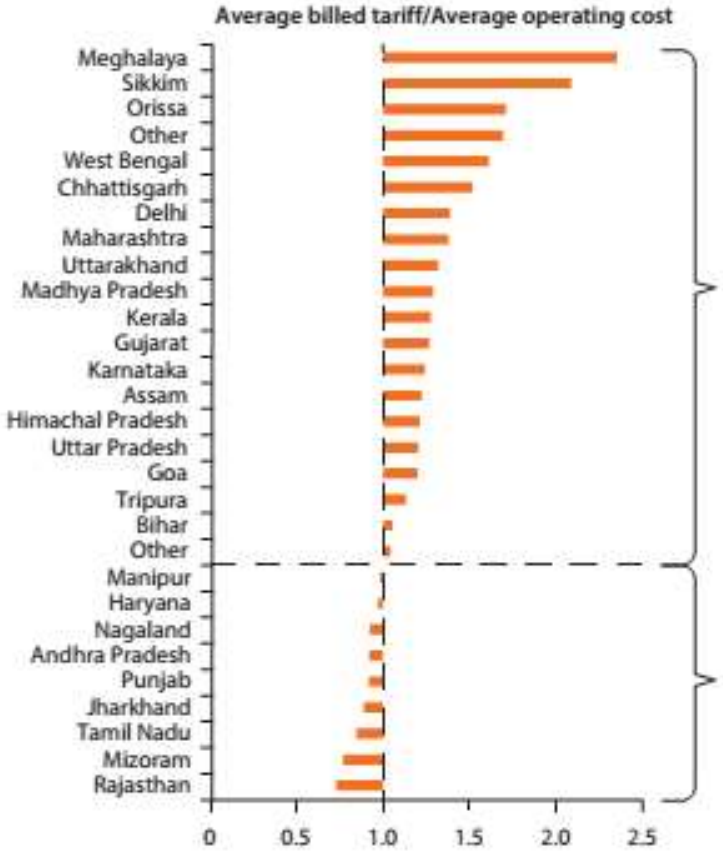
Index	Component	Requirement for a score of 1[a]	Average score of all SERCs[b] (%)
	SERC institutional design (average score is 48%)		
Autonomy	• What was the average chairman tenure over the last 10 years (or since the SERC was created, whichever is shorter)?	Five or more years	42
	• Is the budget from own revenues or a mix of own revenues and state grants?	Yes	
Capacity	• Is there a Regulatory Information Management System?	Yes	28
	• Number of professional staff	Fifteen or more (per Forum of Regulators recommendation)	
Transparency	• Are regulatory decisions online? • Are public hearings held before the tariff order? • Is the updated hearing schedule online? • Are annual reports available on the website? • Are annual reports available in the local language? • Is the Constitution of the state advisory committee online? • Are the minutes of the state advisory committee online?	Yes (1 point per item)	75

Tariffs

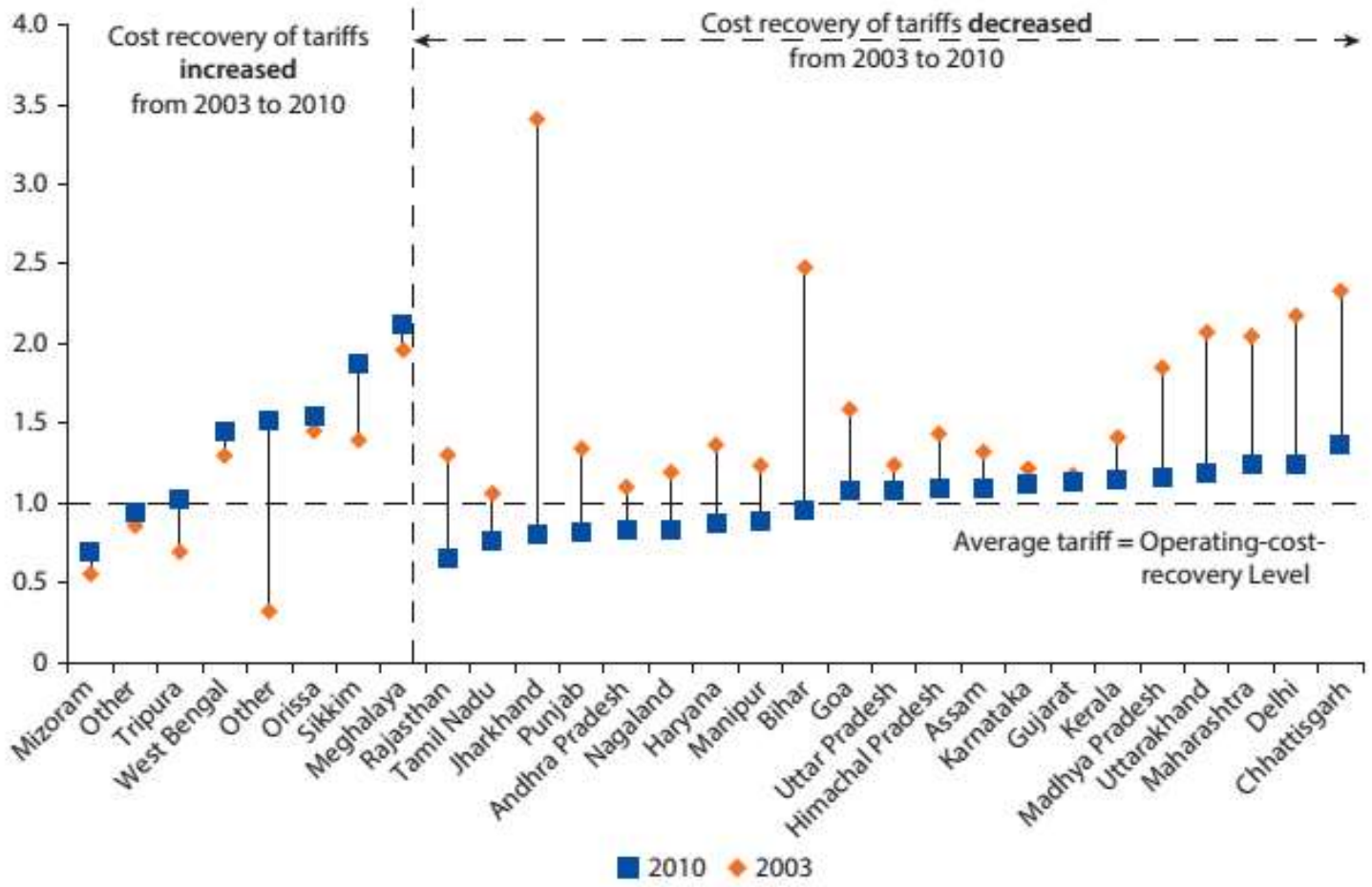
- In line with their most important mandate, most SERCs appear to set tariffs that would allow utilities to cover their costs, though the share of SERCs that accomplish this has declined over time.
- Delays in issuing tariff orders are common, there have been several years when many SERCs have not issued a tariff order at all, and tariff increases have generally not kept pace with cost increases.
- Only a few SERCs have notified an MYT framework and issued tariff orders under that framework
- In 2010, most SERCs set tariffs at a level that allowed utilities to recover their costs

Ratio of Average Billed Tariff to Operating Cost Recovery level and to average operating cost 2010





Change in Ratio of Average Billed Tariff to Operating Cost Recovery Level, 2003-10



Tariff Revisions

- Twenty SERCs failed to issue the tariff order within 120 days of receiving the ARR at least once during 2008-10
- The average delay in issuing tariff order over the same three years was 213 days with a minimum average delay of 30 days and a maximum of 365 days (GOA, Nagaland, Punjab and Tripura)
- On average SERCs increased tariffs 1.5 times from 2008 to 2010
- Six states increased tariffs each year over that period
- Nine States did not increase tariff at all (Goa, Haryana, Jharkhand, Manipur, Mizoram, Nagaland, Rajasthan, TN and Tripura)

Standard of Performance

- All but two SERCs have notified regulations covering standards of performance (SoP).
- SoP typically cover aspects such as the time taken to release new connections, to restore supply after an interruption, and to resolve complaints over metering, billing, voltage fluctuations, and so on.
- All the notified regulations have clearly defined penalties for noncompliance,13 but there is no monetary incentive for utilities to go beyond the minimum SoP.
- About 80 percent of SERCs that have notified regulations report SoP results online.

Standard of Performance

- However, the approach does not necessarily imply the SERC is actively monitoring compliance. In some cases, SERCs publish performance reports received from utilities without verifying the authenticity of the data; moreover, there is no evidence of action taken on such reports, and only 75 percent of SERCs actually monitor compliance with the standards.
- Monitoring compliance is a challenge because licensees often do not have a system for measuring performance against the SoP.

Legal Framework

Preamble :

“ Protecting interest of consumers”

Sec 42 – Establishment of Electricity Consumer Grievance Redressal Forum and appointment of Electricity Ombudsman

Sec 43 – Duty to supply on request : within 1 month after receipt of the application provided no extension of distribution mains, or commissioning of new sub stations is required. In case of failure to supply the electricity within the specified period, the licensee is liable to a penalty extending to one thousand rupees for each day of default.

Legal Framework

Consumer protection : Standard of performance
Sections 57, 58 and 59 specifically deals with these issues.

Sub-section (1) of Section 57 stipulates that the Commission in consultation with Licensees and persons likely to be affected shall specify standards of performance of a Licensee or a class of Licensees.

Sub-section (2) of section 57 provides that if a Licensee fails to meet the standards specified under sub-section (1), without prejudice to any penalty that may be imposed or prosecution that may be initiated, he shall be liable to pay compensation determined by the Commission to the affected person

Before determination of compensation, the concerned Licensee is given reasonable opportunity of being heard.

Legal Framework

The Commission has to specify different standards of performance by licensee in exercise of the powers vested in it under section 58 .

Under sub-section (1) of Sec 59 every licensee within the period specified by the Commission has to furnish the following information :- (a) the level of performance achieved under subsection (1) of section 57 (b) the number of cases in which compensation was made under sub-section (2) of section 57 and the aggregate amount of the compensation.

Under sub-section (2) of Sec 59, the Commission shall arrange for the publication of the information furnished to it, at least once every year

Legal Framework

Sec 86 – Functions of State Commission

sub-section(1) – The State Commission shall discharge the following functions, namely:-

(i) specify or enforce standards with respect to quality, continuity and reliability of service by licensees

Legal Framework

Sec 181 – Powers of State Commissions to make regulations.

sub-section (2)(s) – the time and manner for settlement of grievances under sec 42(7).

Sub-section (2)(t) – period for the purposes specified under sec 43(1).

Sub-section (2)(za) - Standards of performance of a licensee or a class of licensees under sec 57(1).

Sub-section (2)(zb) – the period within which information to be furnished by the licensee under sec 59(1).

National Electricity Policy

Clause 5.13 : PROTECTION OF CONSUMER INTERESTS AND QUALITY STANDARDS

"….Commissions should regulate utilities based on predetermined indices on quality of power supply. Parameters should include, amongst others, frequency and duration of interruption, voltage parameters, harmonics, transformer failure rates, waiting time for restoration of supply, percentage defective meters and waiting list of new connections.

Reliability index (RI) of supply of power to consumers should be indicated by the distribution licensee. A road map for declaration of RI for all cities and towns up to the District Headquarter towns as also for rural areas, should be drawn up by SERCs

FOR – Model Regulation on SOP

Key provisions of model Regulations - Suggested to link actual compensation to

(a) hardship caused to the consumer; and (b) average monthly bill of the consumer

Measurement of overall standards through Audit Report verifying/ assessing

(a) Adherence to procedures and formats as per regulations

(b) Staff engaged in call centres/complaint handling centres/customer care centres for their understanding of complaint handling procedures, quality parameters, and training adequacy for their task

(c) Method of data collection and management procedures

(d) Review of relevant records (as per appropriate sampling procedures) for reliability and accuracy across quality parameters;

Key Provisions of Model Regulations

- Reliability Grading

Reliability Grade	Assessment of reliability grade
A	Based on proper records with adequate procedures
B	Data has significant procedural deviations
C	Unsatisfactory data

Key Provisions of Model Regulations

- Accuracy Grading

Accuracy Grade	Assessed accuracy level	Percentage of compensation paid to be recovered through Annual revenue requirement
1	+/- 2%	100%
2	+/- 5%	85%
3	+/- 10%	70%

Summary Statistics

		Unit	Number of observations	Minimum	Maximum	Mean	Standard deviation
Measures of utility performance	AT&C loss rate (2011)	%	53	7.20	72.86	30.91	14.79
	AT&C loss rate (2010)	%	53	7.76	70.44	31.28	13.54
	Profit/Unit without subsidy (2011)	Rs/kWh	84	−4.50	0.44	−0.61	1.01
	Profit/Unit without subsidy (2010)	Rs/kWh	83	−4.03	0.60	−0.63	0.98
	Profit/Unit without subsidy (discoms only, 2011)	Rs/kWh	53	−4.50	0.35	−0.99	1.11
	Profit/Unit without subsidy (discoms only, 2010)	Rs/kWh	53	−4.03	0.38	−0.96	1.02
	Profit/Unit with subsidy (discoms only, 2011)	Rs/kWh	53	−4.50	0.35	−0.56	1.05
	Profit/Unit with subsidy (discoms only, 2010)	Rs/kWh	53	−4.03	0.38	−0.50	0.85
State-level variables	GDP per capita (2010)	Rs	29	16,119.42	132,715.90	50,477.64	25,686.33
	GDP per capita (2009)	Rs	29	13,980.14	119,272.5	44,340.71	22,600.76
	Holding company/bundled dummy	Categorical	29	0.00	1.00	0.66	0.48
Utility-level variables	Discom dummy[a]	Categorical	85	0.00	1.00	0.62	0.49
	Profit/Unit without subsidy (2007)	Rs/kWh	84	−5.68	3.08	−0.34	0.92
	Net fixed assets (2010)	Rs Crore	82	250.00	167,194.80	26,801.22	28,887.07
	Net fixed assets (2009)	Rs Crore	82	10.00	150,915.30	24,080.65	25,083.49
Corporate governance variables (2010)	Number of directors	Number	68	4.00	15.00	8.15	2.35
	Average CMD tenure	Years	41	0.80	5.00	2.24	1.05
	Basic CG index[b]	Number	66	0.38	1.00	0.65	0.16
	Detailed CG index	Number	21	0.22	0.89	0.49	0.20
	% of board that is independent directors	%	67	0.00	0.57	0.15	0.16
	% of board that is executive directors	%	67	0.00	0.83	0.35	0.22
	% of board that is government directors	%	67	0.17	1.00	0.48	0.22
Regulatory governance variables (2010)	ID index	Number	26	0.10	1.00	0.48	0.24
	IM index	Number	26	0.47	0.93	0.74	0.13

Correlation between Regulatory oversight indexes and Utility Performance

				Discoms only					
	State GDP per capita (2010)	*Profit/Unit without subsidy (2011)*	*Profit/Unit without subsidy (2010)*	*Profit/Unit without subsidy (2011)*	*Profit/Unit without subsidy (2010)*	*Profit/Unit with subsidy (2011)*	*Profit/Unit with subsidy (2010)*	*AT&C losses (2011)*	*AT&C losses (2010)*
ID index	**0.136**	**0.398*** **	**0.365*** **	**0.532*** **	**0.471*** **	**0.429*** **	**0.397*** **	**−0.138**	**−0.143**
Autonomy	−0.174	0.315***	0.246***	0.411***	0.349***	0.328**	0.276*	0.078	0.051
Capacity	0.315	0.383***	0.392***	0.453***	0.400***	0.381***	0.338**	−0.221	−0.216
Transparency	0.162	0.114	0.089	0.244*	0.249*	0.168	0.242*	−0.164	−0.149
IM index	**−0.051**	**0.412*** **	**0.327*** **	**0.484*** **	**0.360** **	**0.607*** **	**0.534*** **	**−0.367*** **	**−0.305** **
Tariffs	0.030	0.454***	0.482***	0.559***	0.548***	0.448***	0.469***	−0.292**	−0.177
Consumer protection	0.149	0.064	0.109	0.186	0.175	0.292**	0.306**	−0.449***	−0.45***
Other regulations	0.213	0.159	0.041	0.179	0.066	0.440***	0.410***	−0.562***	−0.38***
SoP	0.002	0.091	0.043	0.154	0.087	0.337**	0.304**	−0.087	−0.267*
OA	−0.177	0.395***	0.199*	0.428***	0.209	0.672***	0.488***	−0.162	−0.128
Clean energy	−0.281	0.175	0.221**	0.182	0.190	−0.009	−0.030	0.048	0.000

Governance and Performance

$$Utility\ Performance_{ij} = \alpha + \beta_1 CG_i + \beta_2 UTIL_i + \beta_3 REG_j + \beta_4 STATE_j + \varepsilon_{ij}$$

for utility *i* in state *j*,

where *CG* denotes corporate governance,

REG denotes regulatory governance,

UTIL is a set of utility-specific controls,

STATE is a set of state-level controls, and

ε is a random error term assumed to follow a standard normal distribution.

Conclusion

- Unbundling the state electricity boards has progressed quite well on paper, although actual separation and functional independence of the unbundled entities are considerably less than appears
- While unbundling per se would not necessarily be expected to result in a commercial orientation, the objective of being able to clearly identify the contributions of individual entities in the service value chain and hold them accountable for their performance remains unmet to the extent unbundling is incomplete.
- Boards remain state dominated, lack sufficient decision-making authority in practice, and are rarely evaluated on performance. Utilities tend to have more government and executive directors than recommended and fewer independent directors. In fact, only 16 percent of utilities have the recommended share of independent directors, and several lack independent directors entirely

Conclusion

- Political interference in board appointments and decision making on business aspects remains common. The chairman and managing director (CMD) and board's autonomy is constrained by the state government's involvement in key recruitment, personnel, procurement, and enforcement decisions, underlining the fact that the desired arm's-length relationship between the utility and government has not been achieved
- In addition, CMD tenures are often so limited that many CMDs are unlikely to be able to see through implementation of their agendas.
- Finally, board member training and peer evaluation are conspicuous by their absence. Professionalizing and empowering boards should hence be a key priority going forward

Conclusion

- State electricity regulatory commissions (SERCs) have been established in all states, though some as late as 2011. They are expected to prevent political interference in the sector and protect the interests of different stakeholders by regulating the operations of power utilities and the tariff chargeable to consumers, but they face an enormous challenge in that almost all of the utilities they regulate remain state owned
- The ability of SERCs to carry out their mandates depends on the technical, financial, and human resources available to them, their competence, their autonomy in decision making (including, most importantly, insulation from political pressures), and their accountability.
- The analysis shows that there is a significant positive association between these features of institutional design and utility profits per unit, which underlines how important a robust regulatory framework is for utility operations

Conclusion

- Most SERCs are still some way from an institutional design that would permit them to effectively implement their mandates.

- Most importantly, there is no clear accountability mechanism to govern SERCs themselves—the state legislatures, to whom SERCs nominally report, do not play an active monitoring role, and the Appellate Tribunal, which arguably brings SERCs under the purview of the judicial system, does not have a mandate to routinely monitor regulatory activity or hold SERCs accountable

- In addition, SERCs have generally struggled to achieve true autonomy from state governments,
- Many SERCs also lack the resources that might assist in performing their functions—most notably, enough professional staff and appropriate information technology systems.

Conclusion

- Only five SERCs have ever conducted a cost of supply study.
- SoP have been notified by almost all SERCs—but only 75 percent monitor compliance, and only two have ever imposed a penalty for default.
- Most SERCs are complying with mandates to promote consumer empowerment and increase transparency to the public but need to do far more to ensure that consumers are given opportunities to engage and that high quality information is available to the public.
- Going beyond the EA 2003, 10 SERCs have reported establishing consumer advocacy cells—a bright spot on the landscape.

Conclusion

- Finally, though most SERCs have notified most of the key regulations necessary to enact the mandates of the EA 2003, many SERCs have yet to take concrete steps to actually implement these regulations.
- For example, only half of states have even received an OA application, and only 10 states have actually implemented OA for an applicant.
- On renewable energy and energy efficiency, most states have notified basic renewable purchase obligation regulations, but only 18 monitor compliance, and only 4 have issued penalties for noncompliance.
- Significantly fewer states have passed demand-side management, feed-in-tariff, or time-of-day regulations.

Recommendations

- The agendas on corporate governance and regulatory governance are urgent and need substantial further action

- Establishing an arm's-length relationship between the state and the regulator and the state and the utility, as intended by the reforms initiated decades ago, is still a priority for the sector

Recommendations

- Since unbundling on its own will not lead to commercialization, it is also important to consider other ways of bringing in efficiencies—for example, divesting an ownership share to central public sector undertakings such as the National Thermal Power Corporation or the Power Grid Corporation of India, which are recognized for strong results and which, as equity owners, might have both an interest in pushing for better performance and the ability to do so.

- Another option is to start with hardwired limits (through articles of association or other mechanisms) that specify CMD terms and areas in which the board is solely responsible for decisions and restrict interference in both. Of course, the efficacy of any such mechanism depends on the extent to which it can be enforced.

Recommendations

- The use of a memorandum of understanding (MoU) between the utility and the state government that establishes performance targets for the utility along with indicators of achievement can provide a mechanism for the state government to monitor progress toward those targets.

- The central government currently has MoUs with central public sector enterprises, and though there is considerable room for improvement, MoUs can be a useful tool for motivating performance

- Regulatory initiative will only arise when regulators are held accountable for their actions. It appears that SERCs do not always take actions necessary to promote long-term sector viability unless they are compelled to

Recommendations

- One idea is to extend the mandate of the Appellate Tribunal to include a provision for regular monitoring of regulators; another is to use the Planning Commission for periodic evaluation of state regulators, as proposed in the Shunglu Committee report.

- Regular monitoring by peers in the Forum of Regulators, with full public disclosure of findings, is also worth exploring
- In the end, the real challenge is to improve service delivery, for which the link between good service and utility earnings needs to be strengthened.

WAY FORWARD

This is likely to require action beyond the governance environment of the utilities, as has been noted:

"In hindsight, the weakness of the Indian power reform program has been that while it has focused appropriately on sorting out distortions in the relationship between the owner-government and power utilities through the unbundling and regulation model, it has failed to carry credible assurances that this will improve the equation between the reformed utilities and their consumers" (Lal 2006, 24)

Thank You

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