Procedures for the setting of allowed revenues for Entities of Natural Monopoly

Draft for discussion

General provisions

(Refer to paras 1-9 of Annex 1)

1. These procedures govern the setting and adjustment of allowed revenues to be recovered by Entities of Natural Monopoly ('Entities') through the tariffs charged for their goods and services.

2. The Entities covered by these procedures are those which involve the operation of infrastructure networks. These include:

   - electricity transmission and distribution;
   - heat transmission and distribution;
   - gas transportation and distribution by pipeline;
   - oil and oil products transportation by pipeline;
   - fixed line telecommunications networks; and
   - water and sanitation services provided by pipelines.

   The principles can also be extended to other Entities.

3. These procedures recognise that companies should be given incentives to improve the efficiency of their operations and to make necessary investments, which will ultimately benefit consumers. This will be done by applying the following principles:

   - allowed revenues should be set for a number of years at a time, increasing certainty and stability for companies and consumers ('the price control');

- allowed revenues should be reviewed at pre-determined intervals, at which efficiency savings made by companies will be shared with consumers ('the price review'); and

- between price reviews allowed revenues should be adjusted to reflect changes in costs which are outside of the control of the Entity through the application of adjustment formula. The extent of regulatory discretion within the price control should be strictly limited.

Price reviews

(Refer to Sec 2.2.1 of the Main Report)

4. A price review should be held at the time of implementation of these procedures, then after a period of three years has elapsed and subsequently after every five years. The shorter, three year, initial price control period is due to the large uncertainties over data at the time of the first price control.

5. During the price review, allowed revenues will be determined for each Entity. The price control will then be set to allow the Entity to earn these allowed revenues from its tariffs charged on estimated customer demand over the period of the price control.

6. The price control takes the form of an allowed maximum average unit revenue to be earned by the Entity in any one year. The structure of tariffs charged by the Entity will be determined by the Entity in accordance with any other applicable regulatory instructions.

Costs to be included in allowed revenues

7. Allowed revenues should be set at a level sufficient to allow companies to recover:

    - an efficient level of operating costs, consistent with a sustainable business that meets service quality targets;

    - a return on assets, sufficient to compensate the Entity for the risks incurred in its investments; and

    - an allowance for the reduction of the value of investments through depreciation.

Operating costs

(Refer to Secs 2.4-2.5 of the Main Report, and paras 10-13, 15 and 17-22 of Annex 1)

8. Operating costs should be divided between those within the control of the Entity, those which are outside the control of the Entity and those set in accordance with norms approved or appraised by a Competent Body. So far as is possible, these norms should be set on a consistent basis for all regions of Kazakhstan.

9. For those costs considered as being within the control of the Entity, an assumption should be made as to the extent to which the efficiency of the Entity in relation to these costs can be increased over the period of the price control.

10. For those costs outside the control of the Entity, a forecast should be prepared of the level of these costs over the period of the price control. An adjustment mechanism will correct for differences between actual levels of these costs and those forecast at the time of the price review. The adjustment mechanism will be set at the start of the price review.

11. For those costs set in accordance with norms, a forecast should be prepared for the level of these costs over the period of the price review. To provide incentives for Entities to reduce the level of these costs, no correction will be made for differences between the actual and forecast level of these costs. This allows Entities to keep the gains from reducing costs below these norms.

12. In general, no changes should be made in norms during the price control period as this reduces the certainty of regulation. Where such changes are made then an adjustment mechanism corrects for differences between the level of costs forecast at the time of the price review, and those that apply under the new norms.

Losses

(Refer to Sec 2.6 of the Main Report and para 14 of Annex 1)

13. The calculation of allowed revenues makes allowance for technical losses in accordance with the applicable norms. This

provides incentives for Entities to reduce these losses over the period of the price control.

14. No allowance is made for commercial losses. It is recognised that this may lead to Entities requiring a higher return to compensate them for these risks, and that this may reduce the level of investment by reducing the revenues earned from such investments by the level of commercial losses. However, it is not considered acceptable to allow Entities to recover these losses. Excluding them also provides strong incentives for Entities to reduce these losses.

Regulatory asset base

(Refer to Sec 2.3.2 of the Main Report, paras 27-31 of Annex 1, Schedule 1 of Annex 1, Annex 2b and Annex 3)

15. The regulatory asset base (RAB) is the value of assets on which the Entity is allowed to earn a return. This may differ from the book value of assets for the following reasons:

    - it should take account of the costs of replacing assets now, thereby signalling the true cost of new investment;
    - it should take account of the low levels of capacity utilisation in many instances. Consumers should not be required to pay for capacity of no value to them now or in the future;
    - it should not be affected by decisions on the funding of assets by their operator—such as whether to own, lease or rent these; and
    - for privatised companies, it should not impose windfall gains or losses on the privatised companies resulting from differences between the RAB and the purchase price paid for assets.

16. No consistent estimates of the replacement cost of assets which take account of the degree of capacity utilisation currently exist for Entities in Kazakhstan. Therefore, the most appropriate method to value the RAB at the start of the price review, taking account of the condition of the assets and their utilisation, is their market value—the net income from the assets earned by their owner.

17. For privatised Entities, the opening RAB should be equal to the purchase price paid for the assets, adjusted for investment and depreciation prior to the initial price review. The purchase price includes the value of any debts assumed by the new owners of the assets. The opening RAB should also include an allowance for working capital provided by the new owner.

18. For Entities not yet privatised, the opening RAB should be equal to the value of future revenues less operating costs (including depreciation but excluding interest) over a ten-year period, discounted at the Entity's cost of capital. This approach uses an accruals basis rather than using cashflows to ensure consistency with the approach taken in other areas of the price control.

19. The forecast of future revenues should use existing tariffs, except where these are inadequate to meet current operating costs in which case they should be assumed to increase to a level sufficient to cover operating and interest costs. All forecasts of revenues and costs, as well as the cost of capital, should be stated in real terms (i.e. excluding inflation).

20. The formula to be applied to calculate the opening RAB for Entities not yet privatised is as follows:

$$RAB_0 = \left(\sum_0^9 \frac{R_n - C_n}{(1+r)^n} \right) + \left(\frac{Inv_0}{2} \right)$$

RAB_0	is the opening regulatory asset base
R_n	is the forecast revenue in year n
C_n	is the forecast total costs (including depreciation but excluding interest, dividends and retained earnings) in year n
Inv_0	is the investment undertaken in year 0

21. Within the period of the price control, the RAB should be adjusted by the addition of allowed investment less allowed depreciation in each year.

22. For subsequent price reviews, the opening RAB should be adjusted by updating in line with the consumer price index, to maintain its value in real terms, plus any adjustment for underspending on investment during the previous price control period.

Investment

(Refer to paras 30-35 of Annex 1)

23. Investment programmes should be approved by a Competent Body upon agreement with the Authorised Body. Investments should be approved on the basis of whether the associated benefits are greater than the costs of the investment.

24. The calculation of the respective costs and benefits should use actual and forecast levels of commercial and technical losses, rather than those levels included in the norms. This is to ensure that investments that will reduce the level of losses where this is above that in the norms, and the benefits of which are greater than their costs, proceed.

25. Following approval by a Competent Body, the allowed investment programme will be included in the allowed revenue calculation at each price review.

26. At each price review, any shortfall between the level of investment included in allowed revenues for the preceding price control period, and actual expenditure, will be deducted from the opening RAB for the new price control period. This removes incentives for Entities to underspend on necessary investment by deferring this to future price control periods.

Depreciation

(Refer to Sec 2.3.3 of the Main Report and para 16 of Annex 1)

27. Depreciation charges should be related to the expenditure required to replace assets as they age.

28. By law, depreciation charges are applied to the book value of assets owned by the Entity. This value may differ from the value of RAB on which an allowed return is calculated.

29. The most appropriate book value on which to base depreciation charges is the modern equivalent asset value—the cost of replacing the existing assets with ones capable of performing the same functions and providing the same service.

30. Currently, no consistent approach has been adopted to the revaluation of assets of Entities in Kazakhstan. Therefore, for

reasons of consistency, the depreciation charge should be based on the book value of assets valued at their historic cost.

Allowed return

(Refer to Sec 2.3.1 of the Main Report, paras 23-26 of Annex 1, Schedule 1 of Annex 1 and Annex 2)

31. The allowed return represents the profits earned by the Entity on its investments and used to repay lenders and shareholders. It is calculated by multiplying the Entity's cost of capital by its average RAB in each year of the price control period.

32. By separating the allowed return from the actual costs of debt service, this provides incentives for Entities to reduce financing costs and removes the need for the Competent Body to determine the debt service and dividends payable in any one year.

33. The allowed return is calculated in US dollars (USD) and applied to the RAB converted into USD. The resulting return is then converted into Tenge at the forecast exchange rate in each year of the price control period. An adjustment mechanism corrects for the impact of divergences between the actual exchange rate and that forecast at the time of the price review.

34. The cost of capital is estimated as the average of the cost of debt and the cost of equity for the Entity, weighted according to their share in total financing (the weighted average cost of capital, WACC), in accordance with the following formula:

$$WACC = \left[(1-g) \times r_e\right] + \left[g \times r_d\right]$$

g is the level of gearing in a Entity (the share of debt in the total capital structure) expressed in %

r_e is the cost of equity finance, expressed in %

r_d is the cost of debt finance, expressed in %

35. The cost of debt is estimated as the sum of the risk-free rate (the return earned on a risk-free investment) plus a debt risk premium representing the additional risk associated with lending to the Entity. This is given by the following formula:

$$r_d = r_f + DP$$

r_f is the risk-free rate

DP is the debt risk premium applicable to the entity

36. For Entities in Kazakhstan the risk-free rate is estimated as the sum of the return earned on bonds issued by the US Treasury, plus a country risk premium. The country risk premium is determined by the additional return required by buyers of Kazakh Eurodollar Bonds and USD-denominated bonds issued by countries of similar credit ratings to Kazakhstan over US Treasury bonds of the same maturity.

37. The debt risk premium applicable to the Entity is determined using the premium on traded debt issued by the Entity over government bonds of the same maturity, if this is available. If not, it is estimated using the debt risk premia of similar companies in terms of activities and credit rating within Kazakhstan and internationally.

38. The cost of equity is determined in accordance with the Capital Asset Pricing Model, that is as the sum of the risk-free rate plus the product of the equity beta of the Entity multiplied by the equity risk premium. This is given by the following formula:

$$r_e = r_f + b_e\left(r_m - r_f\right)$$

b_e is the equity beta

r_m-r_f is the equity risk premium

39. The equity risk premium is the additional return required by investors in the stock market over government bonds. This is estimated using international evidence on this premium, due to the immaturity and small size of Kazakh stock markets.

40. The equity beta is a measure of the risk of the Entity relative to that of the stock market as a whole. This is estimated using international evidence on the betas applicable to similar companies under similar regulatory regimes.

41. The level of gearing is determined based on actual gearing levels and those used by similar companies within Kazakhstan and internationally.

42. Taxes on profits are treated as an operating cost and included in the allowed revenue calculation directly.

Adjustments

(Refer to Secs 2.2.2 and 2.8 of the Main Report and Schedule 2 of Annex 1)

43. During the course of the price control, the maximum allowed average unit revenue will be adjusted to take account of:

    - inflation;
    - expected gains in efficiency;
    - differences between actual exchange rates and those forecast at the time of the price review;
    - differences between actual levels of costs outside the control of the Entity and those forecast at the time of the price review; and
    - the impacts of changes in the norms applicable to the Entity during the period of the price control.

44. Such adjustments will be made through the application of predetermined formulae, and no regulatory discretion will be permitted.

45. Under current laws, Entities may apply to change their regulated tariffs every three months. In recognition of this, and also the great uncertainty over inflation and exchange rate changes in Kazakhstan, adjustments for these two elements will be made quarterly.

46. All other adjustments will be made on an annual basis.

47. For each of quarters one to three of each year of the price control period, the following adjustment formula will be applied:

$$P_q = \lfloor P_{q-1} \times (1 + \Delta CPI_{q-1,q} - X) \rfloor + E_{q-1}$$

P_q	is the maximum allowed average unit revenue to be earned by the Entity in this quarter
P_{q-1}	is the maximum allowed average unit revenue to be earned by the Entity in the previous quarter. This is set by the Competent Body for P_0
$DCPI_{q-1,q}$	is the rate of inflation for the period from quarter q-1 to q
E_{q-1}	is the adjustment factor to take account of deviations in the actual exchange rate from those forecast at the time of the price review, given by

$$E_{q-1} = \frac{\left\{\left[\left(\left(\frac{T_{q-1,q}}{\tilde{T}_{q-1,q}} - 1\right) \times g_{q-1} \times \hat{C}_{q-1}\right] \times (1 + r_{q-1})\right\}}{kWh_q}$$

$T_{q-1,q}$ is the actual average number of Tenge per USD for the quarter q-1 to q

$\tilde{T}_{q-1,q}$ is the forecast average number of Tenge per USD for the quarter q-1 to q at the time of the price review

g_{q-1} is the proportion of total costs (corrected for any changes arising from changes in norms or uncontrollable costs) that is denominated in USD in quarter q-1. At a minimum this must include the allowed return

$\hat{C}_{q-1}$ is the forecast total cost of operations for the quarter q-1, corrected for any changes in norms and costs outside of the control of the Entity

r_{q-1} is the interest rate applicable for borrowing by the Entity for periods of three months for the quarter q-1

kWh_q is the forecast, used in the price review, of units to be billed during the quarter q (in kWh)

48. For the fourth quarter of each year of the price control period, the following adjustment formula will be applied:

$$P_q = \left[Pq \times \left(1 + \Delta CPI_{q-1,q} - X\right)\right] + A_{n-1} + E_{q-1}$$

E_{q-1} is the adjustment factor to take account of deviations in the actual level of uncontrollable costs from those forecast at the time of the price review, and of changes in the applicable norms over the period of the price control, given by

$$A_{n-1} = \left\{\frac{\left[\left(Norms_{n-1} - \tilde{N}orms_{n-1}\right) + \left(UC_{n-1} - \tilde{U}C_{n-1}\right)\right] \times \left(1 + r_{n-1}\right)}{kWh_n}\right\}$$

$Norms_{n-1}$ is the level of costs dependent on norms determined by the Competent Body in year n-1, calculated using those norms applicable in year n-1

$\tilde{N}orms_{n-1}$ is the level of costs dependent on norms determined by the Competent Body in year n-1, calculated using those norms applicable at the time of the price review

UC_{n-1} is the level of uncontrollable costs actually incurred by the Entity in year n-1

$\tilde{U}C_{n-1}$ is the level of uncontrollable costs forecast as being incurred by the Entity in year n-1 at the time of the price review

r_{n-1} is the interest rate applicable for borrowing by the Entity for periods of twelve months for the year n-1

kWh_n is the forecast, used in the price review, of units to be billed during year n (in kWh)

49. As part of the price review, the Competent Body will determine P_0, the initial allowed maximum average unit revenue, and X.

50. The X value will be set to equal the level of expected efficiency gains in total costs, adjusted as necessary to avoid any requirement for large step changes in regulated tariffs from one price control period to the subsequent price control period. For the initial price control period very limited information is available on the potential for efficiency gains. Therefore, these will be assumed to be zero, for this price control period only.