

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Coram:

**Shri Ashok Basu, Chairman
Shri K.N. Sinha, Member
Shri Bhanu Bhushan, Member**

**Petition No. 67/2003
(Suo motu)**

In the matter of

Determination of terms and conditions of tariff applicable from 1.4.2004

**ORDER
(DATE OF HEARING : 24.6.2004)**

The Electricity Act, 2003 empowers the Commission to specify by regulations the terms and conditions for the determination of tariff. By virtue of these powers, the Commission has notified the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2004 (the regulations), applicable from 1.4.2004, notified on 29.3.2004, for a period of 5 years, that is, up to 31.3.2009, unless reviewed earlier or extended by the Commission. These regulations have been notified after previous publication, as required under the Act. However, some of the central/state utilities have pleaded for amendment of the certain provisions made in the regulations. The matter has been considered in detail and we propose to consider the amendments to some of the provisions made in the regulations, as discussed in the succeeding paragraphs.

Debt-Equity Ratio - Regulations 20, 36 and 54

2. The regulations provide that in respect of projects, both generation and transmission, debt-equity ratio to be considered for determination of tariff on the date of commercial operation shall be 70:30. It has also been provided that where equity

employed is more than 30%, the amount of equity for determination of tariff shall be limited to 30% and the balance amount shall be considered as the normative loan. However, in cases where actual equity employed is less than 30%, the actual debt and equity are to be considered for the purpose of tariff determination. The provisions made in the regulations would imply that even in cases of projects declared under commercial operation before 1.4.2004, the tariff is to be computed by applying debt-equity ratio of 70:30, irrespective of actual debt and equity employed by the utilities or that considered for tariff determination for earlier periods. In the light of this, it has been urged that this retrospective revision of debt and equity will be a cause for hardship and will adversely effect the future investment plans in the power sector.

3. We have considered this issue. In case of the generating stations declared under commercial operation before 1992, for the purpose of tariff, debt-equity ratio of 50:50 was implemented for which the state utilities had given their consent. In the two-part tariff set by Government of India after 1992, the debt-equity ratio was adopted as 50:50. The Commission adopted the same ratio for the tariff period 1.4.2001 to 31.3.2004.

4. We would like to maintain the status quo ante, that is, as it existed up to 31.3.2004. We, therefore, propose to amend the regulations on debt-equity as under:

- (1) The debt-equity ratio for all the existing generating stations/transmission assets considered by the Commission for the purpose of fixation of tariff for the period prior to 1.4.2004 shall be continued for the tariff period 2004-09.

(2) In case of ongoing projects for which investment decisions have already been approved and the projects are likely to be commissioned during the course of the current tariff period, (1.4.2004 to 31.3.2009), the Commission shall consider the debt-equity in the ratio of 70:30, unless the utilities prove before the Commission to its satisfaction that there were compelling reasons for deploying equity higher than 30% and the same is in the interest of public at large. In case of deployment of lower equity, the actual equity shall be considered.

(3) In case of new projects which are approved on or after 1.4.2004, the equity shall not exceed 30% of the capital cost.

5. We believe that with the above arrangement, the utilities would be able to achieve debt-equity ratio of 70:30 at the corporate level by the terminal year of the tariff period, that is, 31.3.2009.

Unscheduled Interchange (UI) Charges – Regulations 24 and 42

6. The rates for UI transactions, based on average frequency of the time block, applicable from 1.4.2004 are as under:

Average Frequency of time block	UI Rate (Paise per kWh)
50.5 Hz and above	0.0
Below 50.5 Hz and up to 50.48 Hz	8.0
Below 49.04 Hz and up to 49.02 Hz	592.0
Below 49.02 Hz	600.0
Between 50.5 Hz and 49.02 Hz	linear in 0.02 Hz step

(Each 0.02 Hz step is equivalent to 8.0 paise/kWh within the above range)

Note

The above average frequency range and UI rates are subject to change through a separate notification by the Commission.

(2) (i) Any generation up to 105% of the declared capacity in any time block of 15 minutes and averaging up to 101% of the average declared capacity over a day shall not be construed as gaming, and the generator shall be entitled to UI charges for such excess generation above the scheduled generation (SG).

(ii) For any generation beyond the prescribed limits, the Regional Load Despatch Centre shall investigate so as to ensure that there is no gaming, and if gaming is found by the Regional Load Despatch Centre, the corresponding UI charges due to the generating station on account of such extra generation shall be reduced to zero and the amount shall be adjusted in UI account of beneficiaries in the ratio of their capacity share in the generating station.

Prior to 1.4.2004, the ceiling UI rate was 420 paise/kWh at frequency below 49.02 Hz.

7. A number of representations have been received from the state utilities requesting for reduction of UI rates, which have been enhanced by the Commission w.e.f. 1.4.2004. The reasons for the enhancement of ceiling UI rate from 420 paise/kWh to 600 paise/kWh had been elaborated earlier in the Commission's order dated 16.1.2004. After a review of all representations at the draft regulation stage, the same had been confirmed by the Commission in its order dated 29.3.2004.

8. Many of the state utilities have urged for lowering the ceiling UI rate, while some others seem to be mainly concerned at the high level of UI rate at 50.0 Hz (200 paise/kWh w.e.f. 1.4.2004). The state utilities falling in the latter category feel that the ceiling UI rate of 600 paise/kWh is in order, but the UI rate at 50.0 Hz should be only around 140 paise/kWh.

9. At the stage of finalisation of the regulations, some of the utilities had expressed the view that the present UI rate of 420 paise/kWh was not sending the desired commercial signals of maximising generation under low frequency conditions. Due to the high variable cost/energy charges for liquid fuel generation, the beneficiaries were tending to fulfilling their demand through over draws by paying UI charges rather than scheduling drawal from the costlier liquid fuel-based generating stations, intra-state as well as Central. Since all the state beneficiaries were generally resorting to this practice, this was causing low frequency operation in the grids. The Commission, therefore, favoured raising of the highest (ceiling) UI rate to remedy the situation and accordingly decided to increase the ceiling UI rate applicable at frequency of 49 Hz and below to 600 Paise /kWh. The linear relationship between frequency and UI rate in the frequency range of 49 Hz to 50.5 Hz was not disturbed. This had the desired result of improving despatches from the liquid fuel-based generating stations, particularly during peak load/shortage periods.

10. However, it has been learnt through inter-action with the Regional Load Despatch Centres that the present UI rate is causing the grid frequency in different regions to be above 50.0 Hz for a few hours every day. This is because even many load centre thermal stations (with a variable cost in the range of 150-200 paise/kWh) do not get a commercial signal for backing down until the frequency has gone above 50.0-50.1 Hz. Taking cognisance of the above situation, and taking a balanced view of all aspects, the Commission feel it desirable to reduce the UI rate at 50.0 Hz from 200 paise/kWh to 150 paise. The UI rate shall have a slope of 30 paise/kWh per 0.1 Hz from 50.0 Hz to 49.8 Hz, and a slope of 45 paise/kWh per 0.1 Hz from 49.8 Hz to 49.0 Hz, resulting in a ceiling UI rate of 570 paise/kWh instead of 600 paise/kWh.

11. The new UI formula, with a lower slope above 49.8 Hz, is expected to lower the grid frequency (thus bringing it closer to 50.0 Hz) during normal hours, by encouraging the load-centre thermal stations to start backing down at around 49.9 Hz.

12. Accordingly, the following UI rates are proposed:

Average frequency of time block (Hz)		UI Rate (Paise per kWh)
Below	Not below	
----	50.50	0.0
50.50	50.48	6.0
50.48	50.46	12.0
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-----	-----	-----
49.84	49.82	204.0
49.82	49.80	210.0
49.80	49.78	219.0
49.78	49.76	228.0
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-----	-----	-----
49.04	49.02	561.0
49.02	-----	570.0

Late Payment Surcharge – Regulations 26, 44 and 62

13. On the question of late payment surcharge it has been laid down in the regulations that in case the payment of bills is delayed by the beneficiaries beyond a period of one month from the date of billing, late payment surcharge at the rate of 1.25% per month shall be levied by the generating company or the transmission utility. It has been represented by the state utilities that the provision in the regulations is at variance with the provisions of tripartite agreements signed by the Central Government, the State Governments and the Reserve Bank of India on the question of settlement of dues of the central power sector utilities by the state utilities. The state utilities have, therefore, sought modification of the above noted regulations so that these are brought at par with the provisions of tripartite agreement.

14. We are in agreement with the demand made by the state utilities. The tripartite agreements provide that the payment of the bills by the State Electricity Boards or their successor entities shall be made not later than 60 days from the date of bills or within 45 days from the receipt, whichever is later. Keeping in view the spirit of the provisions made in the tripartite agreements, we feel that the late payment surcharge should be leviable only where payments are delayed beyond 60 days. Accordingly, these regulations are proposed to be amended so that “period of one month” is substituted by “period of 60 days”.

Cut Off Date – Regulation 31(vii)

15. The definition of “cut off date” in Clause (vii) of Regulation 31 under Chapter 3 applicable to hydro power generating stations shall be substituted as given hereunder in order to make the definition congruent with the definition given in other parts of the regulations:

“Cut off date means the date of first financial year closing after one year of the date of commercial operation of the generating station.”

Incentive (Inter-state Transmission) – Regulation 60

16. In accordance with the regulations, the transmission licensee is entitled to incentive on achieving the annual availability exceeding 98% in the case of AC System and exceeding 95% in the case of HVDC bi-pole links and HVDC back-to-back stations. The regulations further lay down that no incentive is payable above the availability of 99.75% for AC System and 98.5% for HVDC System. The claim of the

transmission licensee for payment of incentive is calculated in accordance with the following formula:

$$\text{Incentive} = \text{Annual Transmission Charges} \times [\text{Annual availability achieved} - \text{Target Availability}] / \text{Target Availability} ;$$

Where,

Annual transmission Charges shall correspond to intra-regional assets or for a particular inter-regional asset, as the case may be.

17. Thus, payment of incentive is linked with annual transmission charges. On further consideration of the matter, we find that linking of incentive with annual transmission charges does not appropriately reward the better performance by the transmission licensee, for the reason that with passage of time annual transmission charges get reduced over the life of the asset while the maintenance expenses increase with the ageing of the transmission system. In the light of this, we have reviewed the matter, particularly on consideration of the fact that uninterrupted availability of the transmission system is vital for ensuring continuous supply of power to the consumers. Therefore, every effort needs to be made towards maximisation of availability of the transmission system and this explains the necessity to incentivise the efforts required to be made by the transmission licensee. Therefore, we propose to revise the formula for computation of incentive and to lay down the rate of incentive @ 1% return on equity for each percentage point of increase in actual availability beyond target availability of 98% for AC System and 95% for HVDC System. Therefore, the following formula for calculation of incentive is proposed:

$$\text{Incentive} = \text{Equity} \times [\text{Annual availability achieved} - \text{Target availability}] / 100$$

18. Further, to enable the transmission licensee to maximise availability of the transmission system by using modern maintenance techniques, such as hotline washing, we propose to dispense with the upper limit of target availability for payment of incentive.

Tariff Filing Form

19. The Tariff Filing Form (Hydro)-Form 17 titled-“Calculation of Operation and Maintenance Expenses” of Appendix I, Part II of the regulations shall be substituted by the fresh form since the form published earlier as a part of the regulations contains certain ministerial/typographical errors.

Conclusion

20. We direct that in the light of above decisions, action for amendment of the regulations in accordance with the laid down procedure shall be initiated immediately. The amendments of Regulations 24 and 42 (Payment of UI Charges) and Regulations 26, 44 and 62 (Late Payment Surcharge) which are already given effect to, may take effect prospectively. The other amendments if finally notified may be deemed to have come into force from 1.4.2004 since the actual tariff/incentive in respect of the generating stations and the transmission assets from 1.4.2004 is yet to be determined.

Sd/-
(BHANU BHUSHAN)
MEMBER

Sd/-
(K.N. SINHA)
MEMBER

Sd/-
(ASHOK BASU)
CHAIRMAN

New Delhi dated the 15th July 2004