

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Coram:

1. **Shri A.K. Basu, Chairperson**
2. **Shri Bhanu Bhushan, Member**
3. **Shri A.H. Jung, Member**
4. **Shri Rakesh Nath, Member (EO)**

Petition No.4/2006

In the matter of

Approval for rationalisation of Unscheduled Interchange (UI) price vector and establishment of payment security mechanism for UI charges.

And in the matter of

Northern Regional Load Despatch Centre

..Petitioner

Vs

1. Punjab State Electricity Board, Patiala
2. Haryana Vldyut Prasaran Nigam Limited, Panchkula
3. Rajasthan Rajya Vidyut Prasaran Nigam Limited Jaipur
4. Delhi Transco Limited, New Delhi
5. Uttar Pradesh Power Corporation Limited, Lucknow
6. Himachal Pradesh State Electricity Board, Shimla
7. Power Development Department Government of Jammu & Kashmir, Jammu
8. Power Transmission Corporation of Uttaranchal Limited, Dehradun
9. Electricity Department, UT of Chandigargh, Chandigargh
10. National Thermal Power Corporation, New Delhi
11. National Hydro Electric Power Corporation, Faridabad
12. Nuclear Power Corporation of India Limited, Mumbai
13. Satlej Jal Vidyut Nigam, Shimla
14. Tehri Hydro Development Corporation, Noida
15. Bhakra Beas Management Board, Chandigargh
16. Central Electricity Authority, New Delhi
17. Northern Regional Electricity Board, New Delhi

.. Respondents

The following were present:

1. Shri. S.R. Narasimhan, NRLDC
2. Shri S.K. Garg, NRLDC
3. Shri Sunil Kumar, NRLDC
4. Shri S.K Soonee, NRLDC
5. Shri Vivek Pandey, NRLDC
6. Shri V S Jain, NRLDC

7. Shri. V.K Aggarwal, SRLDC
8. Shri. S.K Banerjee, ERLDC
9. Shri. V.K. Gupta, PSEB
10. Shri Padam Singh, PSEB
11. Shri T.P.S. Bawa, PSEB
12. Shri. S.C. Dane, RRVPNL
13. Shri. H Vyas, DTL
14. Shri S.D. Tripathi
15. Shri Hemant Jain, DERC
16. Shri Y.P. Singh, UPPCL
17. Shri. T.K Srivastava, UPPCL
18. Shri. D.D. Chopra
19. Shri C.V. Krishnaiah, APGENCO
20. Shri. S.N Chauhan, CSEB
21. Shri. D. D. Khandelwal, MPSEB
22. Shri. Deepak Shrivastava, MPSEB
23. Shri. V.B.K. Jain, NTPC
24. Shri. M.K. Narang, NTPC
25. Shri. R.B. Sharma, BSEB
26. Shri. Rakesh, BSEB
27. Shri. Prashant Kumar, NHPC
28. Shri Ansuman Rao, NHPC
29. Shri. Joydeb Bandyopadhyay, ERPC
30. Shri. Kamlesh Kumar, GUVNL

ORDER
(DATE OF HEARING: 27.4.2006)

1. The petition has been filed by Northern Regional Load Despatch Centre (NRLDC) on 13.1.2006 praying for rationalisation of Unscheduled Interchange (UI) price vector and establishment of payment security mechanism for UI charges.

Background

2. The existing UI price vector is in force since 1.10.2004. It has the ceiling rate of Rs 5.70 per kWh at frequency below 49.02 Hz. The UI curve has only one kink i.e. at 49.80 Hz. It has a slope of 30 paise/kWh for every 0.10 Hz fall in frequency from

50.50 Hz to 49.80 Hz and for frequency below 49.80 Hz the slope is 45 paise/kWh for each 0.10 Hz.

Petitioner's Proposal

3. The proposal submitted by the petitioner comprises the following three parts:

(a) Enhancement in UI rate: UI Ceiling rate is to be indexed to the variable cost of power from generation using Diesel as fuel. Assuming 2800 kcal/kWh Heat Rate and 10000 kcal/litre Calorific Value and current average price of Rs 33.65 per litre, the energy rate of DG set works to be Rs 9.42 per kWh, say Rs 9.50 per kWh.

(b) Kinks in UI Curve: The petitioner has proposed two kinks in UI curve. The first kink is at 50 Hz and there is a slope of 20 paise per kWh for every 0.10 Hz fall in frequency from 50.5 Hz to 50.0 Hz. The second kink is at 49.5 Hz and there is a slope of 50 paise per kWh for every 0.10 Hz fall in frequency from 50.0 Hz to 49.5 Hz and the slope below 49.5 Hz is 120 paise per kWh for every 0.10 Hz fall in frequency with ceiling UI rate of Rs 9.50 per kWh at 49.0 Hz.

(c) Capping on UI volume: The petitioner has proposed the following restrictions on overdrawals and underdrawals, linked to frequency so that volume of energy transacted through UI could be controlled.

(i) Between 49.5 Hz to 49.0 Hz, overdrawal is to be restricted to 5% of the schedule.

(ii) Below 49.0 Hz overdrawal is to be restricted to 2% of the schedule or 25 MW whichever is higher.

(iii) Between 50.0 Hz to 50.2 Hz, underdrawal is to be restricted to 5% of the schedule.

(iv) Above 50.2 Hz, underdrawal is to be restricted to 2% of the schedule or 25 MW whichever is higher.

4. The petitioner has cited the following grounds in support of its prayer for reviewing the existing UI price vector.

(a) The Northern Regional Grid has been facing sustained low frequency operation. Frequent excursions to 48.25 Hz have become a common feature. Under frequency relays have been disabled at most of the locations by the constituents, thereby jeopardizing the grid security.

(b) The available generation capacity on liquid fuel (HSD/naphtha) in the NR is not being requisitioned or harnessed fully even under acute power shortage situation. The current UI ceiling rate of 570 paise/unit is much lower than the current liquid fuel rate which was of the order of 650 to 700 paise/unit.

(c) UI payments are being given the lowest priority by some of the constituents due to which the generators/constituents who have to receive payments are not getting compensated in time. This endangers the credibility of entire UI mechanism and would have an adverse effect on inter-regional exchanges.

5. The petitioner has suggested the following measures for administering the proposed capping of the UI volume:

- (a) Violations are to be calculated for each 15 minutes block through the special energy meter (SEM) data and schedules. The difference between actual drawal and net drawal schedules is to be calculated first and compared with the ceiling.
 - (b) A fine at the rate of Rs one lakh under Section 142 of Electricity Act, 2003 should be imposed on more than 8 instances of violations per day by any constituent. The fines should be indicated in UI accounts separately and should be deposited by the defaulting constituents with the Commission.
 - (c) Provisions of Section 149 of the Electricity Act, 2003 need to be applied for repeated violations.
6. Regarding Payment Security Mechanism, the petitioner has suggested the following two options, namely-
- (a) Payment security in the form of Letter of Credit (LC) for an amount based on the past six month record of UI payable, and
 - (b) Appropriation of the UI amounts due from the Central Plan Assistance to the defaulting States as is already being done in case of dues of Central Public Sector Utilities.

Views of the respondents

7. Since the issue involved in the petition concerns all five regions, the notices were issued to all State Utilities, all RLDCs and all RPCs. Out of the respondents, only SRLDC has agreed with the proposal of the petitioner. All other respondents have generally not agreed with the petitioner's proposal to enhance the UI ceiling rate from the existing level of Rs 5.70 per kWh. They are of the opinion that revision

of UI rate based on the consideration of variable cost of liquid fuel generation is against the National Electricity Policy which mandates for reduction in cost of generation. According to them, before raising UI charges, it is necessary to direct the generating companies using liquid fuel generation to immediately switch over to natural gas/LNG to reduce the cost of generation. Regarding payment security mechanism, the respondents have agreed with the proposal of payment through Letter of Credit.

8. BSEB has contended that the problems faced by NRLDC are specific to Northern Region and, therefore, UI revision on all India basis is not necessary and UI rate in Northern Region only could be increased based on the proposal made by the petitioner. DTL is the only utility who agreed with the proposed UI ceiling rate of Rs 9.50 per kWh. However, DTL is not in agreement with the proposed capping of UI volume..

9. NHPC is the only generator who has offered comments in the matter and has agreed with the proposal of the petitioner. NHPC has opined that the existing ceiling of 105% in any time block and 101% for the day needs to be relaxed. BBMB has proposed that maximum UI rate should be increased gradually. WBSEB has urged that the highest UI rate should be judicially decided. UPPCL has opposed upward revision of UI charges on the ground that a petition filed by it against increase of UI from Rs. 4.20 per kWh to 5.70 per kWh is presently pending adjudication before the Lucknow Bench of the Allahabad High Court.

10. Among the Regional Power Committees, ERPC and NRPC have offered comments. Both these RPCs have proposed that UI slope be extended to below 49 Hz up to 48.5 Hz. They have proposed to wait till Northern Grid is synchronized with North-Eastern, Eastern and Western grids which is expected by June, 2006.

Issues meriting consideration

11. In the light of the submissions made before us, the following issues merit consideration:

(a) In the prevailing situation of deteriorating frequency, particularly in the Northern Region, notwithstanding shortage of power, grid security is of paramount concern.

(b) Any increase in UI ceiling rate would further tend to escalate the price of traded electricity. Simultaneously, there is also an urgent need to curb overdrawals and to remove the impression on the part of the utilities to consider regional grid as infinite source of power. Therefore, stronger commercial measures are required to curb overdrawing and to ensure full scheduling of liquid fuel generation.

(c) One of the proposals to avoid pushing up the price of electricity trading is application of a different UI curve for underdrawal/export having a slope of 30 paise/kWh per 0.1 Hz decrease in frequency between 50 Hz and 49 Hz with ceiling rate of Rs 4.00 per kWh at 49 Hz. As there could be un-intentional underdrawal by a utility this curve could be made applicable only when underdrawal exceeds 2% with respect to net drawal schedule.

(d) Differential UI rates scheme will not result in zero sum of UI account matrix. It will result in system operator ending up with a surplus amount. Accordingly, there are various options to distribute the balance amount such as system strengthening, and other activities of common interest.

(e) There is a general apprehension that even after increase in UI price, it would be difficult to curb overdrawals completely. Therefore, under such situations all measures from grid stability point of view like automatic disconnection of load through frequency sensitive relays in the event of low grid frequency should be strengthened.

(f) According to the petitioner, most of the States in Northern Region have either lowered the setting of UFRs or completely blocked them. On the other hand, the State utilities have expressed concern over low gas availability at NTPC's gas stations and are of the opinion that NTPC had not taken any action for procurement of RLNG, which is cheaper than HSD/Naphtha.

Directions

12. Considering the seriousness of the matter of sustained low frequency which is precursor of grid failure leading to collapse of large Power Systems and its disastrous consequences, we issue the following directions:

(a) Stringent penal action shall be taken against State Electricity Boards/its successors, Distribution Utilities responsible for endangering the grid security by overdrawing, in violation of the Grid Code and disobeying the instructions of the Regional Load Despatch Centres (RLDCs). RLDCs are at liberty to place before the Commission the instances of undisciplined overdrawals so

- that the Commission could deal with the situation, wherever warranted in accordance with law.
- (b) As decided by the Central Electricity Authority (CEA) on 26.4.2006, Under Frequency Relays meant for automatic load shedding in the event of low frequency shall be restored by all entities by 10. A.M., May 1, 2006. RLDCs shall collect evidence of manipulations of these relays from the Regional Power Committee (RPC) and report instances of under-frequency relay by-passing so that appropriate action could be taken against organizations and individuals endangering grid security.
 - (c) RLDCs shall not hesitate to order physical isolation of feeders in order to avoid a total black out, the consequences of which are known to be far more damaging.
 - (d) NTPC shall make immediate efforts to procure additional gas through open tenders on long term and spot contracts in consultation with the beneficiaries, so that peaking power could be supplied at cheaper cost and reliance on costly liquid fuels such as naphtha and diesel is avoided.
 - (e) As suggested by the CEA, RLDCs shall have the discretion to despatch un-requisitioned liquid fuel based generating capacity of NTPC and book the energy generated to the overdrawing States on pro-rata basis.
 - (f) Regional Power Committees shall review the scheduled outage programme of each generating station in order to increase the availability of generating capacity during the on-going summer season.

.13. We have also taken note of the views of the petitioner and the respondents on the question of revision of UI rates as also on payment security mechanism and reserve our orders on these aspects. For the time being the existing UI rates shall continue to be applied. The grid situation shall be observed for three weeks to gauge the impact of various disciplinary measures ordered today. If the situation does not improve to whole satisfaction of the concerned authorities, the proposal to revise the UI rates in order to induce grid discipline shall be taken up. Even during the intervening three weeks, if State Utilities indulge in overdrawals against the direction of RLDCs the latter will be free to file the cases of indiscipline before this Commission.

**Sd/-
(Rakesh Nath)
Member**

**Sd/-
(A.H. Jung)
Member**

**Sd/-
(Bhanu Bhushan)
Member**

**Sd/-
(A.K. Basu)
Chairperson**

New Delhi dated the 27th April 2006