CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

Coram:

1. **Shri Bhanu Bhushan, Member**
2. **Shri Rakesh Nath, Member (Ex-officio)**

Petition No. 15/2007

In the matter of

Revision of UI Vector

And in the matter of

Power Grid Corporation of India Limited ….. **Petitioner**

ORDER

SRLDC had filed Petition No. 145/2006 on 10.11.2006 for ensuring secure and reliable operation of Southern Regional grid by maintaining the grid frequency above 49.0 Hz and review of the UI price vector. The petitioner had prayed for increase in the UI ceiling rate matching to the prevailing liquid fuel price and directions to the constituents of Southern Region to carry out requisite load shedding whenever the frequency fell below 49.0 Hz, etc.

2. In the course of hearing of the above petition on 11.1.2007, the Commission had directed as under :

> "We also direct ED (SO & NRLDC), POWERGRID to deliberate the issue of enhancement of the UI prices in consultation with the RLDCs and SLDCs and submit a consolidated proposal to the Commission by 25.1.2007."

3. Accordingly, Power Grid Corporation of India submitted its detailed proposal for rationalization of UI price vector vide its affidavit dated 25.1.2007, which was taken up by the Commission as Petition No. 15/2007. During the hearing on 2.2.2007, the

petitioner was directed to serve copies of the affidavit dated 25.1.2007 to all stakeholders and also post it in its website with an advice to all the stakeholders to file their replies, if any, directly to the Commission by 12.2.2007. The date for filing the replies was extended to 19.2.2007 by the Commission through its Order dated 12.2.2007. The Commission has to take a further view in the matter on consideration of the replies received.

4. The Commission has received eighteen (18) responses on the petitioner's proposal for rationalization of UI price vector. These have been recapitulated in the following paragraphs, with region-wise grouping. Thereafter, we have given our analysis and conclusion.

RESPONSES FROM NORTHERN REGION

5. UPPCL has strongly opposed the petitioner's proposal on the grounds that:

(i) The previous UI ceiling rate enhancement has been ineffective.
(ii) Unscrupulous elements are likely to jump in to get a windfall.
(iii) The cost of traded power would also tend to approach Rs. 9.30, the ceiling UI rate proposed.
(iv) It would lead to a still larger flow of revenue from the deficit States to the surplus States.
(v) contribution of liquid generation is comparatively insignificant.

6. We also find some strange statements in the UPPCL response, such as "In UP's opinion and in the light of past experience if UI rates are further enhanced, the frequency regime of the grid is likely to go from bad to worse as those operators who are interested in keeping the grid frequency low would further be encouraged to

indulge in immoral gains, and many others that are out of it presently would be encouraged to jump into the fray ", "the proposed UI rate mechanism is likely to send signals for voluntary generation withdrawal", and "constituents…….who are surplus in power…would like to see the grid frequency as low as possible in order to maximize their UI gains."

7. These statements reflect a total lack of understanding of the subject. The entire UI mechanism is such that a participant must help the other participants and/or help in enhancing the grid security for deriving any financial benefit. A generation withdrawal by a participant would mean a reduction in the quantum of energy it injects into the grid as UI, which in turn would reduce the money it makes as UI even if the generation withdrawal has lowered the frequency (which would only be very marginal in the large grid that we now have) and a consequent small increase in UI rate. It is a mechanism in which gaming and manipulation does not pay. It is apparent that the UPPCL's response is the outcome of incorrect understanding of the mechanism, and has to be weighed accordingly.

8. Haryana VPNL, in its response dated 09.02.2007, has stated that "the spirit of the proposal given by Power Grid is need of the hour and is quite pertinent to maintain grid discipline (the absence of) which has resulted into deterioration of frequency profile." However, it has asked the Commission to keep the following in view while taking a decision in the matter:

(i) Gas-based stations must have adequate arrangement for cheaper fuel.

(ii) Linking of UI rate to diesel generation cost is not reasonable.

(iii) Earlier increase has not yielded expected results.

(iv) Increase in UI rates will increase the rates of traded power.

(v) Power Exchange should be functional before UI rate is increased.

(vi) The Commission should consider capping of traded power rate.

(vii) Raising of UI ceiling rate to ensure dispatch of entire available liquid fired energy in the country will be against National Electricity Policy.

(viii) Increase in UI rate will further increase the profit of the generators.

(ix) UI accounting system should be gaming-free, particularly in respect of gas based stations.

(x) Auxiliary consumption norms should be reviewed.

9. Needless to say, the Commission is duty-bound to address all these aspects, but without compromising on the primary requirements of ensuring grid security.

10. In its response dated 14.02.2007, Delhi Transco Ltd has submitted that –

(i) UI price vector should be a simple curve so that it is easy to comprehend and administer.

(ii) The proposed UI ceiling rate of 930 paise per kWh is not viable since some States overdraw “due to various compulsions including security reasons”, (a reference to J&K apparently), and then have mounting arrears of UI charges.

(iii) UI price increase will only help to boost the cost of the traded power, and will influence transactions through Power Exchange.

(iv) Basic allocation of Central power to Utilities should be made need based against the present level of round-the-clock supply.

(v) Other suggestions of the petitioner for enforcing grid security, etc. are acceptable to DTL.

11. Very detailed comments on the petitioner's proposal have been received from Punjab SEB through communications dated 10.02.2007, 15.02.2007 and 26.03.2007. Punjab SEB has strongly opposed any increase in UI rate, giving the following reasons :

(i) Lack of transparency in circulation of the proposal and inadequate opportunity to respond.

(ii) Likely impact on cost of traded power.

(iii) It will encourage/perpetuate liquid firing, which is not in consonance with the National Electricity Policy. It will also diffuse the urgency to switch over to cheaper fuel.

(iv) Loopholes in energy and UI accounting have to be plugged in case of combined cycle stations with dual fuel firing.

(v) Given the ground reality, the "administered" solution is far superior than the commercial – UI approach for harnessing the liquid-fired generating capacity.

(vi) Other technological and administrative measures should be tried, as these could be more cost effective and effective on the ground.

(vii) It will lead to financial distress of the deficit States, and huge flow of revenue from deficit States to surplus States.

(viii) It would be against the interest of consumers.

(ix) Capacity addition is required in deficit States/regions.

(x) Generators are already profiting through gaming, loopholes in dual fuel scheduling, auxiliary consumption norms, etc. and their profiteering will increase.

(xi) Inherent overload capacity of hydro stations should be included in the peaking capacity (MAC).

(xii) Accumulation of UI arrears needs to be addressed first.

12. As mentioned earlier also, the Commission shall endeavour to address all these issues, but according to requisite priority. This also applies to the comments/suggestions dated 09/12.02.2007 received from NRPC Secretariat, which are listed below.

(i) High UI ceiling rate is no guarantee against overdrawal.

(ii) Rate of traded power has already gone beyond the ceiling UI rate, and raising of UI rate would push the rate of traded power further.

(iii) Deficit States would have to pay more for power beyond their allocation, and would be left with reduced funds for new generating capacity, etc.

(iv) Entire liquid-fired capacity is already being scheduled, and is being booked to overdrawing States.

(v) It may not be possible to harness any significant CPP capacity.

(vi) Raising UI rate will promote liquid firing which is not in line with the Policy.

(vii) It may increase the number of utilities defaulting in making UI payments.

(viii) In view of the above, it may not be appropriate and fruitful to raise UI rates to control overdrawal of the States.

13. The NRPC Secretariat has also enclosed a summary of the discussions at NRPC meeting (held on 08.02.2007) on the proposal for rationalization of UI price vector, which is quoted below.

> "NRPC deliberations
>
> Constituent states re-iterated same views as expressed at the TCC meeting on the previous day. However, they accepted that maintenance of grid security was of prime concern and the same was the responsibility of all the constituents. But according to them, increase in UI rate would increase their power purchase bill.
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> Chairperson, NRPC summarized that increase in UI rate was not the right solution to the problem of overdrawal / low frequency operations as the grid is bound to respond to rise in demand of power. However, grid discipline and self-regulation was required to be observed by all the utilities to ensure safe & secure operation of the grid. SLDCs were required to play their statutory role effectively to ensure that the states drew power giving due regard to various grid parameters. Chairperson also advised the constituent States to adopt demand side management measures by promoting use of CFLs, solar water heaters, gas based geysers / room heaters, etc to reduce their load. It was noted by the NRPC that RLDCs were authorized by the law to regulate drawal of an overdrawing state physically when grid security was at stake."

14. We, however, note that there has been hardly any improvement in the frequency profile since the above NRPC meeting. It is seen from data furnished by NRLDC on 5.4.2007 that the frequency of the combined A.C. system of NR, WR, ER and NER was below 49.0 Hz for 8.8% of time during the 28.3.2007 to 4.4.2007 period.

RESPONSES FROM WESTERN REGION

15. The proposal for rationalization of UI price vector in Petition No. 145/2006 was discussed in the WRPC meeting held on 28.02.2007, and the following consensus reached therein has been conveyed to the Commission vide letter dated 02.03.2007 from the Chairman, WRPC/CMD, MPPTCL :

"In view of the continued low frequency operation of the combined NR and Central (WR-ER-NER) grid and due to the frequent and sustained overdrawls by various utilities, WRPC proposes the following:-

(i) There should not be any increase in the existing UI rates, as it may lead to hike in short-term power.

(ii) Penalty to the utilities who overdraw from the grid at system frequency below 49.0 Hz should be introduced.

(iii) Amount of penalty proposed in (ii) above may be Rs. One Lac per 15 minute time block for each quantum of 0-50 MW (or part thereof) power overdrawn by any utility at system frequency below 49.0 Hz.

(iv) The amount of penal charge collected as per (iii) above may be allowed to accumulate in a fund that could be created for developing and upgrading Energy Dispatch facilities at the National Load Despatch Centre(s).

It is requested that the Hon'ble Commission may consider the above to impose commercial deterrent for overdrawal in the interest of grid stability/security for all regions in the country."

16. It is clear from the above that the only reason why WR constituents oppose enhancement of UI rate is the fear that it would lead to a hike in the rate for traded power. It is because of this that WR constituents have recommended imposition of commercial deterrent against overdrawal through a penalty, rather than enhancement of UI. The proposed penalty amount works out to Rs. 8 per kWh for overdrawal when frequency is below 49.0 Hz, and this would be in addition to the UI charges @ Rs. 5.70 per kWh. Any State wanting to avoid getting into such a situation while ensuring power supply to its consumers shall be induced to enter into costly bilateral contracts, and a bigger hike in traded power rate would be inevitable. There is thus an apparent contradiction in the proposal. We would revert to the above recommendations of WRPC later on in this order.

17. The responses dated 09.02.2007 and 13.02.2007 from MPSEB and M.P. Poorv Kshetra Vidyut Vitaran Co. Ltd are on similar lines. They have further suggested that RLDC may resort to disconnecting the tie lines and that under-frequency load shedding plan should be strictly implemented by all constituents. Chhattisgarh SEB, in its response dated 07.03.2007 has gone on to say that "overdrawal is a compulsion", and that "the existing rate of UI was revised in 2004 with an expectation to bring operational discipline in the system but this has failed. Same is expected to be the fate after revising the UI rate again". We would be dealing with these observations later on in this order, since similar comments have been received from other stakeholders as well.

RESPONSE FROM SOUTHERN REGION

18. Karnataka PTCL, in its response dated 17.02.2007, has listed out the measures being taken to improve the frequency, and has concluded that "with all the above facts, KPTCL is of the view that any increase in the existing UI rates need not be attempted now and action as in (5) and (6) above will be taken to see that grid frequency is above 49.0 for 100% of time." From the trend of Southern Region grid frequency, it is seen that the frequency has remained below 49.0 Hz for 12.9% of time during the 19.3.2007 to 4.4.2007 period, as per SRLDC's communication dated 5.4.2007. It is abundantly clear that KPTCL has been totally off the mark in its assessment of the situation, and no weightage can be given to its above quoted views.

19. The response dated 12.02.2007 of Kerala SEB has the following clear statements:

(i) “UI rate should act as an incentive to the utilities to maintain grid discipline and deterrent to the utilities that act against grid discipline”.

(ii) “Some of the stations, mainly naphtha based, have no incentive to be on bars now.”

(iii) “Our proposal is to peg UI rate at Rs. 6.50 at 49.02 Hz.”

(iv) “We propose a fine of Rs.10/- per kWh of energy over-drawn at frequency below 49.0 Hz. The amount thus collected may be apportioned to the underdrawing constituents proportional to the quantum of underdrawal. This would act as a compensatory package to the underdrawing constituents for the loss of their opportunity to realize revenue at 50 Hz due to their underdrawal.”

(v) “Different UI rate for overdrawal and underdrawal is strongly opposed. This will not provide incentive to underdrawing States to increase generation. Also the payable side in the UI account increases disproportionately with the receivable side.”

20. Kerala SEB is thus not only supporting the proposal for raising the UI rate, but is going even further to suggest an effective UI rate of Rs. 16.50/kWh when frequency falls below 49.0 Hz.

21. In its brief response dated 19.2.2007, TNEB has reiterated its earlier stand that increasing the UI price will only result in abnormal increase in the price of surplus power available and offered for sale through the traders. The existing rate of Rs. 5.70/kWh is itself on the higher side.

22. Member-Secretary, SRPC, vide letter dated 09.01.2007, has forwarded a copy of his earlier letter dated 26.04.2006, conveying the suggestions/proposals made during the Special TCC meeting held at Bangalore on 26.04.2006. According to this proposal, the ceiling UI rate reached at 49.0 Hz should be 750 paise per kWh. The Member-Secretary has further informed that this proposal was approved by the SRPC in its meeting held at Chennai on 06.06.2006.

23. While no response has been received from Andhra Pradesh utilities after circulation of the petitioner's proposal dated 25.1.2007, APTRANSCO has vehemently opposed any increase in UI rate in its reply dated 10.01.2007 in Petition No. 145/2006. Its main contention is that low frequency in October 2006 was a temporary phenomenon, the situation is not as serious as made out by SRLDC, and raising of UI rate would only jack up the cost of traded power. The Commission has already noted in its order dated 15.01.2007 that APTRANSCO could not give any concrete suggestion for improving the frequency on sustained basis, during the hearing on 11.01.2007. We also note that SRPC, of which APTRANSCO is a constituent, had already ratified on 06.06.2006 the T.C.C. proposal for raising the ceiling U.I. rate from the present level of 570 paise per kWh to 750 paise per kWh. This should at least be implemented now, since low frequency situation is persisting, and is likely to aggravate in the coming summer months.

RESPONSE FROM EASTERN REGION

24. From the Eastern Region, we have received only one response, that is, one dated 13.02.2007 from WBSEB. The petitioner's proposal for raising the UI rate has been endorsed by WBSEB, emphasizing that "the security of the grid is of paramount

concern and it should not be compromised under any circumstances." WBSEB has recommended that the existing UI rate may continue for frequency between 50.5 and 49.8 Hz, should be enhanced for frequency between 49.8 and 49.5 Hz, and should be further enhanced for frequency between 49.5 and 49.0 Hz.

RESPONSE FROM NORTH-EASTERN REGION

25. There is no response from any of the States in the North-Eastern Region. The only response from the region is that dated 26/27.02.2007 from NEEPCO, wherein the proposal for upward revision of UI rate has been endorsed for harnessing the available generation capacity on liquid fuel (HSD/Naphtha) in view of the acute power shortage in the entire country. NEEPCO has also made certain suggestions regarding gaming, congestion management and auxiliary consumption by hydro stations, which we propose to deal with separately.

RESPONSE FROM CENTRAL GENERATING COMPANIES

26. In its response dated 13.02.2007, NTPC Ltd has generally supported the petitioner's proposal, stressing that "the UI price vector should be in the nature of a commercial signal that complements (grid) security". NTPC has further suggested that to provide a strong signal for full dispatch of all combined cycle plants operating on naphtha at a frequency of 49.3 Hz, the UI rate at 49.5 Hz should be indexed to liquid fuel/naphtha generation cost. However, NTPC has strongly opposed the proposal to have a different vector for UI charges payable to the ISGS, and has protested against the implied suggestion of making undue profits through gaming. We would revert to these important aspects later on in this order.

27. Neyveli Lignite Corporation also, in its response dated 03.03.2007, has agreed with the petitioner's proposal to raise the ceiling UI rate to 930 paise/kWh, and has opposed any differentiation in UI rate for beneficiaries and generators, and between the UI rate for over-generation and under-generation.

OUR ANALYSIS

28. Frequency is the most critical parameter in power system operation. The standard practice followed globally is to maintain the grid frequency at or very close to the rated value (50.00 or 60.00 Hz, as the case may be) all the time. A deviation beyond 0.05 Hz would be considered alarming in developed countries, and a deviation beyond 0.1 Hz would be unimaginable. However, in India we had a history of frequency varying from below 48.0 Hz to above 52.0 Hz, and remaining beyond these levels for hours together, which led to innumerable grid collapses in Eighties and Nineties. It was to tackle these problems that the unique mechanism of UI was evolved. This innovative approach has focused incentives for improving the frequency and keeping it within the safe range of 49.0 – 50.50 Hz. A tighter control of frequency has not been attempted, keeping in view the limitations of the utilities in India.

29. The term "U.I." stands for Unscheduled Interchange, or deviations from schedule. In the UI mechanism introduced in the country in 2002-2003 as an integral part of Availability Based Tariff (ABT), the price of deviations is linked to frequency. The simple logic is as follows. Low frequency is an indication of deficit (generation less than the demand in the system). If the frequency is to be improved, or prevented from falling further, one or more utilities in the system must increase the generation and/or reduce the load. Either action would reduce the utilities' drawal from the grid

or increase its injection into the grid. The concerned utility is paid a high compensation for such drawal reduction / injection increase, as an inducement to do so. On the other hand, a utility drawing more power than its entitlement or injecting less power than its schedule is required to pay for the overdrawal / under-injection at a high rate, to discourage these during the shortage conditions.

30. Similarly, high frequency is an indication of surplus (generation more than the demand in the system). To check the frequency rise, or to bring it down to a more desirable level, one or more utilities have to increase their drawal from the grid or reduce the injection (in case of generating companies). This is induced by charging a low rate for the extra drawal, and paying a low rate for energy under-injected.

31. It would be recalled that the frequency profile of the regional grids had dramatically improved in 2002-2003 when ABT and UI were introduced. The Commission had initially specified the UI rate in 2001 as follows :

- Zero at 50.5 Hz and above
- Rising in 5.6 paise/kWh steps for every 0.02 Hz fall in frequency
- 420 paise/kWh below 49.02 Hz

32. The ceiling rate of 420 paise/kWh had been specified so as to be higher than the prevailing Diesel generation cost (corresponding to HSD rate of Rs. 13.33/litre). The reasoning for this was that 49.0 Hz was indicative of a severe shortage, in which the costliest available generation had also to be mobilized, and the utility doing so had to be fully reimbursed through the UI mechanism. The same criterion was applied again in 2004 while revising the ceiling UI rate to 600 paise/kWh (subsequently

changed to 570 paise/kWh from 1.10.2004) corresponding to the prevailing HSD rate of about Rs. 21/litre.

33. The present proposal to raise the ceiling UI rate to at least 930 paise/kWh, is for continuation of the same criterion corresponding to the present HSD rate of over Rs. 30/litre. The country is facing a serious power shortage and load shedding is rampant. Even captive generation should be brought into the grid and harnessed for reducing the load shedding quantum, as is presently being tried in Pune. Looked at from this angle, the petitioner's proposal should be readily accepted. However, we have a paradoxical situation of the state utilities losing money on account of non-remunerative consumer tariffs. They are, therefore, not interested in procuring power from costlier sources, even if it means more load shedding.

34. Still, it is a fact that the grid frequency is presently remaining below 49.0 Hz for around 10% of the time, in Southern Region as well as in the combined A.C. system of rest of the country. From grid security point of view, this is simply not acceptable. To improve the frequency, overdrawal must be discouraged more strongly, by making it costlier, and underdrawal in low frequency condition must be encouraged by paying a higher rate. There is no option. The only relaxation we can make is to raise the UI ceiling rate to about 750 paise/kWh presently, instead of raising it to 930 paise/kWh in one big jump.

35. In adopting the above relaxation, we are reconciling to not giving a commercial signal to diesel-based generation to come into the grid, but have tried to see that at least the naphtha fired generation gets a signal to be scheduled and to be on bars

during times of acute shortage. For example, the landed cost of domestic Naphtha (Liquid Fuel) for the NTPC combined cycle station at Auraiya was of the order of Rs. 39142 per metric tonne during March 2007 inclusive of excise duty of 16%, education cess of 2%, sales tax at 4% and freight & service charges on freight at 12.4%. Considering a heat rate of 2000 kCal/kWh, auxiliary energy consumption of 3% and GCV of 11200 kCal/kg for Naphtha, the energy charge works out as Rs. 7.20 per kWh sent out. With variable cost less than the proposed ceiling UI rate, it should be scheduled and run, at least when frequency is 49.0 Hz or lower.

36. It is seen from the responses received that none of the Eastern and North-Eastern region constituents has objected to the petitioner's proposal, and two constituents have supported it. Southern Region constituents have agreed to the UI ceiling rate of 750 paise/kWh in 2006 itself. Western Region constituents have also reconciled to the need for making the overdrawal costlier, through a penalty instead of enhanced UI rate. We would now address the various objections raised, one by one.

37. Some respondents have opined that the previous UI rate enhancement has not been effective. This has no basis. It is well known that the frequency profile dramatically improved on introduction of ABT and UI in 2002-2003. It again improved when UI ceiling rate was increased on 1.4.2004, and it would definitely improve when UI ceiling rate is further increased. Perhaps the State utilities are confusing between "enhancement" and "UI rate being high". It would be factually correct to say that frequency profile has been bad and overdrawals are taking place in spite of the UI rate being high. This only indicates that the UI rate is not "high enough", for curtailing the

overdrawals and improving the frequency profile in the scenario of growing power shortage and increasing fuel cost.

38. UI rate, being the spot price, could serve as a bench mark for the cost of traded power, provided the parties could foresee what it would be when the contracted power is actually to be supplied. But UI rate floats and is continuously changing, with variation of frequency depending on load-generation balance in the system from time to time. Further, it can only be a bench mark, and the cost of traded power would really be dependent on the demand - supply balance, as it should be in a market. All that one could expect is that the cost of traded power should not exceed the ceiling UI rate, normally. The very fact that the cost of traded power has breached and gone beyond the ceiling UI rate only shows that the latter has been capped at an unrealistic level. It also shows that there is an unmet demand, and utilities are prepared to pay a higher price to get extra power. By restricting the ceiling UI rate at a lower level, we are only creating a market distortion, and are giving a wrong signal to the utilities, to over-draw under UI mechanism rather than to purchase extra power through a contract. The argument that with increase of UI rate cost of traded power would go up, therefore, cannot be accepted as a reason for holding back the UI ceiling rate increase, which is in any case urgent for restoring the grid security.

39. We cannot accept the arguments like “utilities overdraw under compulsion” and that “deficit States would suffer further”, for holding back the required UI ceiling rate increase. In a developed country, the overdrawals would just not be permissible. All utilities must maintain their net interchange strictly as per their schedule. UI mechanism provides a flexibility to the Indian utilities, in that they can deviate from

their schedules. The premise is that they pay for the deviation. The flexibility provided cannot be stretched to a breaking point. The States have to exercise self-control, and either promptly pay for the overdrawal or not overdraw in the first place. Failure to plan for meeting their consumer demand does not entitle any State to overdraw from the grid, and thereby endanger the grid security or rob other States of their rightful share.

40. While the contribution of liquid fired generation may be a small percentage of the total generation in the country, every MW counts in the scenario of acute shortage and extensive load shedding. A single MW can light up 10,000 homes, and enable 20,000 children to study for their examinations. It is well-known that liquid-fired generation presently has to be scheduled by diktat, primarily because the variable cost of such generation has gone above the ceiling UI rate. It is necessary to remove the distortion, to let the liquid-fired generation be scheduled by the concerned utilities, if perceived to be in their overall interest.

41. As mentioned earlier, we are presently raising the UI ceiling rate only to 750 paise/kWh, which would be below the variable cost of HSD-based generation, but at least above the variable cost of combined cycle plants and heavy oil- based diesel generation. However, we do not accept the contention that linking ceiling UI rate to diesel generation cost is not reasonable.

42. Regarding the reference to liquid-fired generation in the National Electricity Policy, it is our view that the Policy is for long-term, and it cannot be the intention that the existing generating capacity should not be used even in case of a serious power shortage.

43. There is no question about the Commission capping the cost of traded power, as has been suggested by some stakeholders. It would be a retrograde step when the country is moving towards “market” and commercial approach, and would introduce avoidable distortions. Further, in the present power shortage scenario, it would be like a law fixing the ceiling price for lunch at say Rs. 20/-. What would a hungry man do if no lunch packet is available in the market at that time for less than Rs. 30/- ? Remain hungry, even if he is prepared to pay Rs. 30/- ! And we are talking here only about traded power, (some 3% of the total generation in the country), which is extra to the entitlements in Central and intra-State generation (which are supplied at the regulated price, irrespective of frequency, UI rate and cost of traded power). We also question the view that increase in UI ceiling rate would be against the interest of consumers. The Pune experiment has shown that the consumers really want load shedding-free supply, and are willing to pay for it.

44. The suggestions relating to Power Exchange, auxiliary consumption norms and adequate cheaper fuel for gas-based stations are really not relevant to the present discussion. The general concern of the respondents about the generating companies making undue profits through gaming in availability declaration has been duly noted by the Commission, and shall soon be addressed through separate proceedings. In the meanwhile, we expect the generators to sincerely declare their available capacity for day-ahead scheduling, and the RLDCs to keep a close watch on actual injection and take prompt action in case gaming is observed. The Commission has already issued an order dated 06.02.2007 in Petition No. 148/2005 regarding scheduling and UI accounting for dual fuel combined cycle plants.

45. The Commission is aware about the incremental risk of defaults in payment of UI charges when UI ceiling rate is increased. This loophole has to be plugged, separately, and cannot be a ground for holding back a measure essential for improving the grid security.

46. The issue raised by DTL regarding need-based or round-the-clock allocation for Central generation is proposed to be taken up for discussion separately.

47. PSEB has raised the issue of transparency in circulation of the proposal and inadequate opportunity (time) to respond. Since detailed comments have been received in three instalments (dated 10.02.07 , 15.02.07 and 26.03.07), and have been considered by us, we take it that it is no more an issue.

48. The Commission is aware about the need for harnessing inherent overload capacity of Hydro stations, and would soon be circulating its proposal in the matter.

49. We are surprised at the comment that high UI ceiling rate is no guarantee against overdrawal. It may not be, but low UI ceiling rate would definitely be a guarantee for overdrawals. We cannot accept such an argument.

50. The recommendation of WRPC quoted in para 15 has two problems. One is that it means an effective UI rate of about Rs. 14 per kWh for any overdrawal when frequency is below 49.0 Hz. It is not clear how the constituents are accepting/proposing this when they are not agreeable to raise the ceiling UI rate above Rs. 5.70 per kWh. Who would ensure payment of UI and penalty, and how ? The second problem is that of flip-flop in grid operation. A State's drawal from the

regional grid keeps fluctuating depending on variation of total consumer load within the State. The triggered penalty would compel the concerned SLDC to instruct sudden load-shedding whenever a combination of overdrawal and frequency below 49.0 Hz occurs. There would then be a perpetual flip-flop around 49.0 Hz, and grid operation could be destabilized. WRPC recommendation cannot be accepted accordingly.

51. Many respondents seem to be concerned about an under-drawing utility making unjustified profit. We do not agree, since any such profit is possible only when (i) the concerned utility helps the grid/other utilities, and (ii) another utility overdraws knowing on-line the price it would have to pay. It is not a case of unwanted high-cost power being thrust on the latter utility. The other utilities (third parties) not overdrawing do not get affected by the UI price, and would not have any business to object to the UI rate at that time – whether high or low. In case the under-drawal is the result of increased load-shedding, it would be in the purview of the concerned State Commission.

52. We accept the suggestion that the UI price vector should be a simple curve so that it is easy to comprehend and administer. We propose to retain the present UI rate for the frequency range above 49.5 Hz, i.e. zero at 50.5 Hz and above, rising in 6.0 paise/kWh steps for each 0.02 Hz fall in frequency, and reaching 210 paise/kWh for the 49.80 – 49.82 Hz step, and then rising in 9.0 paise/kWh steps for each 0.02 Hz fall in frequency till it reaches 345 paise/kWh for the 49.50 – 49.52 Hz step. Below 49.50 Hz, the UI rate shall rise in 16.0 paise/kWh steps for each 0.02 Hz fall in frequency, to reach 745 paise/kWh, the ceiling level, at 49.0 Hz, i.e. for all frequencies below 49.02 Hz to be precise.

53. A very relevant point has been made by Kerala SEB, that the differential UI rate for overdrawal and underdrawal will not provide the required incentive to an underdrawing State to increase its own generation. We agree, and are refraining from specifying any differential in UI rates for overdrawal and underdrawal. On similar lines, there shall be no differential in UI rate for over-generation and under-generation (for the generating companies) for the present. The gaming angle is however being looked into separately, in respect of dual fuel firing as well as generation persistently in excess of declared capacity.

54. Before parting, we would like to add that it is unfortunate that the price of traded electricity, although constituting a miniscule portion of the total bulk supply of electricity in the country, is reaching a level of Rs. 7 to 8 per kWh. Such is the magnitude of electricity shortage and the fear of incurring consumers' accumulated wrath of decades of neglect, that some of the distribution utilities are now willing to buy electricity from the market at rates even above the present UI ceiling rate in order to restrict load shedding at a tolerable level. Whatever the reason, it is only logical that the specified ceiling for real time (UI) price of electricity be raised correspondingly. A UI ceiling rate below the short-term traded prices creates a perverse incentive for indulging in undisciplined over-drawal from the grid as already seen, and this cannot be allowed to continue. We do understand the financial impact of upward revision in UI rates on the deficit States; however, it is a situation arising out of persistent failures in achieving capacity addition targets, which is hurting the national economy and the consumer alike. If we do not act urgently in the present matter, and allow the frequency profile to deteriorate, generating machines to breakdown and massive inter-State grids to collapse, it would only compound the misery. We are sure nobody

would want that. The propensity to tap the grid as a source of unlimited power at will overlooking basic grid security considerations needs to be effectively discouraged. We are convinced that a correction in the prevailing UI rates to improve grid discipline and security has become inevitable . It should also induce the distribution utilities to set their priorities right.

55. Taking a comprehensive view of the matter, we direct that a draft notification for the proposal for implementation of UI rates as proposed at para 52 above, uniformly in all the five Regions, be issued to invite suggestions or objections to the proposal latest by 23.04.2007. Thereafter, the matter shall be placed before the Commission for a view in the light of suggestions or comments received.

Sd/-
(RAKESH NATH)
MEMBER

Sd/-
(BHANU BHUSHAN)
MEMBER

New Delhi dated the 5th April, 2007