

**No. L-7/25(5)/2003-CERC
CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Coram

**Shri Bhanu Bhushan, Member
Shri R. Krishnamoorthy, Member**

In the matter of

Amendment of Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2004 – Statement of Reasons

And in the matter of

Consideration of comments/suggestions/objections

A petition, being Petition No. 154/2007 was filed by Northern Regional Load Despatch Centre wherein it was brought out that frequency profile of the entire North-East-West (NEW) grid had undergone sharp deterioration in November 2007. It was pointed out that while the frequency remained below 49.0 Hz for around 10% of the total time during October 2007, the condition further deteriorated in November 2007 and frequency remained below 49.0 Hz for more than 20% of total time on most days. It was stated that main reason for sustained low frequency was over-drawl by the constituents. From the over-drawl position furnished by the petitioner it is observed that every constituent of Northern Region overdraw from the grid though the quantum of such over-drawl differed from one constituent State utility to other. The repeated instructions by Northern Regional Load Despatch Centre to the defaulting utility to curtail over-drawl remained unheeded, and the situation became very disturbing. It was represented that the sustained low frequency on account of over-drawl was causing operation of UFRs in many States which was resented by the constituents limiting drawl to their schedule. Northern Regional Load Despatch Centre felt that if the trend continued, the State utilities could lower or block UFRs setting, thereby

leaving the system without a safety net. It was further revealed that despite the prevailing shortage conditions, the liquid fuel generation at the central generating stations was not getting scheduled, leaving the un-requisitioned power in any time block in a day at a high level of 400 MW in Northern Region. In Western Region also, about 400 MW of generation at Kawas GPS reportedly remained un-requisitioned. Under these circumstances, it was opined that the existing ceiling UI rate of 745 paise/kWh was insufficient to harness the full naphtha generation, as also to check the overdrawal.

2. On consideration of the facts placed before it by Northern regional Load Despatch Centre, the Commission came to the conclusion that the existing UI ceiling rate of Rs. 7.45 /kWh, applicable since 30.4.2007, was proving to be inadequate to curb over-drawl from the grid. Earlier, in April 2007, while proposing enhancement of UI ceiling rate from Rs. 5.70 /kWh to Rs. 7.45/KWh, the Commission had noted that UI ceiling rate should be above the cost of diesel based generation, but while revising UI ceiling rate fixed it in relation to the naphtha cost. In this way the problem reported by Northern Regional Load Despatch Centre was already within the contemplation of the Commission. Therefore, the Commission felt the need to further rationalise UI rate on all-India basis, and by its order dated 4.12.2007 in Petition No 154/2007 proposed the revised UI rates to be applicable from 31.12.2007 as under:

Average frequency of time block (Hz)		UI Rate
Below	Not below	(Paise per kWh)
----	50.50	0.0
50.50	50.48	8.0
50.48	50.46	16.0
-----	-----	-----
-----	-----	-----
49.84	49.82	272.0
49.82	49.80	280.0
49.80	49.78	298.0
49.78	49.76	316.0
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49.04	49.02	982.0
49.02	-----	1000.0

(Each 0.02 Hz step is equivalent to 8.0 paise/kWh in the 50.5-49.8 Hz frequency range, and to 18.0 paise/kWh in the 49.8-49.0 Hz frequency range)

3. Accordingly, draft regulations proposing to further amend clause (1) of Regulations 24 and 42 of the Central Electricity Regulatory Commission (Terms and Conditions to Tariff) Regulations, 2004 were published in terms of the public notice dated 4.12.2007 to invite comments/suggestions/objections from the stakeholders.

4. The comments/suggestions/objections have been received from the following utilities, namely:

- (i) Andhra Pradesh Power Co-ordination Committee,
- (ii) Himachal Pradesh State Electricity Board
- (iii) Maharashtra State Electricity Distribution Company Limited
- (iv) M.P. Power Trading Company Ltd.

- (v) North Delhi Power Ltd,
- (vi) Punjab State Electricity Board
- (vii) Rajasthan Power Purchase Committee
- (viii) Tamil Nadu Electricity Board,
- (ix) U.P. Rajya Vidyut Upbhokta Parishad,
- (x) U.P. Power Corporation Ltd.
- (xi) Uttarakhand Power Corporation Ltd .
- (xii) Gujarat Urja Vikas Nigam Ltd, and
- (xiii) Regional Load Despatch Centres, PGCIL.

5. After careful consideration of the responses received, the Commission decided to implement the proposal made in the said order dated 4.12.2007 to revise UI rates with effect from 0.00 hrs on 7.1.2008 and for this purpose a notification dated 28.12.2007 has been sent for publication in the Official Gazette. We now proceed to record our views on the responses received and formally dispose them of.

6. The increase in UI ceiling rate from Rs. 7.45 per kWh to Rs. 10.00 per kWh has been opposed by all the State utilities, except Gujarat Urja Vikas Nigam Ltd. The varied objections commonly raised by them are listed below:

- (a) Under-frequency phenomenon during the recent past is temporary, which does not justify increase in UI rates.
- (b) Against a total grid capacity of over 100,000 MW an insignificant amount of 800 MW liquid fuel generation remained un-requisitioned.

- (c) As UI rates become benchmark for traded power, power exchanges should be fully functional before raising UI rates. There should be a cap on the price of traded power, which has been going up unchecked.
- (d) Increases of UI rates from time to time have failed to curb the over-drawls, but have benefited only the generators and energy surplus States at the expense of end-consumer in other States.
- (e) High UI rates encourage the State utilities to curtail power supply to some consumer categories and sell UI for financial gains.
- (f) UI rate at 50.2 Hz would be more than variable cost of the central generating stations, and they will keep pumping power even at this frequency, threatening the grid security. The proposed UI rate at 50.0 Hz is also very high and should be lowered.
- (g) The generating companies are already making huge profits through UI and further increase will encourage them further to flog their machines.
- (h) UI rate was increased in April 2007 on the “pretext” that the liquid fired generation was not being scheduled, even though TNEB was fully requisitioning its liquid-fired generation.
- (i) The Commission is again proposing UI rate increase on the same “pretext”, and to cover HSD-fired generation though there is no increase in HSD price.
- (j) Further scope of bringing in hidden generation is only theoretical.
- (k) Increase in UI rate will not bring grid discipline and grid operation at 50.0 Hz is not possible without capacity addition, liquid fuel generation or heavy load shedding. By increasing UI rate, the Commission is only encouraging the indiscipline in grid operation.

- (l) Since IEGC permits operation up to 49.0 Hz, no heavy penalty should be imposed for over-drawl up to 49.0 Hz.
- (m) By increasing UI rate, the Commission “knowingly makes” the financial position of the State utilities still weaker.
- (n) Operation of pumped storage scheme would become uneconomical.
- (o) The State utilities have already taken action to augment their installed capacity, which would take about three years to fructify.
- (p) Increasing UI rate periodically will not achieve the purpose and will only tantamount to regularizing the indiscipline and further deterioration of revenue of the State utilities.
- (q) Hilly States are suffering commercially because UI rate is low in summer when they have bankable surplus and high in winter when they need extra power. Therefore their over-drawls need to be considered on yearly basis.
- (r) The problem of non-payment of UI dues by some States must be addressed first.
- (s) There has been no major grid collapse attributable to low frequency.
- (t) Frequency is low because of shortages and not because of low UI rate.
- (u) Frequency data given in the Commission’s order dated 4.12.2007 is incorrect. Frequency was below 49.0 Hz only for 4.23% time in October 2007, 9.70% time in November 2007 and 21.35% time on 14.11.2007.
- (v) The proposal is not in consumers’ interest and grossly violates the basic premise for recovery of cost of electricity in a reasonable manner.
- (w) A commercial solution need not be attempted for operational problems.

7. We have very carefully analysed all these objections. Many of these issues were raised at the time of the last increase in UI rates in April 2007, and were dealt with in the Commission's orders dated 5.4.2007 and 26.4.2007 in Petition No. 15/2007. We are disappointed to find that some utilities keep raising the same points repeatedly, without even making any attempt to understand the underlying concepts of ABT and UI even after five years of their successful operation. However, for the sake of completeness, we are briefly discussing the objections listed above, *ad seriatim*.

- (a) It is well-known that low grid frequency is not a temporary phenomenon, and reappears every time demand exceeds the supply and cost of marginal generation rises above the ceiling UI rate, necessitating an upward revision of the ceiling UI rate.
- (b) The country faces severe shortage of electricity. The Commission has been consistently of the opinion that to overcome such situations of grave shortage every MW has to be harnessed. In this context para 40 of the Commission's order dated 5.4.2007 in Petition No 15/2007, also quoted in our order dated 4.12.2007 *ibid*, may be seen.
- (c) Price of traded power depends on the demand-supply position, as it should in a market. It also depends, in a shortage situation, on the price the buyers are prepared to pay. An imposed cap on the traded power price would distort the market, and would dampen the incentive for bringing in more generating capacity. Establishment of power exchanges may not help in bringing down the price of traded power in a shortage situation. The price discovered in an exchange may even be higher, since an exchange would provide an easy platform for the buyers to compete. The one way in which ceiling UI rate becomes a benchmark is that it tells the buyers the maximum

rate they may offer for contracted purchase. In case contracts are being signed at close to or higher than the ceiling UI rate, it only means that the ceiling UI rate should be increased.

- (d) On the contrary, increase in ceiling UI rate is the only effective measure to curb the over-draws, as past experience has shown. The question of profiteering by the central generating companies and surplus States is being discussed in later part.
- (e) The utilities of State-A cannot complain against the alleged misdemeanour of the utilities of State – B and consequent hardships faced by consumers in latter State whose interest is to be safeguarded by the State Electricity Regulatory Commission of State-B. Are they complaining about they themselves being induced by the mechanism to curtail power supply to their own consumers?
- (f) It is well-established through the past experience that power systems can satisfactorily operate at 50.2 – 50.3 Hz for prolonged durations. If the generating stations keep pumping in power even at this frequency, it will rise further and consequent fall in UI rate will induce them to stop such pumping. 50.0 Hz is not the upper frequency limit.
- (g) It is a matter of common knowledge that the generating units in India have suffered much more in the pre-ABT period on account of high and low-frequency and frequent tripping. As is being discussed later, the Commission proposes to limit the incentive to the central generating companies which may have induced them to flog their machines in the past to exploit the situations.

- (h) There is no harm in adopting a commercial mechanism which encourages the generating companies and the State utilities to do what is expected of them.
- (i) Paras 35 and 41 of the Commission's order dated 5.4.2007 *ibid* also quoted in the order dated 4.12.2007 is a complete answer to the issue raised.
- (j) What is hidden will be known only when it comes out, on being attracted by the commercial mechanism.
- (k) The Commission is not looking for load-shedding, harnessing of liquid fuel generation and capacity addition for the purpose of bringing the frequency to 50.0 Hz. A constant frequency of 50.0 Hz is not aimed at, and the reference has no relevance. Improvement in grid frequency after introduction of ABT is a well known fact and needs no further elaboration. Statements regarding increase in UI rate not bringing grid discipline and encouraging indiscipline in grid operation are not understood.
- (l) It appears that the State utilities are agreeable to a heavy penalty below 49.0 Hz. In such a case, there should be no objection to a ramp up (which exactly is proposed) rather than a sudden jump at 49.0 Hz.
- (m) Who can help a State utility which does not propose to live within its means? There is no compulsion from our side for a State utility to overdraw, and an SEB which does not overdraw would not be adversely impacted by UI rate increase.
- (n) It is a misconception. Pumped storage schemes would be even more economically viable when there is a large differential between peak and off-peak UI rates.

- (o) The required corrective measures cannot wait for three years. The grid can not be allowed to collapse while waiting for new generating capacity to come on line. It would not be in the interest of consumers, industry or national economy.
- (p) The objection is baseless as already discussed in sub-para (k) above.
- (q) For secure grid operation, load-generation balance has to be on minute-to-minute basis. Not to speak of yearly accounting of over-drawls, these cannot be accounted even on daily basis. These over-drawls have to be settled on 15 minutes basis as is being done presently.
- (r) The objection is being addressed separately, and cannot be a valid ground for deferring UI rate correction which is otherwise justified in the prevailing circumstances.
- (s) There has been no grid collapse only because actions were taken, particularly by raising of ceiling UI rate, before it was too late.
- (t) Frequency is low because of shortages, and can be improved to a tolerable level only by curtailing the load, for which increasing UI rate is the foremost practical measure.
- (u) The figures given in our order dated 4.12.2007 are based on the affidavit filed by Northern Regional Load Despatch Centre. There may be some discrepancy on account of resolution and different periodicity of frequency measurements. In any case, it has been established by the respondents' own admission that frequency is going below 49.0 Hz.
- (v) It seems to be commonly perceived that only cheapest possible power supply is in the consumers' interest, and it is not necessary for the State utilities to strive for adequacy of supply. We do not agree with this view.

Our first endeavour should be to try to enhance the supply, so as to cater to the demand of as many consumers as possible. For this, the costlier generation, whatever is available and wherever, has to be brought into the grid. This is what the proposal aims at. Viewed from that angle, the proposal cannot be faulted.

- (w) This is a dogmatic view, particularly because the operational problems have arisen because of commercial distortions. Further, UI is primarily a mechanism for settlement of deviations, and the Commission is linking the rate to frequency in order to remove any subjectivity in the settlement of deviations from schedules.

8. Maharashtra SEDCL has proposed the following measures before any further increase in UI rate:

- (i) Scheduling by the Regional Load Despatch Centres of all central gas-based generating stations for full utilization of unutilized capacity on liquid fuel whenever frequency reaches 49.5 Hz, and booking it to overdrawn beneficiaries.
- (ii) Penal action or imposition of heavy penalties on the utilities indulging in undisciplined over-draw
- (iii) Invocation of Sections 29 and 146 of the Electricity Act, 2003 in case of non-compliance of the instructions of the Regional Load Despatch Centres by any of the utilities.

9. We have considered these suggestions. We are, however, of the firm view that a large multi-utility power system can operate satisfactorily only through self-discipline. This is particularly so in case of decentralized scheduling and dispatch scheme adopted in India. There is no sense in first providing commercial signals to utilities not to exercise the necessary self-restraint, and then depend on punitive measures to keep the system from falling apart. Further, punitive measures can be taken only *post facto*, i.e. after the system has been endangered, when it might prove to be too late. Instead, we need measures which come into effect with increasing intensity as the situation deteriorates. Also, the measures are to apply on the State utilities, which are supposed to be responsible entities in the sector and not school children to be kept on track by a headmaster's stick.

10. The following suggestions have been made by some of the respondents:

- (a) Instead of increasing UI rates, lump sum penalties should be imposed for over-drawl below 49.0 Hz.
- (b) For generation up to declared capacity above scheduled generation, UI rate may be paid, but above the declared capacity only the variable rates may be paid.
- (c) Unallocated share from the central generating stations should be allotted to deficit States based on their demand.
- (d) Instead of increasing UI rate, the Commission should revert to the earlier UI rate of Rs. 5.70 per kWh and the utility which violates the grid code be dealt with individually.
- (e) UI charges should increase in proportion to the percentage increase in over-drawl by a particular State, rather than at the flat rate.

- (f) Regional Load Despatch Centres should regulate the supply to States with large over-drawls.

11. We have given a serious consideration to these suggestions as well. If a utility is reconciled to the suggestion at (a), it should as well be able to accept a ramp up of UI rate to the contemplated UI rate plus penalty. The suggestion at (b) is not reasonable as it would not provide any operational tolerance to the generating stations in an equitable manner. If the schedule equals the declared capacity, any over-generation would fetch only fuel cost reimbursement, while any under-generation would be penalized at the prevailing UI rate. The suggestion at (c) above, regarding allocation of shares in central generating stations is dealt within later part. As for (d), we have already recorded our view while considering the response of Maharashtra SEDCL in para 9 above. The suggestion at (e) is considered impractical. UI rate, in the whole scheme which has worked so successfully, has a well-known relationship with frequency. If it is to vary with the level of over-drawl, many basic features of the entire scheme would get mixed up. The suggestion at (f) is again not pragmatic. If it was, we would not be having a low-frequency problem.

12. We find a lengthy argument in the response filed by Punjab SEB on (i) scheduling of liquid-fired generation, (ii) failure of NTPC to procure additional gas, (iii) diversion of gas to Ratnagiri plant (iv) para 5.2.16 of National Electricity Policy, (v) coal shortage, (vi) UI for generators and gaming. On the first issue, the Commission's order dated 27.4.2006, Minutes of Ministry of Power meeting held on 20.10.2006, and gist of discussions in Chairman, CEA's meeting on 4.12.2007 have been referred to, wherein enforced scheduling of liquid-fired generation (which is not being

requisitioned in normal course) has been talked about. It is necessary to see the entire matter in the right perspective. The question of enforced scheduling by Regional Load Despatch Centres arose in the first place because naphtha price had gone up, variable cost of liquid-fired generation had crossed the then ceiling UI rate, and the commercial signal to schedule such generation even under severe shortage was no longer there. It was only under such a situation that enforced scheduling was proposed as an immediate relief measure. The experience has shown that it is not satisfactory / workable proposal in the scheme of decentralized scheduling adopted in the country. The appropriate measure is raising of the ceiling UI rate, to cover the variable cost of generation which needs being harnessed.

13. The second, third and fifth issues listed above cannot be entertained as a ground for holding back the necessary preventive measure against the risk of a grid collapse. The fourth issue has already been dealt with in para 42 of the Commission's order dated 5.4.2007. We have nothing to add. The sixth issue has been dealt later on.

14. We are much disappointed by the response from UPPCL. We find the following statements in its comments dated 17.12.2007:

“The repetition of sustained low frequencies has proved that previous enhancements in the UI rates had no effect upon the grid security. In UP's opinion, and in the light of past experiences, if UI rates are further enhanced the frequency regime of the grid is likely to go from bad to worse.”

“In our view, the proposed UI rate mechanism is likely to send signals for voluntary generation withdrawal instead”.

“One wonders... when this mad and inexplicable rush to enhance UI rate would stop.”

15. This is in spite of the following observations in the Commission’s orders dated

5.4.2007 and 26.4.2007 in Petition No. 15/2007:

“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.”

“12. In its response dated 21.4.2007, UPPCL has mostly reiterated the arguments put forward in its earlier reply dated 19.2.2007 in the proceedings in Petition No. 15/2007, which have already been dealt with in our order dated 5.4.2007. Therefore, we do not consider it necessary to repeat them here. UPPCL has further contended that the proposed hike in UI charges is violative of the provisions of the Act, which aims at protecting the interest of the consumer. We have to clarify that as long as the State utilities do not overdraw from the regional grid, its consumers shall have no adverse financial impact on account of UI rate hike. It is only on over-drawl in a low-frequency situation (which endangers the system) that a State utility has to pay high UI charges, which it should. Further, a measure intended to reduce the risk of grid collapse is being projected by UPPCL as anti-consumer. We can only refute such views, since price of power is only one aspect of what is in the overall interest of the consumer, the other aspect being steady and uninterrupted supply of power free from any disturbances.”

16. We reiterate the above, and express our serious concern at such lack of understanding and reason on the part of a State utility.

17. In its response dated 18.12.2007, UPPCL has gone to the extent of questioning the admissibility of the present ceiling UI rate of Rs. 7.45/kWh, though it has been in operation for eight months. It has opined that it consists of Rs. 2/kWh as average cost of supply and Rs. 5.45/kWh as deterrent to prevent over-drawl. It is not known how the respondent has arrived at these unilateral interpretations of the regulations issued by the Commission because their basis has not been explained. The thrust of the arguments is that the States which under-draw during a deficit situation and prevent the grid from collapsing are making huge profits, which are unjustified and should not be allowed. This is a matter meriting a separate debate. But the State Electricity Regulatory Commissions of the concerned States exist to take care of such malpractices, if existing, and take appropriate measures to safeguard the interests of consumers within their States. Meanwhile, we cannot allow the system to be destabilized by unsound arguments of a State utility which has itself been behaving most irresponsibly, in the matters of over-drawing from the regional grid, disobeying Regional Load Despatch Centre's instructions, and not paying UI charges.

18. In a further communication dated 26.12.2007, UPPCL has reminded the Commission that UPPCL has challenged the earlier hikes in UI charges from Rs. 4.20 to Rs. 5.70 and thereafter from Rs. 5.70 to Rs. 7.45 in the Hon'ble High Court, Lucknow. We are already aware about this, but have been compelled to revise the relationship between grid frequency and UI rate to check the deterioration of frequency regime which can lead to a grid collapse, and is harmful in many other ways as well. The corrective measure is urgently required and cannot be kept pending.

19. A legal question has been raised by some respondents, citing Section 62(4) of the Electricity Act, 2003, reproduced below.

“No tariff or part of tariff may ordinarily be amended, more frequently than once in any financial year, except in respect of any changes expressly permitted under the terms of any fuel surcharge formula as may be specified.”

20. It has been averred that UI is the 3rd part or component of ABT and is therefore a part of the tariff. It has been argued that since it was revised earlier with effect from 30.4.2007, a second revision is not permissible during the financial year 2007-08.

21. The above averment is not borne out by the factual position. Regulation 15 the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2004, applicable to the thermal power generating stations, reproduced below, specifies that there are two components of tariff, namely the annual capacity charges and the energy charges: :

“15. Components of Tariff : (1) Tariff for sale of electricity from a thermal power generating station shall comprise of two parts, namely the recovery of annual capacity (fixed) charges and energy (variable) charges.”

22. Similarly, Regulation 37 applicable to the hydro power generating stations, refers to annual capacity charge and primary energy charge as the components of tariff. For facility of reference, the relevant provision is also extracted hereunder:

“37. Computation of Annual Charges : The two-part tariff for sale of electricity from a hydro power generating station shall comprise of recovery of annual capacity charge and primary energy charges :.....”

23. It should be abundantly clear from the above that UI charges are not considered to be a component of tariff of any generating station within the meaning of

the term as traditionally understood. UI rates are specified separately under Regulations 24 and 42, as a settlement mechanism for deviations from schedules under varying conditions of the load-generation balance in the grid. Though levied by the Commission in exercise of its power of regulation of tariff in exercise of its power of regulation of tariff under Section 79(1) of the Electricity Act, 2003 it has been upheld by the Hon'ble Supreme Court in its judgment in Civil Appeal No. 2106/2007 Central Power Distribution Company and others Vs Central Electricity Regulatory Commission and another [(2007) 8 SCC 197] that the Commission has the power and function to evolve commercial mechanism such as imposition of UI charges to regulate and discipline. UI rates specified in these regulations are not any specific tariff but the relationship between grid frequency and the energy rate for settlement of deviations. Again, what is presently contemplated is a change in the above relationship. If the same load-generation balance holds, it would be the frequency that would change, not UI rate. Further, the Notes under Regulations 24(1) and 42(1) empower the Commission to change UI rates through separate notification as per the extract placed below:

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

24. It may also be recalled that the relationship between grid frequency and UI_rate was revised twice in the financial year 2004-05, first from 1.4.2004 and then from 1.10.2004. No issue on the above account was raised at that time, perhaps because the second revision was downward then. In our view, the aforesaid contention is thoroughly misconceived.

25. The Commission cannot afford to get distracted by such diverse objections/ comments/ suggestions, some of which are clearly diversionary. The main issue on hand is that grid frequency has once again started going below the safe limit of 49.0 Hz for considerable duration every day, and the entire grid is being endangered. The only way it can be improved is by curtailing the load. Since control of load is in the hands of the State utilities, it is necessary to induce them to take the necessary measures through the commercial mechanism of UI. For the reasons already discussed, the present UI ceiling rate of Rs. 7.45/kWh has now become inadequate to curb the malady of over-drawl, and must be raised. There is no alternative to it.

26. If a State utility has to meet any extra consumer load, it has to either purchase it from a party having some surplus generation, or overdraw from the regional grid as UI. As of now, due to the demand outstripping the supply, the only surplus (idling) generation during peak-load hours, which is available for purchase by a needy utility, would be liquid-fired, with a variable cost in Rs. 7 to 10 per kWh range. The new ceiling UI rate must be above this, to ensure that over-drawl from the regional grid is not cheaper than a contracted purchase. Hence the proposed UI ceiling rate of Rs. 10.00 kWh would be in order.

27. The suggestion made by some of the respondents and listed in paras 8 and 10 above cannot substitute the ceiling UI rate increase. They can at best serve as the back-up mechanism. In most cases, they would automatically become redundant after the ceiling UI rate has been appropriately increased.

28. Gujarat Urja Vikas Nigam Ltd, in its response dated 24.12.2007 has unconditionally endorsed the proposed increase in UI price vector, with a proper understanding of the matter. The response being exemplary is reproduced herein.

“The comments of GUVNL on Draft Regulation of Central Electricity Regulatory Commission (Terms and Conditions of Tariff)(Fifth Amendment) Regulations, 2007 are as under:-

1. *GUVNL supports the proposed increase in UI price vector for overdrawl and underdrawl through Draft Regulation of Central Electricity Regulatory Commission (Terms and Conditions of Tariff) (Fifth Amendment) Regulations, 2007 and the concern expressed by NRLDC in their petition no.154 of 2007 disposed off through order dated 4th December, 2007.*

2. *GUVNL is of the view that the maximum ceiling of UI price vector may be fixed slightly higher than the variable cost of generation through liquid fuel so as to ensure that the available generation of liquid fuel gets scheduled instead of availing the overdrawl of power from the grid and to avoid the instances of compulsory scheduling of Naphtha based generation to the overdrawing constituents by the Regional Load Dispatch Centre.*

The general tendency of the constituents on one hand is not to schedule the entitlement on liquid fuel and avail the overdrawl from the grid at prevailing frequency rate lower than the variable cost of liquid generation and thereby endangering the grid security. In the event UI price vector is deterrent to such phenomenon the constituents may prefer scheduling of Naphtha based generation rather than availing overdrawl from the grid. This shall ensure optimum utilization of the available generation capacity in the grid and also ensure minimum overdrawl by the constituents.

3. *Moreover, the generators will also incentivised to generate up to availability declared in order to earn UI which is more than variable cost resulting in actual generation more than schedule also. In case UI price vector ceiling is lower than the variable cost of generation, the generators may tend to gaming as they may speculate by not generating power on liquid fuel (Naphtha) and paying UI charges as a penalty which is lower than fuel cost.*

4. *The proposed revision in UI price vector shall encourage and incentivise the generation capacity available in liquid / costlier fuels in the State Sector including Captive Generating Plants at the maximum possible extent during the low frequency regime thereby providing additional generation to support the grid as well as making available the power to the end consumer, since the State Load Dispatch Centre shall prefer not to overdraw from the grid and simultaneously can also avoid load shedding.”*

29. We commend the management and other concerned officials of Gujarat UVNL, both for their understanding of the subject and for the courage to swim against the tide.

30. Now we come to the issue which has been agitating the State utilities the most, i.e. the alleged gaming by the central generating companies in declaration of their generating station's availability, through which they have been able to earn large sums of extra revenue through UI mechanism. The Commission has so far endeavoured to retain the totally reciprocal nature of UI mechanism, with every regional entity having the same frequency-linked UI rate at a particular time, and the same rate being applicable both for over-/under-drawl and over-/under-generation. It means that any extra supply (above the schedule), irrespective of its source, is paid the same price, at a particular time, and whoever avails this extra supply also pays the same price.

31. However, it is also a fact that central generating stations have a scope for extra income by generating above their schedule, which normally matches the declared capacity. The generating stations can presently maintain extra generation within the allowable operational tolerance limit of 1% so as not to attract the provisions of gaming, but may still result in substantial extra income for the generating companies, which are already assured reimbursement of all expenditure and a specified return, in the present day regime of cost-plus tariff determination. The Commission would not object to extra income arising out of higher efficiency and performance above the specified normative levels. But sustained extra income through suppression or manipulation of availability declaration is another matter, particularly when the

beneficiaries are already paying for the entire cost of the generating station installation through payment of capacity charges. This must be curtailed.

32. In case of the hydro power generating stations, the possibility of making any extra money on the above account is being plugged through certain amendments initially proposed separately, but implemented simultaneously with revision of UI rates under notification dated 28.12.2007 *ibid*.

33. In case of thermal power generating stations, UI rate for generation above the schedule by coal and lignite-fired stations, and the stations burning only APM gas, shall now be capped at 406 paise per kWh. These stations have a variable cost in range of 50 – 200 paise per kWh. They would still have a fairly good incentive for maximizing their generation, but there would be no windfall gains. It is clarified that the above UI rate cap shall not be applicable for RLNG/liquid-fired generating stations, hydro power stations, merchant plants, merchant capacity and any other generating station for which its fixed cost is not being reimbursed through capacity charge, etc.

34. The central generating stations may complain about discrimination. It is therefore clarified in advance that UI is not a prerogative. What is important is that the mechanism is well-known in advance and there is total transparency. UI is primarily a mechanism for settlement of deviations from schedules. It also provides incentives to all parties to do the right thing. There is no compulsion to deviate. One can see UI rate on-line (through a frequency meter), and decide whether and to what extent he would deviate from the schedule. The Commission is basically reducing (not

eliminating) consciously the incentive for coal, lignite and APM gas fired stations to over-generate. This has been considered necessary for removing any perverse incentives for flogging the plants, manipulating the availability declaration, etc, and for removing a ground of wide-spread opposition to any tariff rationalization.

35. There is also a complaint about some States making disproportionate money through sale of their surplus power at exorbitant rates. It is alleged the surplus States are aided in charging high rates by the prevailing UI rate, and raising of the ceiling UI rate would lead to further profiteering by those States. UPPCL has stated as follows in its response dated 18.12.2007:

“The present system of U.I. mechanism is wrong because the deterrent rate Rs. 5.45/unit are being used by surplus States and generation to increase their huge profits at the cost of deficit States who are starving for money and electricity.

Example :- (1) Govt. of Himachal Pradesh has earned cash profit of about Rs. 1000 crore in 6 month.....”

“Therefore alternative UI mechanism is proposed as below :-

The UI ceiling rate @ Rs. 4.20/unit linked to frequency as per CERC Notification dt. 26.3.01 is proposed to (i) provide recovery of average cost Rs.2/unit to surplus states etc. and (ii) the amount other than the cost (Rs.2.20/unit) shall be treated as penalty which will be deposited in national pool for its use for increase the generating capacity to reduce the gap of demand and supply or subsidizing the costliest generation or grid security or incentive for .extra generation.”

36. The first and foremost issue under consideration is that because of over-drawls by the State utilities, the grid frequency is going below the safe limit of 49.0 Hz. The present UI ceiling rate of Rs. 7.45/kWh is no longer fully effective as a deterrent against over-drawls, and it must be increased to Rs. 10.00/kWh without further delay. There is no question of any reduction in the ceiling UI rate. That is as far as the overdrawing utilities are concerned.

37. As for the under-drawing utilities of the surplus States, the increased ceiling UI rate would induce them to (i) enhanced load management in their States, (ii) maximize their requisitions from costly generation (e.g. naphtha) in which they have shares, (iii) harness captive generation within their States, and (iv) optimize the operation of hydro power generating stations. All these measures would enhance the total power availability in the grid, in the present deficit situation. In turn, this would enable meeting of more consumers' demand in the deficit States, and reduction of load shedding.

38. If the under-drawing State utilities are not paid the enhanced UI rate even when frequency is low, there may not be sufficient inducement for them to take the above measures. For example, the captive generation with a fuel cost higher than the applicable UI rate would be effectively barred from coming into the grid. This has also been succinctly brought out in the response of Gujarat UVNL quoted in para 28.

39. Two responses (dated 18.12.2007 and 24.12.2007) have been received from U.P. Rajya Vidyut Upbhokta Parishad, Lucknow. The first point therein is that there should be no rule or measure in the name of grid discipline that has an adverse impact on the general consumer or the public at large. The other points raised therein have already been covered in the discussion on comments from various State utilities. A need for review / revision of the Gadgil formula has also been expressed.

40. In this connection, we would like the respondent to ponder over as to what is in the real interest of a general consumer and the public at large. Do they really want

low rates but supply only for a few hours every day, or would they prefer to have enhanced hours of supply but at a higher price? Would they not want industry in their State to develop and bring over all prosperity? And would they like a grid collapse every other day and consequent disruption of normal life?

41. The UI rate is a reflection of the system marginal price, and is synonymous with pool price, spot price, balancing market price, clearing price, etc. of the other electricity markets. It operates at the inter-utility level, and should normally not be a concern of the retail consumers. Any responsible utility must plan to meet the demand of its consumers through advance planning (setting up generating capacity, contracting for long-term purchase, etc.) and shorter-term planning (load forecasting, short-term purchases, etc.). It is only the occasional short falls (due to vagaries of load and generation) which are supposed to be met through a reciprocal support from the grid, in the form of U.I. The State utilities must recognize that the problems being faced by them are primarily due to their own failure in advance and shorter-term planning.

42. In the present scenario of power shortage, the options for the State utilities are: (i) contract for emergency purchase (scope for which may be limited), and pay the prevailing market price, (ii) lean on the grid (if the frequency is not dangerously low) and pay the prevailing UI rate, (iii) harness costly generation within the State, e.g. captive, and (iv) load-shedding of consumers. The first three measures have a cost implication, and it is for the concerned State utility to decide along with the State Government and the State Commission as to how the extra cost would be met : absorption by the State utilities, subsidy from the State Government, cross

subsidization, or by a pass-through in the general retail tariff. It is a delicate balance between these on one hand and consumer suffering due to supply curtailment on the other. The point to be noted is that the question of consumers in a State being effected by the UI rate increase arises only when the State utility decides to maintain the supply and wants the consumers to pay for it through consumer tariff increase. The right forum for the present respondent (U.P. Rajya Vidyut Upbhokta Parishad) for agitating this issue is therefore the State Commission. At the Central level, we can only specify the inter-State framework endeavouring that it is transparent and equitable, between the States.

43. The matter regarding allocation of shares to different States in a Central power generating station falls within the domain of the Central Government, and the Commission has no role in the same.

44. In the response dated 12.12.2007 on behalf of the Regional Load Despatch Centres, PGCIL has made two points: (i) the allowable frequency band should be narrowed down from 49.0 – 50.5 Hz to 49.5 – 50.1 Hz, and (ii) there should be a ceiling on UI volume, say 10% of the schedule, above which a surcharge (Rs x per unit) should be payable on top of UI rate. The Commission, while appreciating the need for these measures, feels that we are not yet at a stage where they may be implemented. The basic issues need to be tackled first.

45. In a further communication dated 24.12.2007, PGCIL has pointed out the difficulties in implementation of decisions taken in the meeting of NR and WR constituents held by Chairman, CEA on 4.12.2007, and has conveyed the urgency for

enhancement of ceiling UI rate. Indexing of the ceiling UI rate to the price of fuel used for costliest (in terms of variable cost) generation, which is to be allowed to be harnessed, has also been suggested.

46. We have therefore decided to revise the relationship between grid frequency and UI rate as proposed in the draft regulation issued on 4.12.2007, with effect from 00.00 hours of 7.1.2008, with the following proviso added in regulation 24(1): "Provided that in case of generating stations with coal or lignite firing and stations burning only APM gas, UI rate shall be capped at 406 paise/kWh when actual generation exceeds the scheduled generation"

47. This statement should be read along with the earlier orders dated 5.4.2007 and 26.4.2007 in Petition No. 15/2007, and the order dated 4.12.2007 in Petition No. 154/2007.

Sd/-
(R. KRISHNAMOORTHY)
MEMBER

Sd/-
(BHANU BHUSHAN)
MEMBER

New Delhi, dated the 31st December 2007