No. L-1(1)/2009-CERC

CENTRAL ELECTRICITY REGULATORY COMMISSION

NEW DELHI

Coram : Dr. Pramod Deo, Chairperson
Shri S.Jayaraman, Member
Shri V. S. Verma Member
Shri M. Deena Dayalan, Member

Date: 26th May 2010

In the matter of

Central Electricity Regulatory Commission (Unscheduled Interchange charges and related matters) (Amendment) Regulations, 2010.

STATEMENT OF REASONS

1. Regulation 5 of the Central Electricity Regulatory Commission Unscheduled Interchange charges and related matters) Regulations, 2009 (hereinafter "the UI charges regulations") notified on 30.3.2009, provides for review of UI charges including UI cap rate to be reviewed by the Commission on six monthly basis or earlier, and revised, if necessary through separate orders from time to time.

2. The Regulation 7 (3) of the UI charges regulation provides for review and revision of additional UI charges by the Commission on six monthly basis or earlier if necessary, through separate orders.

3. The UI Charges and the additional UI charges were proposed to be revised by the Commission through its Order dated 7.10.2009. Later the

Commission proposed following amendments through the draft amendments to the UI Regulations 2009 which were published in Feb 2010 seeking comments of the Stakeholders:

i. For the sake of clarity and completeness of regulation, and to provide flexibility for determining separate additional UI charges for over drawls / under-injection and under-drawal/over-injection, it was proposed that regulations 5 and 7 (3) be amended by providing that these charges shall be notified through separate Orders of the Commission.

ii. The Commission was also of the view that in the interest of safety and security of the grid, operating grid frequency range should be narrowed down further from 50.3-49.2 Hz to 50.2-49.5 Hz with effect from 1.4.2010. Similar amendments were also being proposed in IEGC.

iii. Correspondingly, regulations 7(1) to 7 (3) were proposed to be amended to apply limit on UI volumes below frequency of 49.7 Hz instead of 49.5 Hz earlier.

iv. With regard to the limit on UI volumes imposed in the regulation, it was not clear whether such limits are to be applied individually on each intra-state entity or collectively. This was proposed to be clarified by providing an explanation as follows:

"The limits specified in this clause shall apply to the sum total of over drawls by all the intra-State entities in the State including the distribution companies and others intra-state buyers, and shall be applicable in the inter-State boundary of the respective State."

v. Since additional UI charges are not payable to any under-drawing or over-injecting entity, it was also proposed to clarify the same with reference to inter-regional exchanges by inserting an explanation after regulation 7(3) as follows:;

"Additional Unscheduled Interchange Charges shall not be applicable for net over drawls by a Region as a whole from other regions when grid frequency is below 49.5."

vi. In line with above, it was proposed to be clarified that the net additional UI Charges payable by entities of a region, shall be retained in the Unscheduled Interchange Pool Account Fund of the region in which the regional entity is located as explanation after regulation 9 (3) as follows:

"Any additional UI charges collected form a regional entity shall be retained in the Unscheduled Interchange Pool Account Fund of the concerned region where the regional entity is located."

vii. Further, the UI accounting and UI payments are dealt in IEGC (Clause 6.1 (d) Annexure 1 Para 5 and 7 of the complimentary commercial mechanism) as well as UI Regulations (Regulations 9 and 10). After notification of a separate UI Regulations, it was proposed to consolidate all provisions related to UI in the UI Charges Regulations. Accordingly, Regulations 9 and 10 of the UI Charges Regulations were proposed to be further rationalized and amended in the proposal.

viii. It was observed that the beneficiaries are not making UI payments in time and there are UI out standings rendering UI mechanism

ineffective. Therefore, it was proposed to provide payment security mechanism in UI Regulations through revolving letter of credit of adequate amount.

Under the UI commercial mechanism, liability of any of the regional entities namely generator, beneficiary, seller or buyer is not constant. The liability for each regional entity would keep on varying from week to week and month to month and may include outstanding UI and interest thereon, if any. Therefore, maximum weekly UI liabilities (UI outstanding and interest liability), if any, during a previous period of one year from 2 weeks prior to start and end of the financial year, was proposed to be considered for arriving at the revolving weekly LC amount.

The payment security mechanism also provided for increase in LC amount in case the UI liability during any of the week of the year exceeds the maximum weekly UI liabilities (UI outstanding and interest liability) by more than 20%.

ix. The proposed amendments also provided for adjustment of any payment against the outstanding UI dues towards interest first and then towards UI outstanding. The existing IEGC and UI regulations provide for payment of simple interest @ 0.04% for each day of delay by the defaulting constituent if the UI payments are delayed beyond 12 days from date of issue of UI statement. The constituents who had to receive the interest on UI payments, get paid, for the delayed interest payments only after the interest charges are realized. Further, the UI outstanding amount and interest amount on UI outstanding are presently being maintained separately and any payment received against the UI outstanding and interest thereon is first being adjusted

towards the UI outstanding. This is not in line with the prevailing accounting practice being followed uniformly in all financial institutions. As per prevailing accounting practices, any payment towards outstanding amount is first adjusted against interest accrued and the balance towards principal outstanding.

It was therefore proposed to amend the UI regulation to provide for appropriation of all payments received in the Unscheduled Interchange Pool Account Fund in the following manner:

(a) First Towards any cost or expense or other charges incurred on recovery of UI charge
(b) Next towards over dues or penal interest, if applicable
(c) Next towards normal interest
(d) Lastly, towards UI and additional UI charges

x. The proposed amendments also provided for payment from UI pool account to the regional entities without waiting for UI payments to be received in UI pool account.

xi. It was also proposed to transfer surplus arising from UI pool account in to a separate fund account to be specified by the CERC which could be utilised for the specified purposes as described in the UI regulations. Regulation 11 was proposed to be amended accordingly.

4. About 28 stakeholders including State Regulatory Commissions, Generators, Beneficiaries, NLDC/PGCIL, RPCs, SLDCs etc, filed their written submissions. Commission also held an open hearing on 15.3.2010 and heard the stakeholders.

5. Some of the beneficiaries namely, UPPCL, HPPC etc have suggested to incorporate the principles and methodology for arriving at values of various rates and caps in the UI framework. The Commission, after giving thoughtful consideration, decided to incorporate the principles and methodology for arriving at values of various rates and caps in the UI Regulations. Since the principles and methodology were proposed to be incorporated in the regulations itself, the values of various rates and caps in the UI framework arrived at based on the methodology prescribed were also proposed to be specified as a schedule to the regulations, which could be re-notified after every six months by the Commission.

6. UPPCL had also sought for imposition of UI cap on under-drawls. NLDC had sought to put limit on UI volumes on under-drawls and over-injections. Putting hard limits on volumes on under-drawls or over-injections was not considered desirable in power deficit conditions. However, the Commission was of the view that a cap rate may be imposed for the under drawls by the buyers or the beneficiaries in a time block beyond 20% of the schedule or 250 MW whichever is less, and for the over-injection by the seller in excess of 120% of the schedule subject to limit of ex-bus generation corresponding to 105% of the Installed Capacity of the station in a time block or 101% of the Installed Capacity over a day. This was with a view to discourage the buyer and the beneficiaries to underdraw heavily though the UI mechanism, instead of opting for selling this power through the scheduled route through bilateral arrangements and through Power Exchanges. Similarly, the seller including captive and merchant generators, should also be discouraged to avail the UI mechanism for selling power as unscheduled energy rather than selling the power as scheduled power through bilateral arrangement or though the platform of Power Exchanges. It has been observed that one station in Western Region is pumping power as

UI for months together. Such a situation is also likely to arise in case of new capacity additions in Private Sector where entire power of the station may not be tied up on long term basis and the generator may have to sell the balance power in the medium term or the short term or at Power Exchange or through UI.

7. The Commission therefore, decided to propose amendments accordingly, in addition to the other proposed amendments. Draft amendment to UI Regulations 2009 was published on the Commission's web site yet again on 1.4.2010 inviting comments of the stakeholders by 22.4.2010. The Commission heard the stakeholders in an open hearing on 24.4.2010. About 28 stakeholders including State Regulatory Commissions, Generators, Beneficiaries, NLDC/PGCIL, RPCs, and SLDCs etc. made oral submissions and also filed their written submissions.

8. The comments / suggestions of the stakeholders are discussed in the subsequent paragraphs.

A. Whether the UI Charges and various UI cap rates are against the provisions of Electricity Act, 2003 and against the Hon'ble Supreme Court Judgment

9. UPPCL has submitte that the proposed principles and methodologies applied for charging UI rates for deviation from schedule is against the provisions of Electricity Act, 2003 (the Act) and against the Hon'ble Supreme Court's order dated 17.8.2007 in the case of Central Power Distribution Co & others vs CERC & Anr. [(2007) 8 SCC 197] and CERC order dated 04.01.2000 on ABT.

10. UPPCL has further stated that the UI being 3rd part of tariff as per ABT Order of 4.1.2000 and as per the Hon'ble Supreme Court's judgment in Central Power Distribution Co & ors Vs. CERC & Anr, it must be consistent with Section 61 (d) and 61(g) of the Act, which provide that the tariff progressively reflects the (incurred) cost of supply and therefore, UI rate cannot be linked to costliest form of generation. The Commission was therefore, requested to fix appropriate rates as per the Act. According to UPPCL, there is a need to take new and alternative steps by providing additional allocations/power purchase arrangements favourable for deficit States and by restraining the undue enrichment of profit to generators/surplus States who are earning at the cost of the deficit states. Similar views have been echoed by other beneficiaries namely MPPTCL, GVUNL, HPPC etc. According to the UPPCL, the proposed UI charges are required to be discussed before "Central Advisory Committee" as per section 81 of the Act.

11. UPPCL has further stated that the Govt. of India may be advised by the Commission u/s 79 (2) of the Act to allocate power from 15 % unallocated share, to deficit States and change the policy of allocation to the States.

12. We are unable to subscribe to the point of view of UPPCL and other beneficiaries regarding UPPCL's interpretation of the Hon'ble Supreme Court's judgment cited above. The interpretation aims to question the very essence of the concept of UI as a commercial mechanism to ensure grid discipline which has been authoritatively settled by the Hon'ble Supreme Court and therefore, the arguments are devoid of any merit as discussed hereinafter.

13. The Hon'ble Supreme Court in its judgment dated 17.8.2007 in Central Power Distribution Co & ors supra has explained the concept of Unscheduled Interchange in the following terms:

> "WHAT IS UI (UNSCHEDULED INTERCHANGE)
>
> 10. In addition to two charges, a third charge contemplated in the ABT scheme is for the unscheduled interchange of power (UI charges). The UI charges are payable depending upon what is deviated from the schedule and also subject to the grid conditions at that point of time. This element was introduced to bring about the effective discipline in the system. Under this system UI charges will be payable, if:
>
> i) a generator generates more than the schedule, thereby increasing the frequency;
>
> ii) a generator generates less than the schedule, thereby decreasing the frequency;
>
> iii) a beneficiary overdraws power, thereby decreasing the frequency;
>
> iv) a beneficiary underdraws power, thereby increasing the frequency.
>
> 11. It is thus clear from the above that UI charges are a commercial mechanism to maintain grid discipline. The UI charges penalises whosoever caused grid indiscipline, whether generator (NTPC) or distributor, is subject to payment of UI charges who are not following the schedule. The UI charges are not payable if the appellants maintain their drawl of electricity consistent with the schedule given by themselves. Therefore, there is no merit in the contention of the appellants that the UI charges are by way of penalty." {Emphasis laid}

14. The Hon'ble Supreme Court framed the issues as under:

(A)"Whether the application of Availability Based Tariff (ABT) in relation to Unscheduled Interchange (UI) charges, which otherwise is not a component of tariff in terms of Regulation 15 of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2004 and they are liable to be held as beyond the jurisdiction of the Central Electricity Regulatory Commission (CERC)?"

(C) Can the Availability Based Tariff as established and provided in the order of the CERC by its order dated 4.1.2000 be implemented under the provisions of Electricity Act, 2003, particularly when there is no provision under the statute that allows the CERC to levy Unscheduled Interchange Charges?

(D) whether in the present facts and circumstances as regards the Simhadri STPS thermal station of the National Thermal Power Corporation (NTPC) which admittedly supplies power to the State Grid and has no connection with the management of the National Grid, can the CERC in such circumstances exercise, particularly when matters relating to the State Grid falls within the role and function of the State Electricity Regulatory Commission?

15. While ruling on the above questions of law, the Hon'ble Supreme Court observed as follows:

Question (A)

"(22) The application of Availability Based Tariff and imposition of Unscheduled Interchange (UI) charges are essential part of the

Functions of the Central Commission under Section 79(1)(h) of the Electricity Act, 2003 which reads – "to specify Grid Code having regard to the Grid Standards, and under Sub-section (2) of Section 28 read with Section 178(2)(g) dealing with the Central Commission powers to frame Grid Code. **The maintenance of Grid discipline envisaged under the Grid Code is regulated by the mechanism of ABT and UI charges. There is no basis for the appellant to contend that unless something is a part of Tariff the Central Commission cannot exercise powers and functions. The ABT and UI charges are commercial mechanism to control the utilities in scheduling, dispatch and drawl and the UI charges are tariff or charges payable for deviations.** In the facts and circumstances mentioned above the legal position is clear and there is no ambiguity in respect of the jurisdiction of the Central Commission.

Question (C)

(24) As already noticed, the Central Commission has the power and function to evolve commercial mechanism such as imposition of UI charges to regulate and discipline. It is well settled that a power to regulate includes within it the power to enforce. See Indu Bhusan vs. Rama Sunderi, AIR 1970 SC 228, K. Ramanathan vs. State of Tamil Nadu (1985) 2 SCC 116, V.S. Rice and Oil Mills vs. State of Andhra Pradesh, AIR 1964 SC 1781, Deepak Theatre, Dhuri vs. State of Punjab, 1992 Supp.(1) SCC 684.

Question (D)

(25) In the facts and circumstances as alluded, and as per the Scheme of the Electricity Act, 2003 mentioned above, the Central Commission has the plenary power to regulate the Grid, particularly in the context

of the Grid being integrated and connected across the region comprising of more than one State. The State Grid cannot be isolated and cannot be seen as independent from the region."

16. It is clear from the above judgment of the Supreme Court that the Central Commission has plenary power with regard to maintaining grid discipline in accordance with the Grid Code. It has also been unambiguously upheld that UI charges are a commercial mechanism to maintain grid discipline and the Central Commission has the power and functions to evolve commercial mechanism in the form of imposition of UI charges to regulate and discipline the grid. As the power of the Central Commission to impose the UI charges for maintaining the grid discipline has been upheld by the Supreme Court, the challenge to the UI charges as not being consistent with the provisions of Section 61 of the Act cannot be sustained. The issue as regards the legality of the levy of Unscheduled Interchange Charges has attained finality with the aforesaid judgment of the Hon'ble Supreme Court.

17. In this back drop, the objective of the UI mechanism needs to be clearly understood and appreciated. The Commission in its Statement of Reasons explaining the various provisions of UI regulations 2009 has stated as follows:

*"UI pricing is expected to serve the twin objectives of specifying settlement rate for deviations from schedules in normal operating range and ensuring 'grid discipli**n**e' on the one hand while ensuring maximisation of generation at optimal cost for grid participants on the other. Further, UI pricing mechanism should discourage grid participants from using UI mechanism as trading instrument.*

18. Therefore, the genesis of specifying UI charges based on maximum cost of grid connected generation i.e. energy charges based on liquid fuel is to ensure that every bit of available power should be supporting the grid, even the costliest one, under low grid frequency condition which indicates a deficit condition. **It needs to be appreciated that the beneficiaries are under no compulsion to overdraw from the grid. If they adhere to their respective schedules, then there shall be no UI liability accruing to them whatever may be the grid condition.**

19. Earlier, in 2007, when there was no market platform for trading in real time, the UI mechanism did offer a real time balancing market of power, where States could buy and sell power at rates determined by the system conditions, i.e. buy or sell power at high rates in deficit conditions and at low rates in surplus conditions. However, it was observed that some States took this as a license to overdraw power from the grid at the expense of the other States, thus jeopardising security of the integrated grid through load generation imbalance and overloading of transmission corridor. It was also found that the over drawing States were not making UI payments in time. The Commission has therefore, taken a view that UI should not be treated as a real time balancing market by putting limits on over drawal and under injection below grid frequency of 49.5 Hz and provided for payment of additional UI charges for over drawls and under injections below grid frequency of 49.2 Hz, which were 40% higher than the UI rate at 49.2 Hz.

20. In the meantime, two power exchanges had also started operating by then with the approval of the Commission for the day-ahead market, which offered separate and transparent platforms for buying and selling of power in the real time. Subsequently, the day ahead contingency market and the intra-day market has also been allowed by the Commission to be operated

by the Power Exchanges. Overloading of certain transmission corridors have now become a real problem.

21. In the view of the Commission, priority of Grid security is the highest in the operation of the grid, and therefore, the generators / sellers and the beneficiaries/ the buyers should use other avenues like bilateral trading or the trading platforms of power exchanges by availing open access for meeting short term, medium term or long term arrangements or agreements. UI mechanism should not be used as a real time market any more.

22. It may further be appreciated that the generator or the Sellers and the Beneficiaries or the buyers are legally entitled to or liable for their net injections or drawls corresponding to their schedules conforming to allocation/shares in terms of the agreements or the contracts from specific source or destination. Any deviation from schedule can either be met from any source which was not fully dispatched such as liquid fuel generating stations which are lower on merit order or by under drawls by beneficiaries or the buyers. Therefore, such deviations has to be settled outside the contractual arrangement between specific Generators or Sellers and Beneficiaries or the buyers as the same can be met by generally a different source i.e. different generating station or the under drawing State Utility and the obligations or the liabilities have to be settled under different arrangement.

23. In view of the deliberations in above paragraphs, we are of the view that UI mechanism as provided earlier and in its amended form as discussed in subsequent paragraphs is neither against the provisions of the Act nor

against the Hon'ble Supreme Court judgment in the case of Central Power Distribution Co. supra and the Commission's order dated 04.01.2000**.**

B. Reduction in operating range of grid frequency to 50.2 to 49.5 Hz

24. Before dealing with specific principles and methodology to arrive at the UI Charges at different grid frequencies, it would be more appropriate to deal with the issue of Reduction in operating range of grid frequency to 50.2 to 49.5 Hz in the light of submission of various stakeholders.

25. Mr Padamjeet Singh has submitted that reduction in upper limit from 50.3 Hz to 50.2 Hz is justified but the increase in the lower operational limit from 49.2 Hz to 49.5 Hz would have been justified had there been any threat or perceived danger to the grid security. This is not the case. Further the continuous and persisting shortages do not warrant the increase in lower limit from 49.2 to 49.5.

26. Tata Power Trading Co. Ltd has welcomed the proposal for narrowing down of the operational grid frequency range from 49.2 - 50.3 Hz to 49.5 - 50.2 Hz.

27. MPPTCL has submitted that there is almost no or little effect of hiking UI charges on the improvement of the frequency regime. It can therefore be inferred that the power scenario in the country is not ready to cope up with the narrow frequency bands.

28. TNEB has submitted that the time is not ripe for the proposed reduction in operating grid frequency range and it should be considered only after addition of adequate generation capacity from the schemes being executed in Central, State and Private sector.

29. MPPTCL and UPPCL have also submitted that the reduction in operating grid frequency range would have very adverse impact on the finances of the State Discoms or may result in increase in retail tariffs for the consumers due to increase in the power procurement prices. There is delay in capacity addition envisaged under the XIth plan and they are forced to overdraw from the grid. UPPCL has submitted that the Centre had promised them supply of power through setting up new central generating capacity but most of the project has either delayed or are not taken up.

30. APTRANSCO has submitted that under power deficient condition serving more loads is more desirable by sacrificing quality standards.

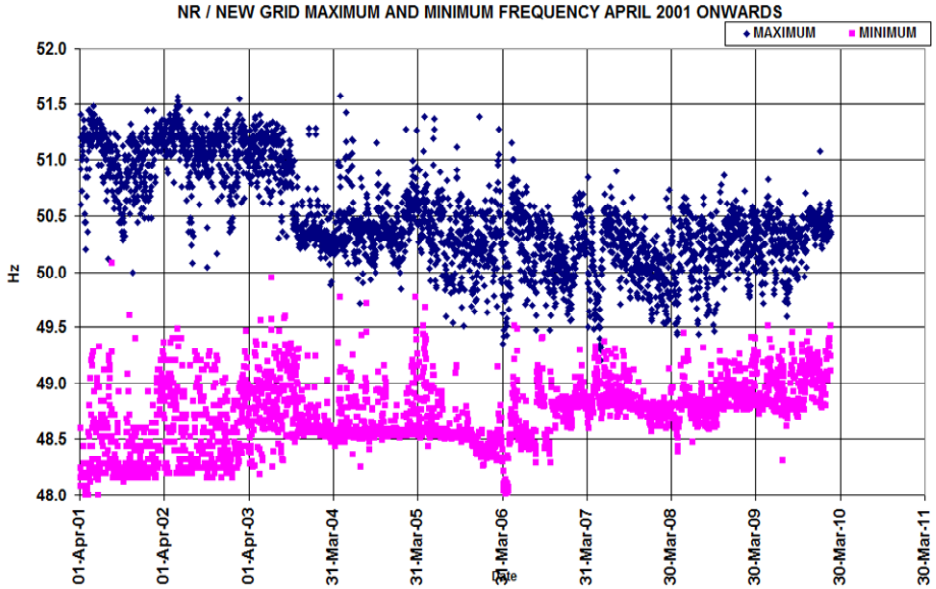
31. We appreciate the concern of the beneficiaries but are not inclined to be dragged into debate of insufficient allocation by Central Government and insufficient addition of generation capacity in the Central Sector. The issue of allocation, if any, can be taken up with the Government at appropriate level. Total dependence on the Central Government for capacity addition is not the correct approach. In our view, the States are duty bound to plan for the capacity additions considering the growth in demand in their States in the public interest. Most of the States have, however, not been able to match the capacity additions commensurate with increase in demand. In our view the States themselves have to seek solutions to their problems. As a regulator, we cannot sacrifice grid security by permitting over drawls by such deficit States at the cost of other States. This all the more calls for a robust commercial mechanism like the UI as proposed through the amendments. Maharashtra State Electricity Distribution Company Limited has filed a petition before the Commission submitting that the Under Frequency Relays (UFRs) in the State of Maharashtra are operating

frequently depriving its own customers of power while the other States in the Eastern Region continue to overdraw mindlessly.

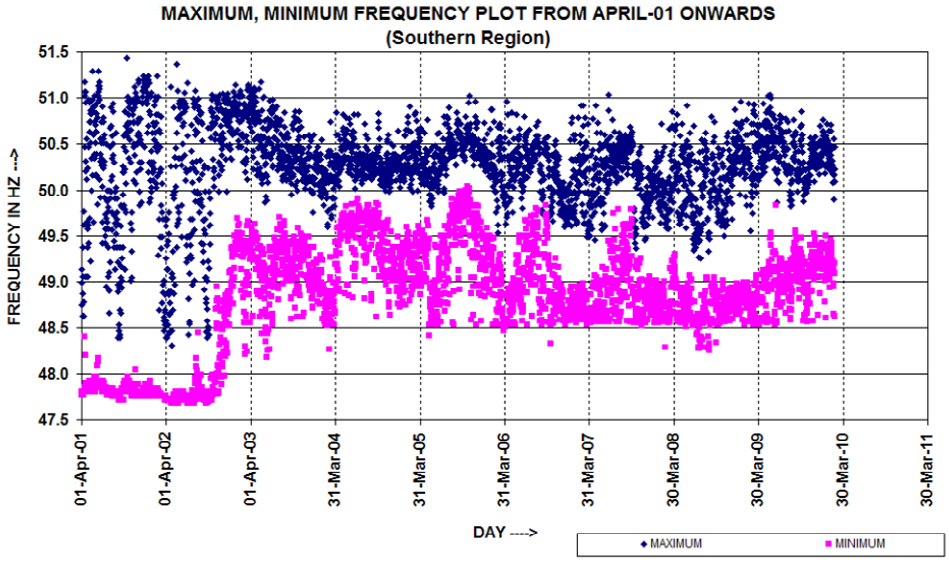
32. We are also not in agreement with the APTRANSCO for sacrificing the quality standards of supply. In our view, somewhere a beginning has to be made for bringing improvements in the standard of performance. The grid cannot be allowed to operate with continuous threat to it. The grid security could be better safeguarded with narrow operating grid frequency range. Maintaining a higher grid operating frequency would enable the generators especially the gas based generating stations to generate more. The life of the generating station as well as the equipments using power will also be enhanced. Therefore, this is likely to have a positive long-term effect.

33. **Further there is improvement in the grid frequency profile and this appears to be the most appropriate time to narrow down the operating grid frequency range. The improvement in grid frequency profile is as follows:**

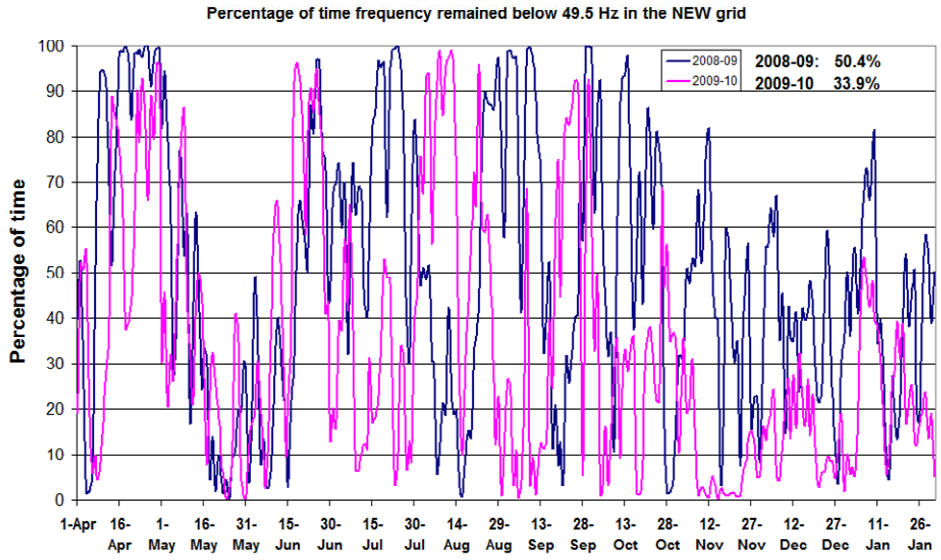
Max – Min Frequency: New Grid



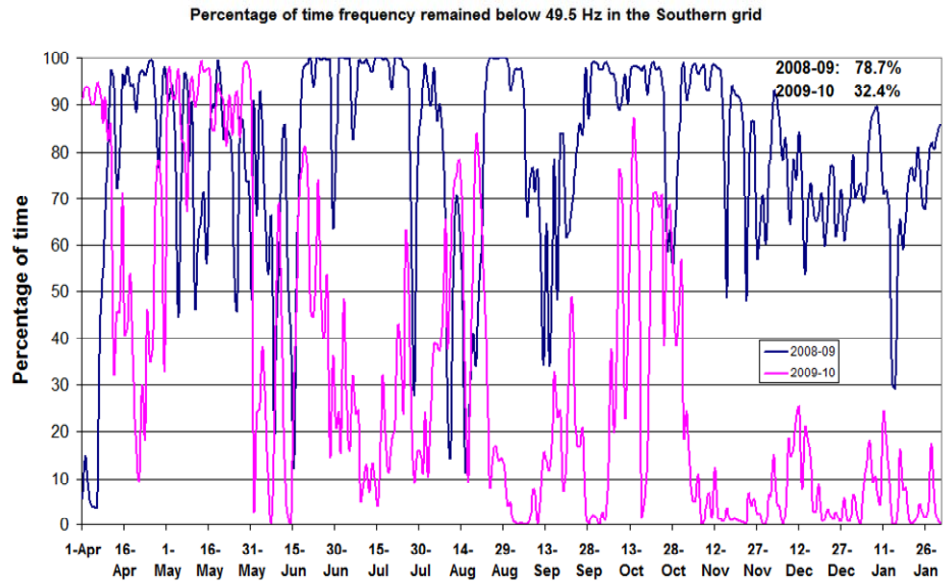
Max – Min Frequency: SR Grid



% of Time Freq < 49.5 Hz for NEW Grid



% of Time Freq < 49.5 Hz for SR Grid



34. **In view of above, we reiterate that our decision to narrow down the operating grid frequency range to 49.5 Hz to 50.2 Hz in the**

grid code is in order and thereby, effecting consequential changes in the UI regulations.

(c) Principles and Methodology to arrive at UI Charges and UI Cap rates

35. The Commission had proposed the following methodology for specifying Charge for Unscheduled Interchange:

(a) The Charge for Unscheduled Interchange shall be zero at grid frequency of 50.2 Hz and above.

(b) The Charge for Unscheduled Interchange in grid frequency interval of below 50.02 Hz and not below 50.0 Hz shall be based on the highest of the average energy charge of coal/lignite based generating stations except Badarpur TPS of NTPC for the six months period of Aug 2009 to January 2010 and suitably adjusted upward to decide on the UI price vector.

(c) The Charge for Unscheduled Interchange in grid frequency interval of below 49.70 Hz and not below 49.68Hz shall be such that it provides sufficient incentive to the generating station based on coal including imported coal to support the grid after meeting fixed and energy charge.

(d) The Charge for Unscheduled Interchange at grid frequency of "below 49.5 Hz" shall be initially based on the highest of the average energy charges of generating stations for the six months period of Aug 2009 to January 2010 and suitably adjusted upward to decide on the UI price vector as provided here under,

(e) The UI Price Vector shall continue to be in steps for a frequency interval of 0.02 Hz.

36. Accordingly, UI price vector was set in the following manner:

a. The Charge for Unscheduled Interchange at grid frequency 50.2 Hz and above was set at zero.
b. The Charge for Unscheduled Interchange in grid frequency interval of below 50.02 Hz and not below 50.0 Hz is set at 215 Paise/kWh.
c. The Charge for Unscheduled Interchange in grid frequency interval of below 49.70 Hz and not below 49.68Hz is set at 415 Paise/kWh
d. The Charge for Unscheduled Interchange at grid frequency of below 49.5 Hz is set at 870 Paise/kWh.

37. No one has objected to the UI Charge as Zero at grid frequency of 50.2 Hz and above to discourage generators to over inject into the grid, or the beneficiaries or buyer to under draw from the grid.

38. The Charge for Unscheduled Interchange in grid frequency interval of below 50.02 Hz and not below 50.0 Hz was set at 215 Paise/kWh based on the highest average energy charge of 212 Paise/kWh of the coal based station of NCTP, Dadri excluding Badarpur TPS.

39. UPPCL has submitted that UI rate of 215 Paisa/kWh at 50 Hz is unreasonable and cannot be hiked through UI mechanism as against the tariff determined by the Commission under tariff regulations. The recovery cannot be made by prescribing two tariffs under the Act.

40. Shri Padamjeet Singh has submitted that the proposed methodology is not in order and UI rate at 50.0 Hz should be the lowest variable (energy) charge rate of pit head station and to ensure that load centre stations start backing down before the threshold level of 50.0 Hz. As such, UI rate should be Rs. 1/kWh.

41. The UI charges at 50 Hz should be lower than Rs. 2/kWh so that thermal generating stations could back down at near grid frequency of 50 Hz.

42. The Commission's jurisdiction to fix UI Charges stands upheld by the Supreme Court. As discussed earlier, the beneficiaries and the buyers are under no compulsion to over-draw. Further, it is not possible to tag the power drawn by the beneficiaries and the buyers to a specific source or any particular generating station. The objective of UI as a commercial mechanism is to ensure grid discipline and UI price structure at different frequencies have to be designed in such a way that it discourages over generation and underdrawls at high frequency and encourages generation but discourages over drawls at low frequencies. Therefore, in this back drop UPPCL argument does not hold much water.

43. Shri Padamjeet Singh has submitted that the UI charge at 50 Hz should be linked to lowest energy charge of pit head stations and load centre stations should start backing down before 50 Hz. However, in our opinion linking UI charge at 50 Hz frequency to lowest energy charge of pit head stations would lead to backing down even pit head stations before 50 Hz frequency is reached and would not be desirable. However, all the load centre stations are likely to generate at grid frequency above 50.0 Hz, when UI charge at grid frequency is linked to highest energy charges of load centre coal based stations leading to undesirable burning of fuel. But this

would also not be desirable that all load centre stations should back down at 50 Hz grid frequency. As a tradeoff we are of the view that the UI charges at 50 Hz grid frequency should be the median value for all the coal/lignite based thermal generating stations of NTPC and NLC.

44. The Charge for Unscheduled Interchange in grid frequency interval of below 49.70 Hz and not below 49.68Hz were proposed with a view that it provides sufficient incentive to the generating station based on coal including imported coal, to support the grid after meeting fixed and energy charge.

45. The UPPCL has submitted that the UI rate of 415 Paisa/kWh at 49.7 Hz is unreasonable and as 49.7 Hz frequency is the normaloperating frequency of the grid and treating it as dangerous is not justified.

46. It needs to be appreciated that there are different types and cost of generating stations operating in the grid and the UI charge is a single indicator for all these types of stations to give an incentive or dis-incentive to the generating station as well as beneficiaries. The UI price vector is being designed in such a fashion that it represents cost of power from different sources on the merit order. The idea is that all the coal/lignite based generation including generation on imported coal should be available to the beneficiaries and buyers around the grid frequency of 49.7 Hz. No other entity/stakeholder has commented regarding UI charges at 49.7 Hz specifically. We therefore would like to retain the methodology of specifying UI charges at 49.7 Hz.

47. The Charge for Unscheduled Interchange at grid frequency of below 49.5 Hz was proposed to be based on the highest of the average energy charges of generating stations for the six months period of Aug 2009 to January 2010. Accordingly, the Charge for Unscheduled Interchange at grid frequency of below 49.5 Hz was set at 870 Paise/kWh.

48. UPPCL has submitted that UI rate of 870 Paisa/kWh at 49.5 Hz is unreasonable.

49. Shri Padamjeet Singh has submitted that with the move towards better frequency range, the UI corresponding to 49.5 Hz should be reduced with respect to the existing UI charge at 49.5 Hz. As such, the UI rate at 49.5 Hz should be Rs. 4.80/kWh.

50. The MPPTCL has submitted that the Auraiya should have been excluded as in case of Badarpur TPS and the simple average of all others five generating stations of these categories should have been considered to arrive at the UI charges at 49.5 Hz and below.

51. PGCIL (System Operator) has submitted that Costliest liquid fired generation should be scheduled before the limit of 49.50 Hz.

52. We have gone through the comments of the stakeholders with regard to specifying the UI charges below 49.5 Hz. We appreciate the suggestion of the System Operators but the Commission's endeavor is that the liquid fuel generation should support the grid below the threshold level of grid frequency of 49.5 Hz, and is thrust upon the beneficiaries/buyers only as a last resort. Since the threshold operating grid frequency has been raised to 49.5 Hz from 49.2 Hz, the UI charge should be linked to the highest average energy charge of liquid fuel based generation. It is desirable that all the liquid fuel based generation should be available to support the grid at the threshold lower level of grid frequency; we are of the view that Auraiya GPS should not be eliminated as an exception for specifying UI charge below 49.5 Hz grid frequency.

53. It was also proposed that the Charge for Unscheduled Interchange at grid frequency of 'below 49.5 Hz', at grid frequency interval of 'below 50.02

Hz and not below 50.0 Hz' and at grid frequency interval of 'below 49.70 Hz and not below 49.68Hz' shall be re-notified every six months based on the relevant escalation indices notified by the Commission under the Competitive bidding guidelines of Government of India.

54. The NTPC has submitted that the UI vector should be re-notified based on the actual data of various generating stations for the previous six month period in accordance with the methodology already specified in these regulations.

55. It is true that there may be minor variations due to use of escalation indices from that of actual which are based on averages for the six month period. Nevertheless, we would prefer to make use of escalation indices for specifying different UI charges at above referred grid frequencies.

56. The NLC has submitted that the lignite transfer prices in respect of lignite fired generating stations of NLC is determined year wise and the energy charges for its lignite fired generating stations based on lignite transfer prices for the year 2009-10 are as follows:

Power station	TPS-I	TPS-II	TPS-I (Expansion)
Energy Charge (Paise/kWh)	181.7	173.1	156.1

57. Accordingly, the energy charges of the coal-fired and lignite fired thermal generating stations of NTPC and NLC for the six-month period from August 2009 to January 2010 are as follows:

Sl. No.	Name of the Generating Station	Energy Charges in Paise/ kWh						
	Years	Aug.,09	Sept.,09	Oct.,09	Nov.,09	Dec.,09	Jan., 2010	Average Energy Charges

A.	Coal Based thermal generating Stations of NTPC							
a.	Pit head Generating Stations							
1	Rihand STPS St-I	104	100	111	109	122	117	111
2	Rihand STPS St-II	105	105	114	113	123	120	113
3	Singrauli STPS	98	109	109	106	115	118	109
4	Vindhyachal STPS St-I	105	107	110	117		129	95
5	Vindhyachal STPS St-II	102	103	107	113	122	124	112
6	Vindhyachal STPS St-III	102	103	107	113	122	124	112
7	Korba STPS	60	67	67	66	70	82	69
8	Ramagundam STPS St-I & II	123	122	139	143	145	160	139
9	Ramagundam STPS St-III	121	125	128	136	137	147	133
10	Talcher TPS	93	99	78	77	79	92	86
11	Talcher STPS St-I	85	80	81	85	93	112	89
12	Talcher STPS St-II	85	80	81	85	93	112	89
13	Sipat STPs-II	76	83	78	84	87	95	84
b.	Non-Pit head Generating Stations							
13	FGUTPP TPS St-I	154	155	151	162	175	179	163
14	FGUTPP St-II	156	156	150	161	174	176	162
15	FGUTPP St-III	155	156	150	161	175	176	162
16	NCTP Dadri	209	183	193	217	234	234	212
17	Farrakka STPS	203	175	174	190	217	231	198
18	Tanda TPS	258	170	181	193	190	241	206
19	Badarpur TPS	275	250	252	242	249	265	255
20	Kahalgaon STPS	189	149	144	177	186	182	171
21	Kahalgaon STPS-II [2]	183	144	139	170	179	188	167
22	Simhadri	148	158	142	150	143	163	151
2.	Lignite Based thermal generating Stations of NLC							
23	TPS-I	181.7	181.7	181.7	181.7	181.7	181.7	181.7
24	TPS-II (Stage-I)	173.1	173.1	173.1	173.1	173.1	173.1	173.1
25	TPS-II (Stage-II)	173.1	173.1	173.1	173.1	173.1	173.1	173.1
26	TPS-I (Expansion)	156.1	156.1	156.1	156.1	156.1	156.1	156.1
	Median Value							151

58. The energy charges of the Gas/liquid fuel based thermal generating stations of NTPC and NEEPCO for the six-month period from August 2009 to January 2010 are as follows:

Sl. No.	Name of the Generating Station	Energy Charges in Paise/ kWh						
	Years	Aug.,09	Sept.,09	Oct.,09	Nov.,09	Dec.,09	Jan., 2010	Average Energy Charges
A.	Gas /Liquid Fuel Based Stations of NTPC							
a.	Using Natural Gas as Fuel							
1	Dadri CCGT	123	123	123	123	123	123	123
2	Faridabad	97	97	97	97	97	97	97
3	Anta CCGT	101	101	101	165	187	186	140
4	Auraiya GPS	125	125	138	125	138	125	129
5	Gandhar GPS	122	123	122	123	126	128	124
6	Kawas GPS	109	109	109	109	109	109	109
b.	Using LNG as Fuel							
1	Dadri CCGT	387	399	399	399	374	374	389
2	Anta CCGT	313	322	253	258	282	273	283
3	Gandhar GPS	336	317	306	330	371	318	330
4	Auraiya GPS	365	365	365	365	365	365	365
5	Kawas GPS	333	328	317	319	379	334	335
6	Faridabad	307	307	307	307	307	307	307
c.	Using Liquid Fuel (Naphtha/HSD) as Fuel							
1	Dadri CCGT	720	724	723	723	716	719	721
2	Faridabad	691	704	701	722	736	770	721
3	Anta CCGT	756	761	778	793	794	794	779
4	Auraiya GPS	870	884	839	814	871	935	869
5	Kayamkulam CCGT	575	674	640	676	712	738	669
B.	Gas based Stations of NEEPCO							
1	Agartala GPS							180
2.	Assam GPS							211

59. With regard to the cost of imported coal, the Commission has observed in its explanatory memorandum dated 1.4.2010 as follows-

' The landed cost of imported coal for the kahalgaon, Farrakka and Talcher stations is in the range of Rs 6200/ton to Rs. 6800/ton having a GCV of the order of 6200 kCal/kg. The energy charge on imported coal thus works out to be of the order of Rs. 2.63 to 3.00/kWh and including fixed charges of the order of Rs. 1.00/kWh to 1.2/kWh for a new station the total cost on imported coal shall be of the order of Rs. 4.00/kWh. '

60. Accordingly, UI price vector has been set in the following manner:

i. The Charge for Unscheduled Interchange in grid frequency interval of below 50.02 Hz and not below 50.0 Hz is set at 155 Paise/kWh.

ii. The Charge for Unscheduled Interchange in grid frequency interval of below 49.70 Hz and not below 49.68Hz is set at 403 Paise/kWh

iii. The Charge for Unscheduled Interchange at grid frequency of below 49.5 Hz is set at 873 Paise/kWh.

61. Accordingly, the UI charges shall be as follows in terms of Regulation 5 and incorporated in Schedule "A":

"In terms of clause (1) of Regulation 5, the charges for Unscheduled Interchanges for all the time-blocks payable for over-drawal by the buyer or the beneficiary and under-injection by the generating station or the seller and receivable for under-drawal by the buyer or the beneficiary and over-injection by the generating station or the seller shall be worked out on the average frequency of the time-block at the rates given hereunder:-

Average frequency of time block (Hz)		***UI Rate***
Below	***Not below***	***(Paise per kWh)***

	50.20	0.00
50.20	50.18	15.50
50.18	50.16	31.00
50.16	50.14	46.50
50.14	50.12	62.00
50.12	50.10	77.50
50.10	50.08	93.00
50.08	50.06	108.50
50.06	50.04	124.00
50.04	50.02	139.50
50.02	50.00	155.00
50.00	49.98	170.50
49.98	49.96	186.00
49.96	49.94	201.50
49.94	49.92	217.00
49.92	49.90	232.50
49.90	49.88	248.00
49.88	49.86	263.50
49.86	49.84	279.00
49.84	49.82	294.50
49.82	49.80	310.00
49.80	49.78	325.50
49.78	49.76	341.00
49.76	49.74	356.50

49.74	**49.72**	**372.00**
49.72	**49.70**	**387.50**
49.70	**49.68**	**403.00**
49.68	**49.66**	**450.00**
49.66	**49.64**	**497.00**
49.64	**49.62**	**544.00**
49.62	**49.60**	**591.00**
49.60	**49.58**	**638.00**
49.58	**49.56**	**685.00**
49.56	**49.54**	**732.00**
49.54	**49.52**	**779.00**
49.52	**49.50**	**826.00**
49.50		**873.00**

(Each 0.02 Hz step is equivalent to 15.5 paise/kWh in the 50.2-49.68 Hz frequency range and 47.0 Paise/kWh in the 49.68-49.50 Hz frequency range).

62. Apart from the cap rate applicable to the generating stations regulated by CERC using coal/lignite and APM gas, Commission also proposed four more cap rates under different conditions and for different purposes as discussed in following paragraphs;

63. Cap rate for the Charges for the Unscheduled Interchange for the over injection by a generating station other than the hydro generating station in excess of 105% of the Declared Capacity of the station in a time block or in excess of 101% of the average Declared Capacity over a day to be equal to the charges for the Unscheduled Interchange corresponding to grid

frequency interval of 'below 50.02 Hz and not below 50.0 Hz' which were worked out as 215 paise/kWh.

64. UPPCL has submitted that the provision of incentive for extra generation allowed to the generators is arbitrary and discriminatory. The generators are being benefitted by the removal of the provision of gaming. RRVPNL has submitted that the provision would encourage generators to declare less availability and hence should be deleted. MPPTCL has submitted that Implementation difficulties should be elaborated.

65. The Commission had proposed the above provision with a view to take care of implementation difficulties by doing away with gaming provision in the Regulation 6 (3) and (4) and providing for an economic disincentive for over injection by a generating stations other than the hydro generating stations in excess of 105% of the Declared Capacity of the station in a time block, or in excess of 101% of the average Declared Capacity over a day. Further, it needs to be appreciated that a station may generate more due to variation in fuel quality in real time specially in case of coal and lignite based stations and under favorable ambient conditions. The generators may also have a tendency to declare less than the actual generation capability, which may not be with the intention of earning more UI but with the intention of avoiding paying UI charges. If the generator could anticipate the fuel quality and ambient conditions correctly and declare accordingly. Perhaps the same could get fully scheduled under deficit conditions and generator would then be getting the energy charges. In due consideration of the same, it may be desirable to induce the generator to declare faithfully at the same time not to discourage him from supporting the grid under deficit condition. Therefore, the cap rate has been linked to the UI charges at grid frequency of "not below 50.0 Hz but not below 50.02 Hz", which is nothing

but the median value of energy charges of coal/lignite based generating stations of NTPC and NLC.

66. The CEA has submitted that the words 'over injection' may be corrected to read as 'injection.' Following proviso is required" provided that for excess generation at frequency above 50.02 Hz the applicable UI rates shall apply. This is in the nature of an editorial correction.

67. Shri Padamjeet Singh has submitted that though the proposed amendments are not agreed to. However, a proviso is required to be added providing that for excess generation at frequency above 50.02 Hz, the applicable UI rates shall apply.

68. There is merit in the argument and it is therefore, being provided that UI charges shall not exceed the cap rate which is equal to the charges for the Unscheduled Interchange corresponding to grid frequency interval of 'below 50.02 Hz and not below 50.0 Hz' worked out as 155 paise/kWh for the injection by a generating station other than the hydro generating station in excess of 105% of the Declared Capacity of the station in a time block or in excess of 101% of the average Declared Capacity over a day.

69. Further, Shri Padamjeet Singh has submitted that the gaming is going unchecked in the case of several gas based stations. Instead of checking gaming, Commission proposes to eliminate the provision relating to gaming and has proposed a rate for UI charge through which the generator may recover its fuel charges only and no significant incentive for generation above 105% or 101% of the DC. TPTCL is in agreement with the amendment providing for omitting gaming provision for the thermal generating stations. NHPC has submitted that the gaming clause 5 also needs to be reviewed and omitted for hydro generating stations. RRVNL has submitted that the gaming provision may not be omitted.

70. We have considered the views expressed by the different stakeholders. We are unable to agree that the gaming is going unchecked in the case of several gas based Stations. In this connection we would like to draw attention to the Commission's Order in the Petition No. 148/2005 dated 6.2.2007. The various aspects of scheduling and dispatch have been discussed and resolved. The question of arranging low priced gas or RLNG in terms of National Electricity Policy is not relevant to the design of UI price structure at this stage. However, on the re-consideration we are of the view that it would be desirable to have a general but a specific provision providing for intervention of the Commission on reporting by any of the respective RLDC or any other person. Accordingly, a new provision is being added in the Regulation 6 as follows:

> "The Commission may, either suo motu or on a petition filed by RLDC, initiate proceedings against any generating company or seller on charges of gaming and if required, may order an inquiry as decided by the Commission. When the charge of gaming is established in the above inquiry, the Commission may, without prejudice to any other action under the Act or regulations thereunder, disallow any UI charges received by such generating company or the seller during the period of such gaming."

71. Apart from above, The Regulation 6(5) applicable to Hydro generating stations is being amended by deleting certain words and sentences regarding gaming to bring it in line with thermal generating stations. The Regulation 6(5) shall now read as follows:

> "(5) In response to changes in grid frequency and inflow fluctuations, the hydro generating stations shall be free to deviate from the given

schedule, without causing grid constraint, and compensation for the difference between the actual net energy supplied and the scheduled energy (ex-bus) over a day shall be made by the concerned Regional Load Despatch Centre in the day-ahead schedule for the 4th day (day plus 3)."

72. Cap rate for the charges for the Unscheduled Interchange for the under drawls by the buyer or the beneficiaries in a time block in excess of 20% of the schedule or 250 MW whichever is less was proposed to be equal to the charges for the Unscheduled Interchange corresponding to grid frequency interval of 'below 49.70 Hz and not below 49.68 Hz' which was worked out as 415 Paise/kWh.

73. Similarly, Cap rate for the charges for the Unscheduled Interchange for the over injection by the seller in excess of 120% of the schedule subject to a limit of ex-bus generation corresponding to 105% of the Installed Capacity of the station in a time block or 101% of the Installed Capacity over a day was proposed to be equal to the charges for the Unscheduled Interchange corresponding to grid frequency interval of 'below 49.70 Hz and not below 49.68 Hz' which were worked out to 415 paise/kWh.

74. Tripura SECL has submitted that the limit of 250 MW may be reviewed for the NER region as the maximum demand of NER States other than Assam and Meghalaya is below 250 MW. TNEB has submitted that Southern Region is having a good thermal hydro mix and should be allowed to optimize its operations based on regional requirements and hence ceiling on under drawls is not reasonable. Shri Padamjeet Singh has submitted that the limit of 20% is required to be reduced to 5%. MPPTCL has submitted that the Capping on under drawls at low frequency will tantamount to double penalty to those utilities extending help in increasing the system frequency.

The fluctuations in the range of 500 to 1000 MW are common for utilities like MP as compared to the proposed 250 MW. RRVPNL has submitted that the under drawls normally occurs because of load crash due to unpredicted weather conditions which is beyond the control of beneficiaries. Therefore, the provision may be deleted.

75. SRPC has submitted that the Installed Capacity of the Seller should not be considered for finalizing the limit of injection by them. Instead the limits of injection by the sellers need to be decided with respect to the quantum of connectivity granted/open access granted. Shri Padamjeet Singh has submitted that the limit of 20% is required to be reduced to 5%. NTPC has submitted that the reference to 'Installed Capacity of the station' may be substituted with 'ex-bus declared capacity of the station on bar'. The RRVPNL has submitted that the words 'or exportable capacity in case of CPP' may be added after the words 'Installed Capacity' at both the place.

76. CEA has submitted that the words 'over injection' may be corrected to read as 'injection'. CEA has further submitted that for a 1000 MW generating station the schedule is nil and actual injection is 1000 MW, it will be paid at the capped UI rate of 415 P/kWh for energy corresponding to 1000 MW. From this it is obvious that the Commission intends to allow a generating station having connectivity/LTA/STA (before or after its COD) to inject as much UI power into the grid as it wants, at any time, without any permission or approval and get paid at the cap rate of 415 P/kWh and without having to pay any penalty for under injection (since the schedule is nil). This is a very attractive proposition for generating stations (coal, hydro, lignite and Indian gas) to use grid as commercial mechanism for sale of power. With this formulation the stated objective at para 5 of Explanatory Memorandum of discouraging the sellers to use UI mechanism for sale of power may not be achieved. If more IPP stations start pumping their entire power into the grid like the one already doing in WR, the IPPs will virtually start controlling the

grid frequency, influencing short term market prices and may create problem of unpredictable power flow in the grid. It was brought out in CERC Staff Paper of July, 2006 (Chapter VI, Clause 6.3 Page 80) that it is important to ensure that capacity availability is not manipulated or withheld deliberately in a market scenario as was done during the California crisis. In view of the above, it is suggested that No generating station should be allowed to go on injecting "infirm" power beyond a reasonable period in the name of testing and commissioning. All commissioned (i.e. Declared Commercial) units must declare their actual availability (DC) every day as per IEGC to the RLDCs even if they do not have any long term PPA or short term contract. Such generating stations must bid in to the Day-ahead PX for un-requisitioned capacity. If they fail to get full dispatch even on the PX, their un-requisitioned DC would be treated by RLDC as "Schedule for supply to the UI energy pool" and the generator would be liable to pay UI charges for under-injection (below the schedule for supply to the UI energy pool).

77. The above new provisions were proposed by the Commission observing as follows:

> "UPPCL has also sought to impose UI cap on under drawls. NLDC has sought to put limit on UI volumes on under drawls and over-injections. Putting hard limits on volumes on under drawls or over injections may not be desirable in power deficit conditions. However, Commission is of the view that a cap rate may be imposed for the under drawls by the buyer or the beneficiaries in a time block in excess of 20% of the schedule or 250 MW whichever is less and for the over injection by the seller in excess of 120% of the schedule subject to limit of ex-bus generation corresponding to 105% of the Installed Capacity of the station in a time block or 101% of the Installed Capacity over a day. This is with a view to discourage the buyer and the beneficiaries to under draw heavily though the UI

mechanism instead of opting for scheduled route through bilateral arrangements and through PXs. Similarly, the seller including captive and merchant generators should also be discouraged to avail the UI mechanism for selling power as unscheduled energy rather than selling the power as scheduled power through bilateral arrangement or though the platform of PXs. It has been observed that one station in western region is pumping power as UI for months together. Such situation is also likely to arise in new capacity addition in Private Sector where entire power of the station may not be tied up in long term and the generator may have to sell the balance power in the medium term or the short term or at PX or as UI."

78. We still hold on to our view stated above. It needs to be appreciated that earlier there was no limit on under drawls or over injections. Commission is clear in its mind that UI mechanism is meant for unintended deviations and not for intentional deviations involving under drawls and over injections. However, under deficit condition as prevailing in the country, Commission has preferred to reduce financial incentive in order to induce the Beneficiaries or Buyers and Generator or Sellers to go for sale of power through the scheduled route. The Commission has also provided in the regulation on grid connectivity that mere connectivity with the grid shall not entitle a generator to inject into the grid without seeking open access except during testing and commissioning of the Station prior to COD. However, such injection would be in consultation with respective RLDCs. It is the duty of RLDCs that any decision of RLDC is in this regard is in line with the intended objective of the regulations and is in public interest. In any case, the intent of UI regulation is not to frustrate the generation under deficit conditions especially when it is helping the grid. Moreover, such injection

without open access has no right of transmission system and therefore, it is in the interest of the generator to seek open access.

79. The surplus States such as Chhattisgarh, Delhi, Himachal Pradesh, Gujarat, Orissa, West Bengal, and DVC etc. under draw heavily and thus making use of UI mechanism for the sale of surplus capacity instead of using scheduled route of bilateral exchanges or the platform of PXs. They prefer to do this as they are saved from the hassles of seeking open access and entering into a bilateral arrangement that too without paying any transmission charges at present. The deficit States on the other hand, under draw only during some part of the day and over draw heavily during peak as well as off peak hours. This would be clear from the data of a typical day on 6.1.2010 for the Northern Region reproduced below:

NET DEVIATIONS FROM SCHEDULE BY BENEFIACIARIES IN NORTHERN REGION FOR 06-01-10

Time Block	Frequency Code	Punjab		Haryana		Rajasthan	
		UI %	MW Deviation	UI %	MW Deviation	UI %	MW Deviation
1	50	45.82	218.39	60.95	389.56	42.08	763.32
2	37	31.37	149.52	58.96	376.87	39.06	708.54
3	37	30.32	143.22	57.90	368.88	36.88	668.61
4	42	30.75	145.26	54.23	345.48	34.81	630.92
5	41	31.38	148.26	48.05	306.13	32.43	587.94
6	43	29.14	137.66	46.45	295.92	30.14	546.40
7	47	30.79	145.45	45.57	290.31	29.72	538.66
8	49	33.27	157.17	39.87	254.02	27.77	503.39
9	45	44.78	204.22	38.92	243.62	28.70	515.53
10	45	54.26	247.42	38.24	239.32	29.03	521.53
11	43	56.30	256.74	33.81	211.59	27.67	496.97
12	45	58.90	268.58	37.10	232.24	27.15	487.66
13	52	57.81	263.61	34.01	212.89	29.74	534.18
14	46	56.94	259.66	34.72	217.34	30.54	548.57
15	45	63.83	291.09	37.46	234.43	29.04	521.67
16	44	68.79	313.68	43.09	269.70	28.68	515.16
17	45	75.66	345.00	54.86	343.37	25.23	452.88
18	45	67.27	349.38	62.29	418.02	26.19	478.62
19	39	75.72	394.37	84.27	566.07	25.33	463.06
20	28	51.34	331.69	79.49	603.31	20.92	392.19
21	40	5.76	58.02	75.13	601.86	20.10	357.23

22	32	-0.60	-7.07	63.33	580.11	23.08	433.98
23	24	2.74	33.54	74.48	704.76	25.20	498.39
24	16	12.02	152.18	77.37	752.54	29.72	599.84
25	33	14.12	194.84	78.48	806.90	2.89	80.82
26	28	16.31	237.84	78.65	853.05	5.53	157.97
27	17	16.65	253.44	73.64	833.38	7.28	211.71
28	15	27.19	408.88	72.45	815.91	6.80	198.46
29	16	30.36	450.90	88.02	791.74	6.00	169.73
30	14	29.97	422.03	83.28	708.73	6.57	183.49
31	15	-0.41	-5.51	78.16	636.87	12.81	354.13
32	13	9.26	118.32	62.48	474.32	13.18	357.09
33	19	22.47	268.04	65.40	459.63	17.45	440.31
34	9	28.77	319.53	70.49	449.80	17.63	430.84
35	18	-6.67	-73.23	48.72	307.40	20.05	489.57
36	14	-12.48	-136.12	61.73	387.84	18.73	456.56
37	17	-8.30	-87.22	66.44	417.50	18.99	453.32
38	6	-3.67	-38.61	42.59	267.62	14.62	348.98
39	27	-17.53	-184.23	52.89	332.38	12.49	298.19
40	23	-3.62	-38.55	46.33	322.25	16.52	398.05
41	34	1.39	14.64	62.02	480.87	15.16	368.60
42	21	-1.09	-11.87	37.17	293.80	21.02	515.51
43	23	-5.15	-56.77	13.68	110.89	16.32	400.20
44	25	-7.74	-85.96	24.36	200.34	14.18	349.76
45	22	13.19	147.81	22.75	186.95	16.25	414.11
46	9	5.96	64.28	21.01	166.26	21.15	536.63
47	28	-15.33	-165.76	20.57	163.10	16.06	407.94
48	29	-0.40	-4.30	22.51	178.48	9.28	235.59
49	25	26.91	285.63	33.14	276.71	0.60	16.13
50	17	17.12	175.78	42.82	345.96	3.63	97.07
51	19	4.72	46.96	44.79	351.41	3.92	103.43
52	21	14.06	129.69	30.96	225.45	10.38	268.37
53	30	-4.11	-35.76	31.24	211.92	7.95	210.54
54	25	-10.22	-94.32	39.59	282.44	2.99	79.66
55	25	3.15	28.89	48.40	344.04	3.40	90.62
56	18	-0.55	-4.91	34.29	239.95	8.35	221.18
57	21	-15.85	-140.85	42.73	294.61	16.65	426.37
58	17	-9.48	-84.20	49.78	343.20	14.98	383.62
59	11	-13.56	-120.02	44.51	305.16	12.53	320.24
60	11	-9.95	-88.04	24.69	169.29	6.85	175.14
61	11	-16.74	-148.13	8.82	60.49	1.26	32.09
62	7	2.62	23.37	-3.49	-24.37	-0.64	-16.50
63	6	-6.13	-55.40	20.14	143.55	-0.61	-15.75
64	10	-12.82	-122.04	-2.94	-21.86	1.04	27.37
65	30	10.16	92.99	-8.38	-54.31	5.71	146.52
66	11	15.63	143.28	34.10	221.24	3.85	98.84
67	19	14.91	137.40	34.64	225.74	3.20	82.23
68	20	14.79	136.30	35.64	232.23	5.81	149.30
69	23	20.95	246.72	12.30	90.38	-0.09	-2.46
70	10	21.27	267.85	18.43	145.65	-0.12	-3.43

71	36	1.64	23.39	19.23	174.57	-0.48	-13.79
72	29	-1.51	-23.35	31.39	312.47	-3.66	-108.46
73	35	21.23	328.60	70.70	807.21	13.87	338.49
74	22	4.76	77.17	72.41	859.55	16.42	407.59
75	24	-15.55	-264.50	57.80	717.16	13.37	340.38
76	22	-0.74	-12.45	59.23	731.26	12.09	306.57
77	11	9.11	147.06	54.84	676.78	21.03	465.63
78	7	9.90	150.60	52.02	608.58	13.88	296.31
79	13	7.75	110.70	28.47	311.63	1.23	25.04
80	16	6.62	85.91	29.79	301.44	-0.77	-15.24
81	8	9.27	108.57	37.50	346.35	9.46	157.58
82	16	21.50	232.83	38.84	336.20	9.77	155.75
83	22	16.24	166.50	23.60	194.20	10.27	160.68
84	20	14.52	140.21	13.05	101.88	8.56	129.94
85	21	51.27	401.92	0.26	1.74	18.54	258.69
86	22	56.27	441.24	13.95	95.13	14.35	200.26
87	29	63.40	461.24	8.44	54.32	13.08	179.35
88	49	25.78	187.56	17.03	109.65	15.68	215.00
89	13	136.71	508.57	41.41	254.24	-11.53	-233.90
90	18	109.10	397.11	19.23	117.21	8.11	164.06
91	12	119.50	425.30	18.39	111.23	17.95	362.00
92	26	73.58	256.28	26.83	161.14	23.39	470.53
93	35	24.91	95.95	33.83	201.31	37.08	663.10
94	30	48.77	187.91	54.07	321.77	46.57	832.91
95	39	78.13	301.02	59.34	353.13	53.76	961.52
96	50	83.27	320.84	55.46	330.02	53.84	962.97
	Total	14.61	136.42	44.50	340.67	14.72	329.13

NET DEVIATIONS FROM SCHEDULE BY BENEFIACIARIES IN NORTHERN REGION FOR 06-01-10

Time Block	Frequency Code	Delhi		Uttar Pradesh		Uttarakhand	
		UI %	MW Deviation	UI %	MW Deviation	UI %	MW Deviation
1	50	-40.61	-406.59	-0.19	-6.44	21.92	113.28
2	37	-46.46	-465.18	-2.64	-90.53	21.22	109.65
3	37	-52.11	-520.43	-3.46	-118.58	20.17	104.06
4	42	-55.10	-550.30	-0.52	-17.09	19.77	102.00
5	41	-56.03	-527.66	0.04	1.35	19.99	103.11
6	43	-55.74	-482.42	-1.01	-33.53	20.82	107.42
7	47	-54.10	-429.06	-3.57	-118.14	21.51	110.97
8	49	-54.30	-430.66	-5.35	-177.22	21.38	110.28
9	45	-56.10	-433.46	-5.48	-177.09	27.11	131.61
10	45	-57.89	-447.33	-6.80	-219.73	25.79	125.16
11	43	-59.32	-458.35	-7.23	-233.85	27.58	133.87
12	45	-60.58	-468.07	-6.35	-205.40	27.12	131.66
13	52	-60.70	-469.02	-8.11	-262.28	27.01	131.13
14	46	-60.63	-468.52	-11.48	-371.12	28.39	137.81
15	45	-60.22	-465.32	-9.21	-297.69	29.56	143.50

16	44	-59.67	-461.09	-8.38	-271.03	30.05	145.87
17	45	-57.67	-445.65	-4.44	-140.97	33.89	164.52
18	45	-60.61	-524.73	-4.77	-155.21	29.64	152.94
19	39	-62.40	-588.46	-3.38	-110.12	32.72	168.97
20	28	-59.81	-598.32	-2.71	-88.36	38.79	200.43
21	40	-43.21	-381.43	-0.53	-16.20	45.94	237.18
22	32	-34.05	-309.14	-5.28	-164.47	46.62	243.99
23	24	-22.82	-215.01	-3.96	-126.00	39.06	210.51
24	16	-10.43	-102.94	-0.51	-16.58	44.63	245.53
25	33	-33.75	-549.12	7.94	243.02	70.97	328.87
26	28	-23.67	-399.86	6.45	207.41	48.12	242.18
27	17	-15.57	-269.58	6.33	209.69	53.52	278.65
28	15	-9.85	-174.29	4.64	156.44	43.36	232.67
29	16	-21.13	-466.89	0.85	29.26	25.39	145.38
30	14	-14.72	-322.32	3.65	124.76	27.50	157.22
31	15	-9.59	-206.49	7.00	234.75	30.72	174.64
32	13	-5.38	-112.75	12.28	399.97	33.03	182.42
33	19	-4.24	-91.15	8.51	268.34	36.21	193.90
34	9	0.28	5.72	11.93	360.51	35.75	182.22
35	18	3.28	67.94	5.40	162.83	27.53	140.17
36	14	1.43	29.63	6.11	184.24	31.44	159.51
37	17	0.41	8.57	1.65	49.90	32.39	164.52
38	6	2.60	54.43	3.93	118.61	31.02	157.57
39	27	4.14	86.85	-1.60	-48.25	26.22	133.18
40	23	3.06	64.37	-2.54	-77.34	20.04	102.83
41	34	0.00	-0.08	-0.97	-31.11	-6.34	-39.02
42	21	-0.81	-17.48	3.80	123.87	-7.66	-47.27
43	23	-1.18	-25.68	8.96	294.86	-7.93	-50.11
44	25	-2.32	-50.75	11.68	386.42	-7.30	-46.32
45	22	-3.31	-70.57	11.55	381.75	-12.60	-80.23
46	9	-5.58	-119.28	8.72	289.01	-7.84	-50.53
47	28	-5.84	-125.06	10.68	354.68	4.45	28.80
48	29	-8.27	-177.08	7.07	234.79	7.20	46.66
49	25	4.70	85.78	8.90	291.84	2.24	14.42
50	17	3.49	62.72	12.59	405.23	11.38	72.80
51	19	4.01	70.34	13.46	416.19	27.67	160.89
52	21	2.49	42.29	15.58	457.95	35.77	191.64
53	30	0.90	14.56	27.43	767.46	41.38	215.01
54	25	-2.86	-45.98	29.42	818.65	39.14	201.11
55	25	-3.87	-62.08	30.54	847.82	27.44	140.59
56	18	-2.38	-37.64	31.01	836.01	25.76	124.20
57	21	-0.98	-15.40	27.98	744.44	25.20	119.86
58	17	-0.66	-10.40	22.16	589.66	28.05	133.40
59	11	-0.56	-8.73	20.46	541.60	28.99	137.33
60	11	0.07	1.12	19.78	523.69	35.09	166.23
61	11	3.04	45.28	22.55	596.86	42.44	201.02
62	7	2.30	34.39	20.01	533.12	34.59	168.78
63	6	0.79	11.89	22.37	600.26	18.65	91.54
64	10	-7.04	-114.77	17.08	482.36	-0.52	-2.76

65	30	-7.70	-123.97	17.14	456.39	-1.86	-9.35
66	11	-9.17	-147.75	16.68	444.59	1.90	9.60
67	19	-7.23	-116.79	16.78	448.66	1.70	8.58
68	20	-4.87	-78.64	21.43	573.03	-0.15	-0.75
69	23	-16.90	-319.49	20.28	558.88	-1.79	-8.55
70	10	-16.00	-308.13	23.31	657.17	-12.28	-59.74
71	36	-10.18	-198.15	12.02	366.88	3.74	20.29
72	29	-9.08	-184.32	8.18	265.54	8.68	51.97
73	35	-9.64	-203.66	1.54	50.86	6.88	40.73
74	22	-9.20	-199.60	6.50	222.13	5.13	31.43
75	24	-6.82	-148.16	3.96	135.66	8.79	53.95
76	22	-6.08	-131.32	2.19	74.71	10.63	64.02
77	11	-9.08	-203.11	9.95	330.60	9.03	53.88
78	7	-4.45	-95.58	22.03	688.10	21.44	117.29
79	13	1.16	23.67	17.13	498.28	31.55	156.04
80	16	1.76	35.23	20.10	561.47	34.02	158.32
81	8	2.80	53.20	25.98	684.68	42.05	177.60
82	16	1.60	29.86	26.35	680.05	26.15	108.80
83	22	-0.70	-13.05	32.12	819.05	28.12	115.39
84	20	-4.21	-78.12	27.08	690.72	26.22	107.59
85	21	-5.28	-93.14	27.88	711.85	28.90	119.11
86	22	-8.47	-149.35	23.30	594.84	36.92	152.13
87	29	-11.43	-201.62	14.80	377.79	60.64	249.90
88	49	-13.25	-233.64	2.32	59.32	72.37	298.23
89	13	6.70	88.18	-11.60	-311.01	66.42	253.85
90	18	1.43	18.70	-3.68	-98.04	54.95	209.36
91	12	-6.16	-80.45	8.56	227.02	58.68	222.87
92	26	-11.98	-155.35	13.25	349.65	59.58	225.76
93	35	0.35	3.60	-0.60	-18.44	39.50	176.85
94	30	-10.57	-108.79	-0.37	-11.42	44.48	199.16
95	39	-21.61	-222.48	-1.31	-40.19	45.34	202.98
96	50	-29.83	-307.09	-2.88	-88.16	47.56	212.92
	Total	-11.42	-180.08	7.42	225.58	24.71	126.67

NET DEVIATIONS FROM SCHEDULE BY BENEFIACIARIES IN NORTHERN REGION FOR 06-01-10

Time Block	Frequency Code	Himachal Pradesh		Jammu & Kashmir		Chandigarh	
		UI %	MW Deviation	UI %	MW Deviation	UI %	MW Deviation
1	50	17.93	98.08	12.52	122.64	15.07	14.79
2	37	18.57	101.58	14.12	34.58	11.19	2.75
3	37	17.19	93.94	15.06	36.66	8.83	2.17
4	42	17.23	94.17	14.94	36.37	4.61	1.13
5	41	16.36	89.42	15.14	36.85	0.25	0.06
6	43	15.20	83.10	14.84	36.12	3.24	0.79
7	47	16.19	88.52	15.17	36.91	3.90	0.96
8	49	16.10	88.03	15.00	36.51	3.07	0.75
9	45	16.42	88.65	17.37	41.65	2.84	0.69

10	45	18.57	100.25	17.96	43.05	-1.21	-0.29
11	43	18.14	97.92	17.36	41.62	-0.32	-0.08
12	45	17.71	95.57	15.28	36.62	1.64	0.40
13	52	17.33	93.54	14.81	35.51	-2.77	-0.67
14	46	15.90	85.81	15.37	36.85	-2.43	-0.59
15	45	15.96	86.17	15.12	36.25	3.58	0.87
16	44	16.76	90.48	15.47	37.10	4.30	1.04
17	45	16.91	91.28	16.61	39.79	7.47	1.81
18	45	14.93	81.93	15.14	36.82	3.58	0.90
19	39	17.47	95.95	15.65	38.19	4.95	1.25
20	28	16.77	94.41	15.49	37.81	0.76	0.20
21	40	8.99	55.87	13.99	34.64	-1.43	-0.39
22	32	3.60	23.65	10.89	28.11	2.14	0.61
23	24	-6.93	-51.95	7.21	19.24	7.46	2.17
24	16	-10.92	-89.70	-3.26	-9.19	11.68	3.46
25	33	-13.71	-116.27	-9.58	-27.27	-19.52	-8.67
26	28	-20.34	-196.47	-10.52	-31.20	-18.89	-8.79
27	17	-24.49	-261.98	-12.06	-36.93	-14.60	-6.97
28	15	-23.79	-262.49	-13.91	-44.16	-11.25	-5.54
29	16	-23.68	-257.78	-13.99	-44.77	-2.08	-1.01
30	14	-13.61	-136.86	-14.68	-46.23	4.72	2.27
31	15	-4.79	-44.52	-10.59	-32.62	13.45	6.35
32	13	1.50	12.01	-7.10	-21.03	21.91	9.90
33	19	11.42	77.28	2.09	6.17	30.99	13.34
34	9	14.20	78.75	14.19	38.16	45.23	18.14
35	18	15.06	83.45	16.80	44.48	48.11	19.27
36	14	13.22	73.02	17.67	46.62	45.66	18.24
37	17	9.62	56.82	15.23	40.18	49.18	19.65
38	6	7.33	43.30	16.69	44.03	51.12	20.42
39	27	14.15	83.60	13.92	36.74	51.67	20.64
40	23	10.26	61.97	12.65	33.54	46.32	18.93
41	34	0.61	4.66	10.29	27.39	89.13	27.85
42	21	-4.50	-38.46	5.85	15.95	83.69	26.45
43	23	-5.24	-46.22	-1.29	-3.79	60.57	20.71
44	25	-7.60	-67.87	2.11	6.20	54.07	18.88
45	22	-10.27	-91.98	3.47	10.20	48.35	16.89
46	9	-10.81	-96.76	4.19	12.35	49.95	17.10
47	28	-8.37	-75.02	5.04	14.90	50.64	17.36
48	29	-9.68	-86.81	3.04	9.00	47.94	16.43
49	25	-9.13	-79.12	3.83	11.12	29.47	11.22
50	17	0.29	2.21	4.53	12.83	30.81	11.38
51	19	1.14	8.48	7.83	21.61	34.40	12.54
52	21	1.87	13.02	14.11	36.98	38.40	13.47
53	30	7.59	46.30	18.42	46.87	41.05	13.93
54	25	2.50	15.48	17.66	44.75	43.89	14.87
55	25	3.22	19.92	19.03	47.68	44.36	15.02
56	18	5.25	32.04	19.27	47.62	46.35	15.55
57	21	6.14	37.31	23.98	57.13	41.72	13.92
58	17	5.77	35.07	24.98	59.51	40.61	13.55

59	11	5.33	32.34	26.44	62.92	38.72	12.92
60	11	3.56	21.60	24.56	58.45	38.21	12.75
61	11	3.00	18.20	27.36	65.10	36.94	12.33
62	7	4.28	26.56	23.37	55.81	31.07	10.62
63	6	2.21	13.99	20.81	50.02	24.26	8.50
64	10	1.20	8.38	15.33	39.41	20.61	7.36
65	30	5.45	39.30	20.58	52.78	21.26	7.63
66	11	5.78	41.81	23.14	59.43	19.39	6.96
67	19	4.00	29.68	22.18	57.21	18.48	6.64
68	20	4.99	37.02	17.11	44.15	18.56	6.67
69	23	5.87	41.74	12.05	31.03	21.52	7.83
70	10	3.32	24.65	-1.15	-3.13	22.71	8.52
71	36	-8.07	-72.44	-4.45	-12.99	19.72	8.02
72	29	-13.97	-140.28	-7.71	-23.99	22.12	9.36
73	35	-16.72	-173.44	-27.71	-88.48	12.35	5.92
74	22	-29.13	-343.33	-29.49	-97.57	11.51	5.65
75	24	-30.59	-360.69	-27.82	-92.16	13.60	6.69
76	22	-31.17	-366.24	-28.15	-92.28	14.42	7.05
77	11	-23.72	-243.31	-19.09	-63.40	18.52	8.73
78	7	-13.56	-118.70	-10.45	-32.14	26.34	11.67
79	13	-4.77	-35.66	-2.86	-8.02	39.19	15.91
80	16	0.51	3.26	2.65	7.13	41.59	16.40
81	8	6.23	34.99	9.17	23.75	50.21	18.67
82	16	9.53	44.60	10.54	26.57	53.92	19.28
83	22	9.45	43.84	14.78	36.07	59.13	20.47
84	20	9.03	41.72	16.46	40.20	61.71	20.92
85	21	10.61	52.64	13.99	34.19	60.40	19.87
86	22	6.20	30.76	12.83	31.35	53.21	17.51
87	29	11.99	58.18	13.00	31.78	45.82	15.07
88	49	16.78	81.47	12.64	30.90	45.27	14.89
89	13	6.38	35.49	23.31	57.26	38.43	12.41
90	18	4.83	26.77	24.10	58.80	33.71	10.88
91	12	0.58	3.18	23.47	56.88	26.01	8.36
92	26	-4.41	-24.37	23.73	57.14	21.19	6.80
93	35	-1.87	-9.66	22.89	54.91	45.39	11.51
94	30	1.40	7.24	20.44	49.06	35.37	8.98
95	39	0.51	2.63	19.09	45.81	25.47	6.47
96	50	6.86	35.49	19.38	46.52	22.12	5.62
	Total	-0.53	-3.63	8.08	85.58	26.64	36.63

80. It can be seen that the under drawl by Delhi is as high as 598 MW over the day. Similarly, the under drawl by Himachal Pradesh is as high as 366 MW over the day. In percentage terms, the under drawl by Delhi is as high as 62% and as low as around 5% with an average of 11% over the day. The under drawl by Himachal Pradesh is as high as 24% and as low as around

2% with an average of 0.5% over the day. It is therefore desirable that the States are induced to sell power from its own sources through scheduled route rather than through UI. The pattern is somewhat similar in other regions.

81. The Commission had proposed a volume limit of 20% in a time block or 250 MW whichever is lower. This was with a view that percentage limit would take care of smaller beneficiaries/buyers and the limit in megawatt term to take care of larger beneficiaries/buyers. However, we are of the view that the percentage limit should be reduced from 20% to 10% having regard to the under-drawl pattern of surplus states.

82. However, in respect of sellers which also includes traders, merchant generating stations and captive generators other than the generating stations regulated by the Central Commission, which sell their power under different contracts or in power exchanges or through UI from the same source of power or their own generating station, the DC is not of much relevance. It is because under the open access contracts or at the power exchanges one may not be scheduled more than the maximum contracted capacity. For example, a merchant generating station has been able to tie-up a capacity of 700 MW only out of 1000 MW Installed Capacity then his schedule may not be more than the 700 MW. In view of above, we are retaining the provision in respect of Sellers.

83. However, such merchant generator could inject balance power into the grid as UI and this balance power could be in excess of 105% of the Installed Capacity. The Commission has therefore, had proposed to Cap the Charges for the Unscheduled Interchange for the over injection by the seller in excess of ex-bus generation corresponding to 105% of the Installed Capacity of the station in a time block or 101% of the Installed Capacity over a day to be equal to the charges for the Unscheduled Interchange

corresponding to grid frequency interval of 'below 50.02 Hz and not below 50.0 Hz' which now works out as 155 paise/kWh.

(D)ADDITIONAL UNSCHEDULED INTERCHANGE CHARGES

84. The Commission had proposed that the Additional Unscheduled Interchange Charge for over-drawl of electricity for each time-block when grid frequency is below 49.5 Hz shall be equivalent to 100% of the Unscheduled Interchange Charge of 870.0 Paise/kWh corresponding to the grid frequency of below 49.5 Hz.

85. The Commission has observed as follows in its explanatory memorandum to the proposed amendments:

> "The existing UI regulation in force provided for imposition of an additional UI charge at 40% of the UI charge at 49.20 Hz for over drawls and under injections below 49.2 Hz. The additional UI charges were proposed to be increased to the 100% of the UI charge at 49.20 Hz for over drawls and under-injections below 49.2 Hz in the draft order dated 7.10.2009 due to persistent over drawls by the some of the States.
>
> The over drawl position in respect of Northern region constituents was grim and over drawl by Uttar Pradesh (U.P) was alarmingly high. The other constituents of the region were also overdrawing from time to time. In its Order in petition No. 105/2009 (Suo-motu) the Commission has concluded that UP has overdrawn in 453 time-blocks below 49.2 Hz during the period 13th April '09 to 9th May '09.

In the Southern Region, TNEB had overdrawn repeatedly. In its order in petitions namely Petition No. 106/2009 (Suo-motu) and 130/2009 (Suo-motu) the Commission has concluded that the Tamil Nadu (TN) has overdrawn during the period 10.04.2009 to 10.05.2009 and 25.05.2009 to 31.05.2009 respectively. In petition 106/2009, over drawal by TN was more than 150 MW during 455 time blocks. In petition 130/2009 it was stated that the TN has over drawn by more than 12% on 102 occasions in excess of schedule when the frequency was below 49.5 Hz. The drawl of TN was also stated be to the extent of 1121 MW where the frequency was below 49.2 Hz. In Petition No. 137/2009 (suo-motu), the State of UP has over drawn in 471 time-blocks at frequency below 49.2Hz during the period 11.06.2009 to 19.06.2009. Continuation of such over drawls by the power utilities of many states below the mandated frequency of 49.2 Hz was responsible for the deteriorated frequency profile in June, July & August '09 as made out in the draft order. Such persistent over drawls are still continuing time and again by the States."

86. The Central Commission also found that there were few instances of under injections by the generating stations below 49.2Hz. Therefore, the Central Commission proposed the Additional Unscheduled Interchange Charge for under-injection of electricity for each time-block when grid frequency is below 49.5 Hz which shall be equivalent to 40% of the Unscheduled Interchange Charge of 870.0 Paise/kWh corresponding to the grid frequency of below 49.5 Hz". Commission had observed as follows:

"It is not expected that a generator would back down under very low frequency conditions unless there is unit tripping due to forced outages. Bringing back unit immediately after such forced outage is

not always under the control of the generator. Further, grid indiscipline is more prevalent amongst the beneficiaries/buyers."

87. Similarly, it was proposed that the additional UI for the generating stations using coal or lignite or gas supplied under APM as fuel for under-injection of electricity during the time-block when grid frequency is below 49.5 Hz shall be equivalent to 40% of the UI Cap Rate of 415.0 Paise/kWh.

88. BRPL has submitted that the steep hike in surcharge will not help in grid discipline rather it will put additional burden over end consumers. They have proposed to use technical methods to control over drawls as already provided under the grid code. MPPTCL has submitted that the additional UI charges will adversely affect the power and cash deficient utilities. The additional UI charges should be at same level for generators/sellers and beneficiaries/buyers. RRVPNL has submitted that the imposition of additional UI charges at 100% of the UI charges at 49.5 Hz would only result in building up liabilities of overdrawing utilities that are not making UI payments.

89. NLC has submitted that the additional UI charges should be at same level for generators/sellers and beneficiaries/buyers. Additional UI charges for under injection are not justified below 49.5 Hz. NTPC has submitted that the generating stations should be exempted from additional UI charge in case of forced outages till the revision of schedule after tripping.

90. Earlier we have dealt with the arguments of the UPPCL, TNEB and others with regard to high UI charges and narrowing of operating grid frequency. UPPCL has pointed out that the Commission has issued draft amendment with the intention to superseding the order of Hon'ble High Court of Allahabad (Lucknow Bench). In our view, nothing is farther from the truth. Hon'ble High Court by way of interim relief to UPPCL had directed that

UPPCL would not be compelled to pay the additional UI charges during the pendency of the writ petition. This order is not operating in favour of the utilities other than UPPCL who are paying the UI charges as per the regulations. In our understanding, limited relief by the Hon'ble High Court to UPPCL cannot be construed as a bar on the Commission to take necessary measures to revise the UI charges including additional UI charges in the interest of maintaining grid discipline.

91. Further, it is entirely up to the beneficiaries and buyer not to over draw from the schedule and do not incur any UI. Though there is reduction in over drawl below 49.5 and below 49.2 Hz in the NEW grid as well as in Southern Grid, the over drawls by the States Utilities is still continuing and all States at one time or other are overdrawing from the grid. A Statement of Schedule and Drawls as per the UI Accounts for the year 2009-10 is given in Annexure-I.

92. Nevertheless, we feel that there is need of reconsideration on account of the fact that the UI charge earlier were 4.80 Paise/kWh at 49.5 Hz which is getting increased substantially to 826 Paise/kWh due to narrowing of operating grid frequency range from 50.3-49.2 Hz to 50.2-49.5 Hz.

93. Commission is therefore, of the view that the additional Unscheduled Interchange charge for over-drawls and under-injection of electricity for each time block when grid frequency is below 49.5 Hz shall be as specified by the Commission as a percentage of the charges for the Unscheduled Interchange in grid frequency 'below 49.5 Hz' with due consideration to the behavior of the buyer and beneficiaries and sellers and the generating stations towards grid discipline and that the Commission may specify, different additional Unscheduled Interchange charges for over drawls and under injections and at different frequencies below 49.5 Hz.

94. Similarly, the additional Unscheduled Interchange charge for under-injection of electricity during the time-block when grid frequency is below 49.5 Hz, by the generating stations using coal or lignite or gas supplied under Administered Price Mechanism (APM) as the fuel shall be as specified by the Commission as a percentage of the Cap Rate, with due consideration to the behavior of the generating stations towards grid discipline and the Commission may specify, different additional Unscheduled Interchange charges for under injections at different frequencies below 49.5 Hz.

95. We are therefore, introducing two slabs of additional UI charges as follows:

i. First slab would be “below 49.5 Hz to 49.2 Hz”, and
ii. Second slab would be “below 49.2Hz”

96. Accordingly, the Additional Unscheduled Interchange Charge for over-drawal of electricity for each time-block when grid frequency is below 49.5 Hz and down to 49.2 Hz shall be equivalent to 40% of the Unscheduled Interchange Charge 873.0 Paise/kWh corresponding to the grid frequency of “below 49.5 Hz”. The Additional Unscheduled Interchange Charge for under-injection of electricity for each time-block when grid frequency is below 49.5 Hz and down to 49.2 Hz shall be equivalent to 20% of the Unscheduled Interchange Charge of 873.0 Paise/kWh corresponding to the grid frequency of “below 49.5 Hz”.

97. The Additional Unscheduled Interchange Charge for over-drawal of electricity for each time-block when grid frequency is below 49.2 Hz shall be equivalent to 100% of the Unscheduled Interchange Charge of 873.0 Paise/kWh corresponding to the grid frequency of “below 49.5 Hz”. The Additional Unscheduled Interchange Charge for under-injection of electricity

for each time-block when grid frequency is below 49.2 Hz shall be equivalent to 40% of the Unscheduled Interchange Charge of 873.0 Paise/kWh corresponding to the grid frequency of “below 49.5 Hz”.

98. Similarly, the Additional Unscheduled Interchange Charge for under-injection of electricity during the time-block when grid frequency is below 49.5 Hz and down to 49.2 Hz for the generating stations using coal or lignite or gas supplied under Administered Price Mechanism (APM) as the fuel shall be equivalent to 20% of the UI Cap Rate of 403.0 Paise/kWh.

99. The Additional Unscheduled Interchange Charge for under-injection of electricity during the time-block when grid frequency is below 49.2 Hz for the generating stations using coal or lignite or gas supplied under Administered Price Mechanism (APM) as the fuel shall be equivalent to 40% of the UI Cap Rate of 403.0 Paise/kWh.

100. With regard to the limit on UI volumes imposed in the regulation, it was not clear whether such limits are to be applied individually on each intra-state entity or collectively. This is to be clarified by providing an explanation as proposed.

101. Since additional UI charges are not payable to any under drawing or over injecting entity, it is also to clarify the same with reference to inter-regional exchanges by inserting an explanation after regulation 7(3) as proposed.

(E)Amendments to Regulations 9 and 10

102. In line with above, it is being clarified that the net additional UI Charges payable by entities of a region, shall be retained in the Unscheduled

Interchange Pool Account Fund of the region in which the regional entity is located as explanation after regulation 9 (3) as follows:

> "Any additional UI charges collected form a regional entity shall be retained in the Unscheduled Interchange Pool Account Fund of the concerned region where the regional entity is located."

103. Further, the UI accounting and UI payments are dealt in IEGC (Clause 6.1 (d) Annexure 1 para 5 and 7 of the complimentary commercial mechanism) as well as UI Regulation (Regulations 9 and 10). Since now there is a specific UI Regulation, it was proposed to provide comprehensive stipulations pertaining to UI in to the UI Regulations. Accordingly, Regulation 9 & 10 of the UI Regulation has been further rationalized and amended in the proposal.

104. PGCIL (SO) has stated that there should be uniform methodology and practices in different RPCs with regard to issuance of UI account and interest calculations. Further a provision may be added to provide that the RLDCs may operate and maintain the respective Regional UI Pool Account Fund through some external agency with prior approval from the Commission. This is in order to deal with the issue of TDS, service tax and income tax etc.

105. PGCIL (SO) has further submitted that in the changing scenario, the matter of a National UI pool account by NLDC was deliberated at length through video conference with RLDCs and there was consensus amongst the RLDCs/ NLDC. Accordingly a detailed proposal was submitted to the Honorable Commission vide letter dated 16.10.2009. The proposal for National UI pool account may be considered by CERC and suitably incorporated in the regulations.

106. Shri Padamjeet Singh has submitted that the Regulations should provide for arriving at amended/corrected schedule based on data provided by the RLDCs. PTC has submitted that the bills for normal UI charges and penal UI charges should be raised separately instead of combined ones. This will highlight the defaulters in a more prominent way.

107. In our view, the regulation has provided the methodology in clear terms and it is for the RLDCs and RPCs to apply the same uniformly in all regions. Further, it is up to the RPCs to amend/rectify the weekly UI accounts if necessary. We don't see any specific benefit in raising separate bills for UI charges and additional UI charges.

108. Further, the suggestion of PGCIL (SO*)* regarding operation and maintenance of "Regional UI Pool Account Fund" through an external agency, cannot be accepted at this stage in the absence of concrete proposal. Similarly, the suggestion of PGCIL (SO*)* regarding creation of a "National UI Pool Account Fund" has also come bit late, and may not be accepted at this stage without an informed debate.

(F)Providing for payment security mechanism

109. It was observed that the beneficiaries were not making UI payments in time and there were UI out standings rendering UI mechanism ineffective. Therefore, it was proposed to provide payment security mechanism in UI Regulations through revolving letter of credit of adequate amount.

110. Under the UI commercial mechanism, liability of any of the regional entities namely generator, beneficiary, seller or buyer is not constant. The liability for each regional entity would keep on varying from week to week and month to month and may include outstanding UI and interest thereon, if any.

111. The Commission therefore, had proposed that each regional entity shall open a Letter of Credit (LC) equal to 110% of its average payable weekly UI liability in the previous financial year, in favour of the concerned RLDC.

112. The weekly LC amount so arrived at, as per above formulation, shall remain fixed for a year in the normal course but in case the UI liability during any of the week of the year exceeds 110% of the average UI liability of a week by more than 50% then the LC amount would be increased by such percentage for that entity.

113. It was also proposed to provide further that a new regional entity shall open a Letter of Credit (LC) equal to 110% of average payable weekly UI liability during the first three months of the operation in favour of the concerned RLDC,

114. A regional entity has to open LC in favor of RLDC/ PGCIL. The LC should be opened by regional entities by 01.05.2010 to start with based on above formulation and replenish it from time to time if so warranted. The LC charges would be to the regional entity account. The above formulation will discourage beneficiaries from any default due to its implication in increase in LC amount in case of payment default.

115. Any of the UI bills remaining unpaid after the expiry of 10 days period, in part or full, from the date of issue of statement shall constitute a payment default entitling RLDC/ PGCIL to get the LC en-cashed. In the event of such encashment of the LC by the RLDC/ PGCIL, the regional entity concerned should replenish the LC within 3 days.

116. UPPCL has submitted that UI charges are arbitrary and hence recovery through LC and its procedure is not appropriate. Shri Padamjeet Singh has

submitted that Discoms making regular payments should not be asked to open a LC. However, the first event of default should trigger the opening of LC. TPTCL has submitted that it will help prevent defaults in payment of UI charges and will promote discipline in the operation of the grid. NHPC has submitted that the following clause may be incorporated-' provided further that in case of live payment liability of a utility is negative on monthly basis then the utility will be exempted from opening the LC. Adani power Ltd has welcomed the Payment Security Mechanism and has submitted that the LC should be applied to only those regional entities who are defaulting in UI payments and not on all. LC should not be applied to the Sellers. MPPTCL has submitted that only those utilities that default in UI payments should be asked to open LC. This will ensure on-time payment from the regional entities and will enable the smooth functioning of payment Security mechanism. PGCIL (SO) has submitted that UI Regulation is silent about the consequences if any entity/pool member does not open a LC or recoup LC in time. RRVPNL has submitted that the LC should be applied to only those regional entities who default in UI payments twice.

117. We have considered the views of stakeholders and agree to their suggestion that the LC should be asked to be opened by only those entities who have defaulted in making UI payments in full or part in any of the week of the previous financial year or defaults in the current financial year. The LC would be opened within a fortnight. The LC amount shall remain fixed for a year in normal course but in case the UI liability during any of the week of the year exceeds the LC amount by more than 50% then the LC amount would be increased by such percentage for that entity. The provisions have been modified accordingly.

(G)Providing for adjustment of any payment against the outstanding UI dues towards interest first and then towards UI outstanding

118. The existing IEGC and UI regulation provide for payment of simple interest @ 0.04% for each day of delay by the defaulting constituent if the UI payments are delayed beyond 12 days from date of issue of UI statement. The interest charges so collected are paid to the constituents who had to receive the UI payments.

119. Further, the UI outstanding amount and interest amount on UI outstanding are presently being maintained separately and any payment received against the UI outstanding and interest thereon is first being adjusted towards the UI outstanding. This is not in line with the prevailing accounting practice being followed uniformly in all financial institutions. As per prevailing accounting practices any payment towards outstanding amount is first adjusted against interest accrued and the balance towards principal outstanding.

120. It was therefore proposed to amend the UI regulation to provide for appropriation of all payments received in the Unscheduled Interchange Pool Account Fund in the following manner:

(a) First towards any cost or expense or other charges incurred on recovery of UI charge

(b) Next towards over dues or penal interest, if applicable

(c) Next towards normal interest

(d) Lastly, towards UI and additional UI charges

121. Shri Padamjeet Singh has stated that the procedure proposed is derived from FIs whereas the working and ground realities of power sector are entirely different. TPTCL has stated that the priority of payments against

the different heads (transaction costs, interests and principal) are in line with the prevalent accounting practice. PGCIL (SO) has submitted that the payment of inter-regional UI charges should also be given higher priority.

122. We are unable to agree with Shri Padamjeet Singh and still of the view that in line with the sound accounting practices, appropriation of all payments received in the Unscheduled Interchange Pool Account Fund should be should be in the in the following manner:

(a) First Towards any cost or expense or other charges incurred on recovery of UI charge

(b) Next towards over dues or penal interest, if applicable

(c) Next towards normal interest

(d) Lastly, towards UI and additional UI charges

123. As regards payments of inter regional UI charges are concerned, we agree that these should be considered as high priority by the respective RLDCs but cannot be made part of this provision dealing with payments by the regional entities, the beneficiaries and buyer and generators and Sellers.

(H)Payment from UI pool account to the regional entities without waiting for UI payments to be received in UI pool account

124. It had come to our notice in Petition NO. 8/2009 (suo motu) in the matter of default in payment of UI charges for the energy drawn in excess of drawal schedule by the Utatranchal Power Corporation Limited (UPCL) that UPCL had to pay a sum of Rs. 56.96 Crs as the UI payment as on 28.12.2008 for the energy overdrawn from the grid. The UPCL had argued during the hearing that it has to receive a sum of Rs. 59.96 Crs from UI pool account on account of interest for the period from 2004-05 to 2007-08.

From the statement of outstanding UI as on 30.06.2009 also it was seen that States like U.P. J&K, MPPTCL, KPTCL, DVC, GRIDCO, Mizoram etc had to pay the outstanding UI where as states like Delhi, Rajasthan, Chandigarh, H.P. , JSEB etc were to receive UI. It was therefore, proposed to amend the regulation 10 of the UI Regulation providing for payment of UI to the constituents who have to receive UI payments within in a period of 12 days from the UI pool accounts without waiting for payments by the constituents who have to pay in to the UI pool account.

125. This appears feasible in view of the UI surplus that is being generated in the UI pool account due to differential UI rate for over drawl/ under injection and under drawl/ over injection. However, in case the UI surplus is not sufficient to meet the payment obligation of the constituents from the UI pool account then the pay-out should be made on pro-rata basis from the pay-in into the UI pool account.

126. However, the UI outstanding and the interest liability of the defaulting constituents would remain intact irrespective of the payment to the constituents from the UI pool account.

127. Regulations 9 and 10 of the UI regulations have been amended accordingly.

(I)Amendments to Regulations 11

128. It is also proposed to transfer surplus arising from UI pool account in to a separate fund account to be specified by the CERC which could be utilised for the specified purposes as described in the UI regulations. Regulation 11 is being amended accordingly.

129. UPPCL has argued that the application of fund collected through UI is not in accordance with EA 2003. CERC is not authorized to create UI pool account fund and decide its investment for the transmission project/scheme. Since the investment made for the transmission project is recoverable through tariff as per CERC regulations, the fund ought to be utilized for enhancing the generation by the States so that the gap in demand supply is minimized. PGCIL (SO) has submitted that the regulation needs to be made clear. Adani power Ltd. has submitted that the amount left in UI pool account after final settlement of claims of UI charges may be used for construction of new transmission networks and also to reduce the congestion in the existing transmission networks in the region.

130. The amendment proposed by the CERC was to provide for transfer of balance in the regional UI pool account funds after settlement of weekly UI accounts to a separate fund account as specified by the CERC. The manner of utilisation of balance available in UI pool account funds was not proposed to be changed. Therefore, we are not inclined to open this issue at this stage. Moreover, the UI regulation is basically to enforce grid discipline and hence any surplus being generated was meant for the system strengthening and measures to enhance grid security.

(J)General Comments

131. PGCIL (SO) has submitted that a Regional Entity might have portfolio of Sale and purchase transactions and could be buyer as well as seller in different time block. In such cases dispute free implementation of the regulation would be difficult. It is proposed that the various definitions ranging from Buyer/Seller/Beneficiaries be removed and provide UI treatment of Regional Entity based on their net schedule in a particular time block having regard to the net drawl schedule for Buyers and net injection schedule for the Sellers

132. We appreciate the concern of PGCIL (SO) but it needs to be appreciated that the suggestion if accepted, would call for major changes from the amendments proposed. Moreover, we would like a more informed debate before doing away with many of the definitions in the UI Regulations. These definitions are also being used in many others regulations of CERC and would require a thorough checking in this regard. Therefore, we are not proposing any change in this regard at this stage.

Sd/-	Sd/-	Sd/-	Sd/-
[M DEENA DAYALAN]	**[V.S.VERMA]**	**[S. JAYARAMAN]**	**[Dr. PRAMOD DEO]**
MEMBER	**MEMBER**	**MEMBER**	**CHAIRPERSON**

			Annexure-I
Schedule and Drawal as per UI Account for the year 2009 - 10			
April, 2009 to March, 2010			
			(Figures in MU)
States	**Schedule**	**Drawal**	**Over Drawal (+) / Under Drawal (-)**
Northern Region			
Chandigarh	1392.68	1529.11	136.43
Delhi	16843.70	14673.66	-2170.04
Haryana	13014.76	15192.91	2178.15
H.P	2894.15	3023.42	129.27
J & K	6322.89	6522.10	199.21
Punjab	16321.35	17375.39	1054.05
Rajasthan	18097.63	19045.68	948.05
U.P.	27715.11	31265.53	3550.42
Uttarakhand	3540.11	4271.10	730.99
Western Region			
Chhattisgarh	-1973.09	-3988.94	-2015.85
Gujarat	14327.64	12894.76	-1432.88
Madhya Pradesh	15833.66	15096.63	-737.03
Maharashtra	26312.80	26861.37	548.57
DD	1931.19	1697.38	-233.81
DNH	3784.89	3629.58	-155.31
Goa	2898.65	2721.16	-177.49
Southern Region			
Andhra Pr.	14007.30	14094.29	86.99
Karnataka	6895.40	7493.87	598.47
Kerala	6258.44	6632.62	374.18
Tamilnadu	20225.67	21114.25	888.58
Puducherry	2000.13	1876.90	-123.23
Eastern Region			
Bihar	8652.16	9010.89	358.73
DVC	-712.706	814.930	1527.64
Jharkhand	2452.93	2379.67	-73.26
Orissa	6315.57	7238.23	922.67

W. Bengal	3510.90	2797.55	-713.35
Sikkim	404.45	297.19	-107.26
N.E.Region			
Arunachal Pr.	351.10	346.78	-4.32
Assam	3095.15	2921.97	-173.18
Manipur	492.49	443.89	-48.60
Meghalaya	754.79	810.50	55.71
Mizoram	290.81	296.30	5.49
Nagaland	348.30	402.09	53.79
Tripura	166.72	96.51	-70.21

Source: CEA