

Explanatory Memorandum to the Draft Central Electricity Regulatory Commission (Unscheduled Interchange charges and related matters) (Amendment) Regulations, 2011.

1. The Central Commission has made it clear time and again that Unscheduled Interchange (UI) should not be used as a route for trading of electricity. The Commission had with this objective narrowed down the permissible frequency range for deviation on 3.5.2010 from 49.2 - 50.3 Hz to 49.5 - 50.2 Hz and had also substantially modified the UI charges with the objective of driving the distribution utilities to go for planned procurement of electricity and creating an environment for investors to set up new power plants. The utilities had over a period postponed setting up of power projects and relied on overdrawl from the grid for meeting their consumer demands. The Commission is of the considered view that the utilities should plan for procurement of power on long-term, medium-term and short-term basis instead of resorting to overdrawal through UI.

2. The Commission has also taken a strict view of the continued grid indiscipline by some State utilities and in a few cases, penalties have been imposed. The need of the hour for all stakeholders is to appreciate the efforts being made by the Commission and desist from overdrawal in the larger interests of grid security and discipline.

3. Grid frequency is one of the most important parameters for assessment of the security of power system and the quality of power supply in the grid and reflects the load generation balance in the grid at a particular instant. Handling imbalances is an integral part of any market design which should complement reliability and quality of supply. The existing frequency linked UI commercial mechanism acts as a real-time balancing market in the frequency range of 50.2 Hz to 49.7 Hz and in a restricted manner below 49.7 Hz.

4. Following the narrowing of the operating range of grid frequency with effect from 3.5.2010 by the Commission, there has been marked improvement in the grid frequency during the year 2010-11. The frequency

profile of the grid frequency during 2010-11 in the NEW grid and the SR grid was as follows:

April, 2010 to March, 2011						
Northern / Western / Eastern / North-Eastern Regions						
Month	% of Time when Frequency was					
	Below	Between	Above	Average	Max.	Min.
	49.5 Hz	49.5-50.2 Hz	50.2 Hz	Frequency	Freq	Freq
April, 2010	80.11	19.67	0.22	49.27	50.51	48.56
May, 2010	18.10	79.17	2.73	49.73	50.80	48.76
June, 2010	5.74	89.83	4.43	49.85	50.76	48.82
July, 2010	7.77	87.81	4.42	49.86	50.72	48.70
Aug'2010	7.91	87.5	4.59	49.86	50.73	48.73
Sep'2010	1.83	85.89	12.28	49.98	50.79	48.76
Oct' 2010	0.95	93.14	5.91	49.97	50.60	49.09
Nov' 2010	0.48	87.37	12.15	50.03	50.71	49.12
Dec'2010	2.02	88.94	9.04	49.94	50.68	48.94
Jan' 2011	5.20	89.43	5.37	49.88	50.61	48.89
Feb' 2011	4.49	88.89	6.62	49.9	50.67	49.08
Mar' 2011	3.41	94.22	2.37	49.9	50.64.	49.00
Average	11.50	82.66	5.84	49.84	50.69	48.87

5. There is a general consensus that the UI frequency band should be reduced not only in the interest of grid security but also to encourage the distribution companies to procure more power through contracts in the organized market.

6. There is however, a concern that shrinkage of UI frequency band may lead to increase in load shedding. The commission feels that this will be mitigated in view of capacity additions taking place presently. As more and more generation capacities get added, dependence on UI is expected to be reduced. As the solution lies in contracting capacities in advance, the Commission would like the distribution companies to contract power through long term, medium term and short term markets.

7. The Installed Generation Capacity in the country as on 31.5.2011 is 174.91GW. About 16531 MW of additional generation capacity is expected to come on stream by March, 2012, the end of the 11th Plan period. The revised target of generation capacity addition in the 11th Plan is about 62 GW.

8. The Energy shortage scenario in the year 2009-10 and 2010-11 **(Annexure-I)** indicates that there is improvement in the power supply position and the energy shortages have been reduced. Further, the projected peak and energy shortage by the March 2012 is expected to be of the order of 6.5% and 2% respectively as per the report of the Central Electricity Authority. Similarly, the peak shortage scenario in the year 2009-10 and 2010-11 **(Annexure-II)** shows that there is improvement in the peak power supply position and the peak shortages have reduced.

9. Given these facts and projections, the concern on increased load shedding as a result of shrinkage of grid frequency gets addressed. Also the perceived disadvantages seem to get outweighed by its advantages in the form of improved grid security.

10. The Commission therefore, proposes to further narrow down the grid frequency to the operating range of 50.2 to 49.7 Hz with immediate effect. UI vector is linked to frequency band and it has been revised in the past to improve the frequency profile in the grid.

11. Regulation 5(6) of the Central Electricity Regulatory Commission (Unscheduled Interchange charges and related matters) Regulations, 2009 (hereinafter "the UI charges regulations") notified on 30.3.2009, as amended provides that the Charge for Unscheduled Interchange at grid frequency of '49.5 Hz and below', 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 and the Schedule "A" of the regulations to be re-notified accordingly.

12. The Commission however, has not re-notified the charges for almost a year. At the same time, indexation of the UI vector to escalation indices for competitive bidding becomes difficult, especially in the absence of escalation index for liquid fuel.

13. There has been significant increase in the prices of liquid fuel Naptha

and HSD, RLNG and the imported coal over a year. There is also a change in the domestic coal supply scenario in the country and the domestic coal supply is not sufficient to meet the demand of the power sector. As a result the existing coal based stations including pit-head stations are required to meet the short fall by importing coal and blending it with the domestic coal. This blending could be of the order of 15% depending upon the requirement to meet the coal specification for the station. The proportions of blending of imported coal in various stations of NTPC from August 2010 to Jan 2011 are as follows:

STATION	AUG'20 10%OF IMP COAL	SEP'201 0 %OF IMP COAL	OCT 2010 %OF IMP	NOV 2010 %OF IMP COAL	DEC 2010%OF IMP COAL	JAN'2011 %OF IMP COAL
Korba	0.00	0.00	0.00	2.7	1.20	2.70
SSTPS	3.80	3.30	3.10	2.4	3.70	4.80
NCTPS	19.60	11.60	9.50	3.1	1.70	11.30
Talcher	12.33	15.59	14.44	15.6	12.95	14.87
Rihand	7.38	10.28	1.48	1.6	0.14	0.84
Sipat	3.53	7.03	0.69	0.0	0.00	0.00
Vindhyachal	5.22	7.59	1.97	3.4	1.22	3.63
Unchahar	3.24	2.57	1.79	1.0	1.17	0.86
Kahalgaon	11.10	10.80	14.90	9.4	9.70	8.80
TTPS	1.36	0.49	-	-		-
Farakka	34.90	33.90	29.20	20.0	17.70	21.00
Tanda	5.63	3.69	0.00	0.00	1.48	0.00
Simhadri	19.00	15.00	9.00	0.00	6.00	13.00
Ramagundam *	10.30	7.59	0.00	3.3	8.55	4.74
BTPS	20.40	16.50	4.20	2.9	9.40	10.30

14. As the UI rates are linked to fuel prices, the above developments warrant revisiting the design of UI vector. It may not be appropriate to specify the UI charges based only on the relevant escalation indices notified by the Commission under the Competitive bidding guidelines of Government of India. It has been proposed to adjust/re-notify the UI charges based on the prevailing prices of various types of generation.

15. 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, as amended provides as follows:

"(1) The charges for the Unscheduled Interchanges for all the time-blocks shall be 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 for over-injection by the generating station or the seller and shall be worked out on the average frequency of a time-block at the rates specified in the Schedule A of these regulations as per the methodology specified in clause(2) of this regulation.

Provided that the charges for the Unscheduled Interchange for the generating stations using coal or lignite or gas supplied under Administered Price Mechanism (APM) as the fuel, when actual generation is higher or lower than the scheduled generation, shall not exceed the Cap Rate as specified in the Schedule A of these regulations as per the methodology specified in clause (3) of this regulation,

(2) The Charge for Unscheduled Interchange shall be determined in accordance with the following methodology:

- (a) The Charge for Unscheduled Interchange shall be zero at grid frequency of 50.2 Hz and above.*
- (b) The Charge for Unscheduled Interchange corresponding to grid frequency interval of 'below 50.02 Hz and not below 50.0 Hz' shall be based on the median value of the average energy charge of coal/lignite based generating stations for the six months period of August 2009 to January 2010 and suitably adjusted upward to decide on the UI price vector for the above stated frequency level.*
- (c) The UI Price Vector shall accordingly, be in steps for a frequency interval of 0.02 Hz between 50.2 Hz to 50.0 Hz.*
- (d) The Charge for Unscheduled Interchange in grid frequency interval of 'below 49.70 Hz and not below 49.68 Hz' 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.*
- (e) The UI Price Vector shall accordingly be in steps for a frequency interval of 0.02 Hz between 50.0 Hz to 49.70 Hz.*
- (f) The Charge for Unscheduled Interchange at grid frequency*

below 49.5 Hz shall be based on the highest of the average energy charges of generating stations for the six months period of August 2009 to January 2010 and suitably adjusted upward to decide on the UI price vector.

(g) The UI Price Vector shall be in steps for a frequency interval of 0.02 Hz between 49.70 Hz to 49.50 Hz corresponding to the Charge for Unscheduled Interchange in grid frequency interval of 'below 49.70 Hz and not below 49.68 Hz' and Charge for Unscheduled Interchange in grid frequency interval of below 49.50 Hz.

(3) The Cap rate for the charges for the Unscheduled Interchange for the generating stations using coal or lignite or gas supplied under Administered Price Mechanism (APM) as the fuel shall be the same as the charges for the Unscheduled Interchange corresponding to grid frequency interval of 'below 49.70 Hz and not below 49.68 Hz' as specified in Schedule "A" of these Regulations.

(4) The Cap Rate for the Unscheduled Interchange for the under draws by the buyer or the beneficiaries in excess of 10% of the schedule or 250 MW whichever is less shall be the same as the charges for the Unscheduled Interchange corresponding to grid frequency interval of 'below 49.70 Hz and not below 49.68 Hz' as specified in Schedule "A" of these Regulations.

(5) The Cap Rate for the Unscheduled Interchange for the 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 shall be the same as the charges for the Unscheduled Interchange corresponding to grid frequency interval of 'below 49.70 Hz and not below 49.68 Hz' as specified in Schedule "A" of these Regulations.

(6) The Charge for Unscheduled Interchange at grid frequency of '49.5 Hz and below', 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 and Schedule "A" of these regulations shall be re-notified accordingly."

16. We now propose to reduce the UI frequency band to 50.20 - 49.7 Hz. The first question before the Commission would be as to what should be

the frequency for operation of cap on UI volumes i.e. whether it should be 50 Hz point or 49.9 Hz or any other point.

17. Though the Commission is of the view that UI should not be used for intentional interchange of power, even it would be necessary that it continues to function as a real-time balancing market in a certain predetermined band till an alternative is found to UI. In view of narrowing down of frequency band, it may be reasonable that cap on UI volume is imposed at grid frequency of 49.80 Hz and below based on NLDC suggestion for the amendment of Grid Code. Deviation in schedule below a frequency of 49.7 Hz should attract additional UI charges, the previous limit for which was 49.5 Hz.

18. The Design of UI Mechanism therefore, needs to be reviewed against the above backdrop.

19. The energy charges of coal/lignite based generating stations regulated by CERC for the period Aug 2010 to Jan 2011 are at **Annexure-III**. It can be seen that the median value of energy charges of the coal based stations is 164.33 paise/kWh. As such, UI rate should be fixed at Rs. 1.65 /kWh at 50.00 Hz in line with earlier methodology.

20. The energy charges of Gas/RLNG/Liquid fuel based generating stations regulated by CERC for the period Aug 2010 to Jan 2011 are at **Annexure-IV**. It can be seen that the highest cost of generation is in case of Auraiya CCGT Station which is 896.02 Paise/kWh. As such, the UI charges at below 49.7 Hz may be kept as 900 paise/kWh to ensure that all generation including liquid fuel based generation is allowed to be generated and the beneficiaries prefer scheduling the generation rather than overdrawing from the grid at 49.7 Hz.

21. It would also be necessary to review the various cap rates specified.

22. The charges for the Unscheduled Interchange for the generating stations using coal or lignite or gas supplied under Administered Price Mechanism (APM) as the fuel, when actual generation is higher or lower than the scheduled generation were not to exceed the cap rate of Rs.

4.03/kWh. This cap rate may be retained at Rs. 4.03 /kWh considering the highest coal based energy charge of Rs. 3.00/kWh for the load centre station of Farraka. This would still provide sufficient incentive for these stations to provide grid support at low frequencies.

23. The Cap Rate for the Unscheduled Interchange for the under draws by the buyer or the beneficiaries in excess of 10% of the schedule or 250 MW whichever is less could now be linked to the generation based on imported coal including fixed cost element.

24. Similarly, the Cap Rate for the Unscheduled Interchange for the 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 could still be linked to the generation based on imported coal including fixed cost element.

25. The average Prices and GCV of imported coal during Aug 2010 to Jan 2011 in various stations of NTPC is as follows:

	Price Rs/MT	GCV (kCal/ Kg)
Rihand	8486.05	5726.00
TalcherSTPS	7056.19	5500.00
Ramagundam	5628.43	6236.96
Simhadri	6060.18	5500.00
Kahalgaon	7270.08	5467.70
Vindhyachal	8672.05	5810.00
Dadri	8185.71	6000.00
Talcher TPS	6239.51	5500.00

26. The Rihand, Singrauli, Ramagundam and Vindhyachal stations are Pit-head stations. On the other hand Stations like Simhadri is at the coast and Kahalgaon, and Dadri are load centre stations. Talcher STPS is near the coast. GCV of imported coal is around 5500 kCal/kg in case of Kahalgaon STPS and around 6000 kCal/kWh in case of Dadri TPS. Most of the Stations using imported coal are expected to be located near the coast. On this consideration, the energy charges for the imported coal based

stations work out to be in the range of ground Rs. 275 to 330 Paise/ kWh. Considering Fixed charges of the order of 110 to 120 Paise/kWh, the total charges of the imported coal based stations are expected to be in the range of 395 to 450 Paise/kWh. Accordingly, Cap rate may be fixed around Rs. 450 paise/kWh for the condition in Para 24.

27. The UI charges for the UI by a generating station 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 should not exceed the cap rate which is equal to median value of energy charge of Coal/lignite based stations. This has works out to be Rs. 1.64 /kWh.

28. Though there are instances of the beneficiaries overdrawling above the specified volume cap at one time or other, on over-all basis the overdrawals have reduced since the frequency band was last tightened on 3.5.2010 and, there is marked improvement in the grid frequency. Moreover, there are genuine efforts on the part of beneficiaries to take corrective actions if such violation takes place. As such, we are not inclined to make any change in the Volume cap at present.

29. The position of scheduled generation and scheduled draws by various States during April 2010 and March, 2011 is at **Annexure-V**. It has also been found that many of the States are overdrawing above the specified limits at different points of time and some States are found to draw even below 49.5 Hz, though there is reduction in the quantum and number of such violations.

30. Due to narrowing down of grid frequency and corresponding change in the Design of UI Mechanism, it is felt that the additional UI charge should be applied when grid frequency is below 49.7 Hz.

31. As earlier, additional charges may be in two slabs as follows:

- 1st slab would be "Below 49.7 Hz to 49.5 Hz" attracting an additional UI charge of 40% of the UI charge corresponding to the grid frequency of "below 49.7 Hz for the over draws by beneficiaries and

the buyers and 20% of the UI charge corresponding to the grid frequency of "below 49.7 Hz for the under injection by the generator and the sellers".

- 2nd Slab shall be "Below 49.5 Hz" attracting an additional UI charge of 100% of the UI charge corresponding to the grid frequency of "below 49.7 Hz for the over draws by beneficiaries and the buyers and 40% of the UI charge corresponding to the grid frequency of "below 49.7 Hz for the under injection by the generator and the sellers".

32. Further during the 15th CAC meeting held on 7.3.2011, NLDC suggested that grid frequency interval may be reduced to 0.01 Hz instead of 0.02 Hz. Since the frequency band is being narrowed down, we agree with the suggestion of NLDC. Accordingly, the step size is being kept as 0.01 Hz.

33. The UI Regulation is proposed to be amended accordingly in the following manner:

- i. The Charge for Unscheduled Interchange in grid frequency interval of 'below 50.01 Hz and not below 50.0 Hz' is set at 165 Paise/kWh.
- ii. The Charge for Unscheduled Interchange in grid frequency interval of 'below 49.81 Hz and not below 49.80 Hz' is set at 450 Paise/kWh.
- iii. The Charge for Unscheduled Interchange at grid frequency of 'below 49.7 Hz' is set at 900 Paise/kWh.
- iv. Accordingly, the UI charges shall be as follows in terms of Regulation 5 "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	<i>(Poise per kWh)</i>
	50.20	0.00
50.20	50.19	8.25
50.19	50.18	16.50
50.18	50.17	24.75
50.17	50.16	33.00
50.16	50.15	41.25
50.15	50.14	49.50
50.14	50.13	57.75
50.13	50.12	66.00
50.12	50.11	74.25
50.11	50.10	82.50
50.10	50.09	90.75
50.09	50.08	• 99.00
50.08	50.07	107.25
50.07	50.06	115.50
50.06	50.05	123.75
50.05	50.04	132.00
50.04	50.03	140.25
50.03	50.02	148.50
50.02	50.01	156.75
50.01	50.00	165.00
50.00	49.99	179.25
49.99	49.98	193.50
49.98	49.97	207.75
49.97	49.96	222.00
49.96	49.95	236.25
49.95	49.94	250.50
49.94	49.93	264.75
49.93	49.92	279.00
49.92	49.91	293.25
49.91	49.90	307.50
49.90	49.89	321.75
49.89	49.88	336.00

49.88	49.87	350.25
49.87	49.86	364.50
49.86	49.85	378.75
49.85	49.84	393.00
49.84	49.83	407.25
49.83	49.82	421.50
49.82	49.81	435.75
49.81	49.80	450.00
49.80	49.79	490.91
49.79	49.78	531.82
49.78	49.77	572.73
49.77	49.76	613.64
49.76	49.75	654.55
49.75	49.74	695.45
49.74	49.73	736.36
49.73	49.72	777.27
49.72	49.71	818.18
49.71	49.70	859.09
49.70		900.00

{Each 0.01 Hz step is equivalent to 8.25 Paise/kWh in the 50.2-50.00 Hz frequency range, 14.25 Paise/kWh in the below 50 Hz to 49.80 Hz frequency range and 40.91 Paise/kWh in the below 49.80 Hz}

34. It is pertinent to mention that the Commission has published on its website the Central Electricity Regulatory Commission (Grant of Connectivity, Long-Term Access and Medium-Term Open Access in Inter-State Transmission and related matters) (Second Amendment) Regulations 2011. The relevant provision for injection of infirm power by a generator as UI provides as under:

"The power injected into the grid by a generator which has not identified a buyer for the infirm power during the testing prior to COD of units / station from other generating stations shall be paid at UI rates for power injected in to the grid consequent to testing, subject to ceiling of following rates corresponding to the fuel used for the generation:

<i>Domestic coal/Lignite (Rs. / kWh sent out)</i>	:	1.65
<i>APM gas as fuel (Rs. / kWh sent out)</i>	:	2.60
<i>Imported Coal/RLNG (Rs. / kWh sent out)</i>	:	3.30
<i>Liquid Fuel (Rs. / kWh sent out)</i>	:	9.00

Provided that in case imported coal is being blended with the domestic coal then the ceiling rate of infirm power shall be arrived at in proportion to the ratio of blending based on the above rates of domestic and imported coal and shall be subject to a further ceiling of Rs. 1.90/ kWh sent out.

Provided further that in case the generating station uses natural gas (APM), RLNG and Liquid fuel in combination for power generation, then the rate of infirm power shall be arrived in proportion to ratio of fuel consumption based on the rates specified above."

35. The above provision is now proposed to be put in the UI regulations instead of Connectivity Regulations. Accordingly, the provision has been included in the Schedule A to the draft amendment regulations.

/ Annexure-I /

					(Figures in net MU)			
System /	April 09 – March 10				APRIL'10-MARCH.11			
	Requirement	Availability	Surplus / Deficit (-)		Requirement	Availability	Surplus / Deficit (-)	
Region	(MU)	(MU)	(MU)	(%)	(MU)	(MU)	(MU)	(%:
Northern Region	254,231	224,661	-29,570	-11.6	259,426	238,782	-20,644	-8.0
Western Region	258,528	223,127	-35,401	-13.7	268,452	232,835	-35,617	-13.3
Southern Region	220,576	206,544	-14,032	-6.4	229,853	217,929	-11,924	-5.2
Eastern Region	87,927	84,017	-3,910	-4.4	94,515	90,458	-4,057	-4.3
N. Eastern Region	9,332	8,296	-1,036	-11.1	9,879	9,009	-870	-8.8
All India	830,594	746,644	-83,950	-10.1	862,125	789,013	-73,112	-8.5

/ Annexure-II /

State / Sysem / Region	April 09-March 10				APRIL '10 – MARCH '11			
	Peak Demand	Peak Met	Surplus / Deficit (-)		Peak Demand	Peak Met	Surplus / Deficit (-)	
	(MW)	(MW)	(MW)	(%)	(MW)	(MW)	(MW)	(%)
Northern Region	37,159	31,439	-5,720	-15.4	37,431	34,101	-3,330 /	-8.
Western Region	39,609	32,586	-7,023	-17.7	40,798	34,819	-5.979/	-14
Southern Region	32,178	29,049	-3,129	-9.7	33,225	31,129	-2,096	-6.
Eastern Region	13,220	12,384	-836	-6.3	14,528	13,085	-1,443	-9.
N -Eastern Region	1,760	1,445	-315	-17.9	1,913	1,560	-353	.18
All India	119,166	104,009	-15,157	-12.7	125,077	112,167	-12.910	-10

/ Annexure – III /

S.No	Stations	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11	Average
1	TTPS	92.45	90.50	87.59	83.76	87.74	87.15	73.60
2	Korba STPS	83.24	80.02	73.53	92.91	81.66	90.87	83.71
3	Sipat-II	107.80	129.40	97.61	82.82	71.36	66.65	92.61
4	Rihand-I	140.99	167.74	122.56	127.47	120.87	117.21	132.81
5	Singrauli STPS	138.04	136.45	137.15	132.13	132.85	144.90	136.92
6	Vindhyanchal-II	144.04	154.12	126.97	134.31	127.62	141.80	138.14
7	Vindhyanchal-III	144.04	154.12	126.97	134.31	127.62	141.80	138.14
8	Rihand-II	146.84	172.95	128.63	133.81	127.31	121.44	138.50
9	Vindhyanchal-H	149.29	159.74	131.58	139.19	132.25	146.96	143.17
10	Talcher-II	175.73	146.22	157.12	150.66	149.55	170.81	158.35
11	Talcher-I	175.72	164.21	157.12	150.66	149.55	170.80	161.34
12	Ramagundam III	136.94	153.71	178.69	162.75	152.64	187.00	161.96
13	Ramagundam I&II	196.37	171.97	139.57	149.79	167.62	153.84	163.19
14	Simhadri-I	200.08	183.72	155.75	125.86	146.02	174.57	164.33
15	Tanda	230.56	212.91	191.45	197.26	201.37	192.29	172.26
16	TPS 1 Expansion	170.40	174.70	180.01	185.80	179.00	180.70	178.44
17	TPSII	185.80	192.10	187.80	186.60	186.60	186.50	187.57
18	Kahalgaon-II	189.37	210.40	192.52	177.50	184.25	199.95	192.33
19	Unchahar-II	197.91	193.33	197.08	194.22	189.09	187.38	193.17
20	Unchahar-I	198.74	198.02	197.29	193.88	188.78	187.37	194.01
21	TPSI	194.80	195.00	196.00	197.60	195.80	195.80	195.83
22	Unchahar-I	198.44	204.21	203.70	195.67	190.73	188.16	196.82
23	Kahalgaon-I	196.20	217.94	199.49	183.86	190.91	207.06	199.24
24	NCTPS-II	245.20	219.20	210.90	202.00	204.50	221.70	217.25
25	NCTPP Oadri	263.86	239.26	230.32	221.78	223.63	247.57	237.74
26	BTPS	354.11	343.77	275.47	294.24	298.98	320.04	255.42
27	Farakka STPS	306.94	307.35	306.22	289.15	287.37	293.85	298.48

/ Annexure – IV /

Stations		Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11	Average
Anta	Liquid	751.59	751.59	751.5	751.59	751.59	803.63	760.26
	Gas	249.60	266.96	244.47	264.48	288.95	248.61	260.51
	RLNG	371.46	351.19	348.38	359.76	363.70	410.58	367.51
Auriya	Liquid	878.80	887.30	887.30	887.16	887.16	948.39	896.02
	Gas	242.76	254.72	232.01	238.78	235.13	236.47	239.98
	RLNG	471.88	429.53	429.40	437.70	442.70	481.54	448.79
Dadri	Liquid	760.70	760.70	760.70	760.70	760.70	780.34	763.97
	Gas	246.53	253.83	242.59	236.79	237.36	238.52	242.60
	RLNG	404.97	417.29	418.43	433.34	437.17	492.75	361.13
Kawas	Liquid	614.25	601.34	601.34	380.44	380.44	695.07	545.48
	Gas	212.05	197.45	200.84	190.13	192.52	193.06	197.68
	RLNG	265.14	282.86	231.25	238.18	345.17	477.62	306.70
Gandhar	Gas	196.06	195.81	194.00	189.13	190.17	190.92	192.68
	RLNG	325.45	371.29	315.49	325.81	330.77	452.81	353.60
Kayamkul	Naptha	686.54	694.48	711.95	752.59	792.82	841.62	746.67
Faridabad	Liquid	782.66	772.03	772.03	353.83	768.59	772.21	703.56
	Gas	210.93	207.75	207.72	207.72	206.26	206.85	207.87
	RLNG	357.59	336.27	336.22	336.22	348.77	386.43	350.25
Assam	Gas	142.30	146.50	149.90	143.40	144.40	152.10	146.43
Agartala	Gas	195.00	198.00	192.80	186.30	186.90	189.50	191.42

/ Annexure – V /

	April 2010 to March 2011			
States/Stations/ System	Schedule	Drawl	Over Drawal (+) / Under Drawal (-)	% Over Drawal (+) / Under Drawal (-)
Northern Region	(From 01.04.10 to 31.03.11)			
Chandigarh	1600.03	1615.33	15.3	0.96
Delhi	19321.52	17114.93	-2206.59	-11.42
Haryana	12170.18	15418.45	3248.27	26.69
H.P.	3226.72	3159.83	-66.89	-2.07
J&K.	6535.07	6490.09	-44.98	-0.69
Punjab	19615.61	20556.38	940.77	4.80
Rajasthan	16790.21	19365.74	2575.53	15.34
U.P.	33068.89	34626.73	1557.84	4.71
Uttarakhand	4018.14	4426.06	407.92	10.15
Western Region	(From 01.04.10 to 31.03.11)			
Chhattisgarh	-3161.36	-4584.88	-1423.52	-45.03
Gujarat	10827.58	8520.99	-2306.59	-21.30
Madhya Pradesh	18144.28	18580.11	435.83	2.40
Maharashtra	28133.08	29241.16	1108.08	3.94
DD	2006.37	1888.4	-117.97	-5.88
DNH	4099.95	4180.67	80.72	1.97
Goa	3042.41	2839	-203.41	-6.69
Southern Region	(From 01.04.10 to 31.03.11)			
Andhra Pr.	12470.527	11368.708	-1101.819	-8.84
Kamataka	10184.057	10824.971	640.914	6.29
Derala	6926.336	7726.727	800.391	11.56
Tamilnadu	23218.476	24616.77	1398.294	6.02
Puducherry	2184.208	1942.307	-241.901	-11.07
Eastern Region	(From 29.03.10 to 27.03.11)			
Bihar	10179.45	10023.282	-156.168	-1.53
DVC	-1819.797	-106.23	1713.567	-94.16
Jharkhand	3779.788	3115.972	-663.816	-17.56
Orissa	6227.885	6211.268	-16.617	-0.27
B. Bengal	4140.267	4636.436	496.169	11.98
Sikkim	422.751	355.616	-67.135	-15.88

N.E.Region	(From 01.04.10 to 31.03.11)			
Arunachal Pr.	466.93	438.868	-28.062	-6.01
Assam	3592.81 6	3302.055	-290.761	-8.09
Manipur	597.095	511.833	-85.262	-14.28
Meghalaya	866.725	930.671	63.946	7.38
Mizoram	296.144	320.1	23.956	8.09
Nagaland	369.781	456.589	86.808	23.48
Tipura	133.055	75.075	-57.98	-43.58