

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 107/2010

Coram

- 1. Dr. Pramod Deo, Chairperson**
- 2. Shri S.Jayaraman, Member**
- 3. Shri V.S.Verma, Member**
- 4. Shri M.Deena Dayalan, Member**

DATE OF HEARING: 8.4.2010

DATE OF ORDER: 13.5.2010

In the matter of

Maintaining grid security of the Southern Regional Grid by curbing overdrawals and effecting proper load management by TNEB.

And in the matter of

Sothern Regional Load Despatch Centre, Bangalore

..Petitioner

Vs

Tamil Nadu State Electricity Board, Chennai,
Member-Secretary, Southern Regional Power Committee.

Respondent

Proforma Respondent

Following were present:

1. Shri V. Suresh, SLDC
2. Shri V.Chandran, TNEB

ORDER

This petition has been filed by Sothern Regional Load Despatch Centre (SLDC) alleging overdrawl at low frequency by the respondent during 24.2.2010 to 24.3.2010, despite issue of A,B and C messages under Section 29 of the Electricity Act, 2003 (the Act) read with para 5.4.2 (b) of the India Electricity Grid Code (the Grid Code).

2. Frequency profile of the Southern grid during the relevant period was as mentioned below:

Date	%Time Frequency (Hz)			
	< 49.2	< 49.5	49.2 - 50.3	> 50.3
24-Feb-10	1.8	42.60	98.20	0.00
25-Feb-10	9.00	65.80	91.00	0.00
26-Feb-10	28.70	88.50	71.30	0.00
27-Feb-10	16.60	80.90	83.40	0.00
28-Feb-10	0.10	22.60	98.60	1.30
1-Mar-10	0.80	40.90	98.40	0.80
2-Mar-10	0.20	53.70	99.40	0.40
3-Mar-10	3.20	70.00	96.80	0.00
4-Mar-10	27.20	89.00	72.80	0.00
5-Mar-10	17.50	79.70	82.50	0.00
6-Mar-10	3.10	53.50	96.40	0.50
7-Mar-10	2.10	43.90	97.50	0.40
8-Mar-10	8.10	75.00	91.90	0.00
9-Mar-10	23.10	85.60	76.90	0.00
10-Mar-10	12.90	80.40	87.10	0.00
11-Mar-10	7.50	67.50	92.50	0.00
12-Mar-10	5.20	56.40	94.50	0.30
13-Mar-10	9.10	59.50	90.30	0.60
14-Mar-10	3.60	42.70	96.40	0.00
15-Mar-10	4.10	58.70	95.90	0.00
16-Mar-10	23.20	82.90	76.80	0.00
17-Mar-10	20.30	76.00	79.70	0.00
18-Mar-10	13.90	67.40	86.10	0.00
19-Mar-10	23.10	85.70	76.90	0.00
20-Mar-10	20.90	74.50	79.10	0.00
21-Mar-10	0.90	38.90	98.80	0.30
22-Mar-10	11.70	63.60	88.30	0.00
23-Mar-10	24.50	84.10	75.50	0.00
24-Mar-10	41.10	89.20	58.90	0.00

3. It is observed that the depleting system frequency condition was primarily due to the persistent over-drawal by the respondent in the range of

300 to 800 MW. The details of over-drawal by the respondent under low frequency conditions during 24.2.2010 to 24.3.2010 are given as under:

Date	Frequency < 49.2 Hz			Frequency < 49.5 Hz		
	(MU)	% of Schedule	MAX (MW)	(MU)	% of Schedule	MAX (MW)
24-Feb-10	0.29	8.99	496	3.48	7.64	515
25-Feb-10	0.73	6.62	451	3.84	6.23	495
26-Feb-10	2.02	7.09	625	5.24	7.34	719
27-Feb-10	2.02	11.48	917	7.14	11.27	976
28-Feb-10	0.02	11.10	417	3.27	14.11	640
1-Mar-10	0.07	7.50	327	2.75	7.27	576
2-Mar-10	0.05	9.33	396	4.66	9.06	547
3-Mar-10	0.64	11.26	604	5.56	9.99	617
4-Mar-10	1.73	6.72	644	3.97	6.27	650
5-Mar-10	1.30	6.44	550	4.12	6.55	703
6-Mar-10	0.48	8.57	452	2.80	7.05	547
7-Mar-10	0.28	12.22	541	2.39	7.06	582
8-Mar-10	0.90	10.38	531	4.91	8.09	560
9-Mar-10	1.96	8.63	556	5.22	8.03	594
10-Mar-10	1.40	9.66	483	5.35	8.56	587
11-Mar-10	0.87	9.04	459	3.64	7.93	604
12-Mar-10	0.51	10.08	542	3.76	8.02	635
13-Mar-10	0.99	11.11	556	5.41	10.83	622
14-Mar-10	0.33	7.86	460	2.99	8.26	614
15-Mar-10	0.46	9.15	630	3.82	8.10	742
16-Mar-10	2.93	12.97	689	7.95	12.25	756
17-Mar-10	2.34	11.61	635	6.20	10.68	755
18-Mar-10	1.56	12.06	624	5.86	10.70	774
19-Mar-10	3.39	14.54	804	8.59	13.76	804
20-Mar-10	3.13	15.87	762	8.68	15.67	840
21-Mar-10	0.22	11.30	566	3.22	8.88	650
22-Mar-10	1.61	12.76	648	6.11	11.31	667
23-Mar-10	3.66	15.58	921	9.40	14.63	921
24-Mar-10	4.57	11.68	687	7.94	11.40	761

4. According to the petitioner, with a view to curtailing over-drawal and ensuring grid discipline, several messages were issued under Indian Electricity Grid Code (grid code) and Central Electricity Regulatory Commission (Unscheduled Interchange charges and related matters) Regulations, 2009

(UI Charges regulations).

5. Details of such messages are as under:

Date	A	B	C	*12% violation
24-Feb-10	25	3	0	58
25-Feb-10	27	7	2	51
26-Feb-10	22	17	3	63
27-Feb-10	21	17	2	81
28-Feb-10	7	0	0	41
1-Mar-10	15	1	0	44
2-Mar-10	13	1	0	71
3-Mar-10	21	5	0	74
4-Mar-10	15	12	4	40
5-Mar-10	22	13	1	47
6-Mar-10	15	2	0	34
7-Mar-10	9	1	0	37
8-Mar-10	21	10	2	64
9-Mar-10	25	16	6	70
10-Mar-10	25	12	1	71
11-Mar-10	12	7	1	48
12-Mar-10	19	1	1	43
13-Mar-10	20	7	2	67
14-Mar-10	13	4	0	37
15-Mar-10	19	4	0	51
16-Mar-10	20	15	6	84
17-Mar-10	16	14	7	75
18-Mar-10	19	11	1	68
19-Mar-10	10	18	8	85
20-Mar-10	19	18	6	82
21-Mar-10	4	1	0	45
22-Mar-10	22	13	1	69
23-Mar-10	19	21	8	90
24-Mar-10	11	27	10	91

*messages are issued to constituents for UI during any time block when the drawal was in excess of schedule by 12% or 150MW, whichever is less at frequency below 49.5Hz

6. It is significant that the number of type "C" messages issued in a day was as high as 8 (eight) and type "A" and type "B" messages per day exceed 10 (ten) on number of days. On perusal of the number of type "C" messages issued to respondent by the petitioner, it is evident that corrective action taken by the respondent in response to SRLDC's directions were of much delayed in nature as well as inadequate.

7. It came on record that as there was insufficient response to SRLDC's instructions by the respondent to curtail over drawal, even after advising to open out the radial feeders, physical regulation of power supply was also imposed by the petitioner, during the period from 16.3.2010 to 24.3.2010 after giving adequate time for corrective action to safeguard the grid security. The details of physical regulation implemented on the respondent during the period in question are as follows:

Sl. No.	Description	Actual tripping of ICTs / Lines			
		DATE	TIME	TNEB OD (MW)	Frequency (Hz)
1	400kV Salem Interconnector 1&2	16.3.2010	9:52	421	48.82
2	400kV Salem Interconnector 1&2	16.3.2010	12:36	545	48.62
3	230 kV Hosur - Soolagiri line	16.3.2010	12:49	302	48.80
4	400kV Salem Interconnector 1&2	16.3.2010	22:57	502	49.07
5	400kV Salem Interconnector 1&2	17.3.2010	22:55	269	49.20
6	400kV Salem Interconnector 1&2	19.3.2010	23:53	394	49.14
7	400kV Salem Interconnector 1&2	20.3.2010	22:51	369	48.80
8	400kV Salem Interconnector 1&2	24.3.2010	14:57	275	49.09

8. The petitioner has submitted that the criticality of grid condition was continuously taken up at all levels of respondent officials requesting for immediate corrective measures by them to avoid over drawal from the grid during low frequency condition. The petitioner has further submitted that Chairman, TNEB in his reply dated 8.3.2010 assured maintenance of grid discipline by continuous review of power situation. Despite the assurance given by Chairman, TNEB, there were persistent over drawal from the grid by respondent at low frequency, forcing the SR grid frequency to remain below 49.2Hz.

9. During the hearing, the representative of petitioner submitted that SR demand had increased considerably and reached all time high. The system security of the SR grid was at very low level as the voltage at Chennai bus reached 353 kV and the angular displacement between Ramagundam STPS and NLC TPS became 26° . The cooperation extended by the respondent in restricting its over-drawal at low frequency was inadequate despite issue of various messages to curtail over-drawal.

10. The representative of the respondent submitted that the increasing hot weather conditions coupled with Assembly Bye Elections during the period contributed to increase in power demand to an all time high of 11,680 MW. There had been no appreciable capacity addition in recent years in Central as well as State sectors. There was also low generation at two atomic power stations due to fuel shortage. There was further loss of generation due to

forced outage of number of generating units which were beyond the control of the respondent. The representative of the respondent further submitted that dip in frequency was caused on 26.2.2010 to 27.2.2010 and 1.3.2010 to 23.3.2010 due to the tripping of Kothagudam TPS, Raichur TPS and Vijayawada TPS. The respondent further detailed the following measures taken by it to implement demand side management:

- (a) Demand and Energy cut of 20% on both HT industrial and commercial consumers. This was later increased to 30%.
- (b) The HT industrial consumers were allowed to draw power from the grid during evening peak hours (18.00 Hrs to 22.00 Hrs) not more than 5% for lighting and security purposes.
- (c) For agriculture three phase supply was given for 10 hours. This was later reduced to 9 hours.
- d) Load shedding was carried out in town and district headquarters for two hours in rotation between 06.00 AM to 06.00 PM. This was later increased to 3 hours.

11. The respondent submitted that the delay in bringing on stream the new Central sector projects NLC TPS--II Expansion (2x250 MW) and Koodankulam (2x1000 MW) deprived it of around 1250 MW. Because of this, the respondent was forced to procure power from external sources on short-term open access incurring huge expenditure and also running the risk of this power being curtailed on very short notice due to transmission corridor congestion. He further submitted that the procured power of around 1024.05 MU and 1455.73 MU in the months of February 2010 and March 2010 respectively was

at a very high market price and the respondent had also procured power from Naptha based Kayamkulam power station on continuous basis. He added that all the under frequency relays were in service in its grid and actuated as per the setting. TNEB had adhered to the instructions of the petitioner to improve the grid frequency and maintaining the grid security. He also pointed out that there was no occurrence of untoward incident in the SR grid in the recent years indicating that the grid security is being maintained.

12. The representative of the respondent submitted that additional new generation capacity recently added in the region without commensurate strengthening of the transmission lines fully loaded Vijayawada-Nellore 400 kV D/C line. The inter regional import at Jeypore-Gazuwaka HVDC line is being restricted to avoid further loading of Vijayawada - Nellore corridor and thus depriving the allocation of power purchase by it through Exchange, which was also one of the reasons for lowering of frequency. According to him, if this bottleneck were cleared, the respondent would have been in a position to procure more power and improve the grid frequency.

13. The representative of the respondent also submitted that there had been no willful/deliberate contravention of the Grid Code. He further requested to take lenient view to enforcing the open access regulations due to low hydro generating capacity in TNEB. The additional demand during summer months, assembly by-election in the State, the phenomenal growth

in demand witnessed and the restricted operating range of frequency were also cited as reason for the problem.

14. Having heard the parties and considered the material on record we are of the view that the matter is required to be investigated in detail by Adjudicating Officer under section 143 of the Electricity Act, 2003 (the Act). Accordingly we hereby appoint one of us namely Shri V. S. Verma, as an Adjudicating Officer to enquire into the matter and make appropriate orders under section 143 of the Act.

15. With this, Petition No. 107/2009 stands disposed of.

Sd/-	sd/-	sd/-	sd/-
(M.DEENA DAYALAN)	(V.S.VERMA)	(S.JAYARAMAN)	(Dr. PRAMOD DEO)
MEMBER	MEMBER	MEMBER	CHAIRPERSON