

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 195/ MP/2011

**Coram : Shri S. Jayaraman, Member
Shri V.S. Verma, Member
Shri M. Deena Dayalan, Member**

**Date of Hearing: 13.10.2011
Date of Order: 14.10.2011**

In the matter of:

Maintaining grid security of the entire North East West (NEW) grid by cubing overdrawals and effecting proper load management by Northern Region constituents in terms of the Indian Electricity Grid Code and electricity Act 2003.

And in the matter of:

Northern Regional Load Despatch Centre,
18/A, Qutab Institutional Area,
New Delhi – 110016

..... Petitioner

And

1. Uttar Pradesh Power Transmission Corporation Ltd, Lucknow
2. Haryana Vidyut Prasaran Nigam Ltd., Jaipur
3. Rajasthan Rajya Vidyut Prasaran Nigam Ltd., Jaipur,
4. Power Transmission Corporation of Uttarakhand Ltd., Dehradun
5. Power Development Department, Govt. of J&K, Jammu
6. HPSEB Ltd., Simla
7. Punjab State Transmission Corporation Ltd., Patiala
8. Delhi Tansco Ltd., New Delhi
9. Electricity Department, Chandigarh

Respondents

10. Member Secretary, Northern Regional Power Committee, New Delhi

.....Proforma Respondent

Parties present:

1. Shri S.K. Soonee, CEO, POSOCO
2. Shri V.V. Sharma, GM, NRLDC
3. Shri Debasis De, DGM, NRLDC
4. Shri D.K. Jain, DGM, NRLDC
5. Shri R.K. Agarwal, GM (NRLDC)
6. Shri R.K. Porwal, CM, NRLDC
7. Smt Jyoti Prasad, CM, NRLDC

8. Shri Vivek Pandey, Manager, NRLDC
9. Shri Amrik Singh, NRPC
10. Shri Ajay, Talegaonkar, NRPC
11. Shri P.K. Pahwa, NRPC
12. Shri Rahul Srivastava, Advocate, UPPCL
13. Shri B P Pant, UPPCL
14. Shri Gagan, Asst. Engineer, HPSEB
15. Shri Ashok Kumar, Manager, SJVNL
16. Shri Prashant KR, Manager, SJVNL
17. Shri Sanjay Arora, HVPN
18. Shri M.G. Single, PSTCL
19. Shri S.K. Jain, RRVPNL
20. Shri A.K. Arya, SEN(PC), RRVPNL
21. Shri Roop Kumar, GM SLDC, DTL
22. Shri V.V. Venugopal, DGM (SO), DTL
23. Shri S K Jain, UPPCL
24. Shri S Bhatnagar, PTCUL

Interim Order

In this petition, the petitioner, Northern Regional Load Despatch Centre, New Delhi has submitted that the frequency profile of the entire North, North-East, East and West (NEW) grid has undergone sharp deterioration since the last few days in September/October 2011. The petitioner has placed on record the detailed frequency profile of the NEW grid from 23.9.2011 till 6.10.2011 at Annexure-I to the petition. The petitioner has submitted that on certain days i.e. 28th and 29th September 2011, the frequency remained below 49.5 Hz. for more than 50 % of time.

2. The petitioner has submitted that there has been a reduction in availability of thermal generation in the grid due to coal shortage and other related issues. The regional entities are well informed about the reduced generation availability on day-ahead basis through the declared capability of the generating stations. Moreover,

adequate margins in the transmission network are available for procurement through short-term open access.

3. The petitioner has placed on record the daily overdrawal position in respect of the constituents of the Northern Region from 23.9.2011 to 6.10.2011 at Annexure II to the petition. The petitioner has submitted that the daily overdrawal by the constituents of Northern Region, particularly the States of Uttar Pradesh, Haryana and Rajasthan has been significantly high. The petitioner has summarized the maximum and average overdrawal by the constituents of Northern Region as under:-

Regional Entity	Overdrawal in MUs from 23.9.2011 to 6.10.2011	
	Maximum	Average
Uttar Pradesh	35.7	24.3
Haryana	19.8	10.0
Rajasthan	17.9	4.0
Uttarkhand	3.9	1.4
Jammu & Kashmir	3.0	0.6
Himachal Pradesh	2.6	0.3
Delhi	3.4	-5.8
Punjab	3.1	-0.2
UT Chandigarh	-0.1	-0.3

4. The petitioner has further submitted that in line with the provisions of Central Electricity Regulatory Commission(Indian Electricity Grid Code) Regulations, 2010 (hereinafter the “the Grid Code”), NRLDC has been issuing messages to the defaulting State Control Areas/Regional Entities in real-time with regard to the overdrawal from the grid during low frequency period. The petitioner has summerised the type A, B & C

messages issued by NRLDC to the defaulting constituents from 26.9.2011 till 6.10.2011 as under:

Message Type A,B&C issued by NRLDC from 23.9.2011 to 6.10.2011			
Regional Entity	Message-A	Message-B	Message-C
	Message in line with Regulation 6.4.7 of Grid Code	Messages intimating violation of Regulations 5.4.2(a) & 6.4.7 of Grid Code	Messages intimating violation of Regulations 5.4.2(b) of Grid Code & Section 29(2)&(3) of Electricity Act,2003
Uttar Pradesh	50	48	23
Haryana	48	39	12
Rajasthan	17	12	6
Uttarkhand	19	10	2
Jammu & Kashmir	18	20	5
Himachal Pradesh	6	3	0
Delhi	6	3	0
Punjab	4	1	0
UT Chandigarh	1	0	0

5. The petitioner has also submitted that apart from the messages issued to the Regional entities, the General Manager, NRLDC in his letter dated 29.9.2011 has brought to the notice of the drawee Regional Entities the heavy overdrawal being resorted to by the constituents and requesting for curtailing the over drawal so that the grid is operated in accordance with the provisions of the Grid Code. However, the directions given by NRLDC have also not been complied with. The petitioner has further submitted that the frequency profile leads to the inference that the automatic demand management schemes as mandated in Regulation 5.4.2 of the Grid Code are either ineffective or yet to be implemented. It has been submitted that despite all efforts made by NRLDC, some of the Regional Entities are continuing to endanger the grid security

and are repeatedly violating the various provisions of the Grid Code as well as Electricity Act, 2003 (the Act).

6. The petitioner has made the following prayers:

(a) Direct the SLDCs/STUs of the Northern Region to comply with Regulation 5.4.2, 6.4.7 and 6.4.8 of the Indian Electricity Grid Code (IEGC) and restrict the drawal of its control area from the grid within the net drawal schedule whenever the system frequency falls to 49.7 Hz and to ensure that requisite load shedding is carried out so that there is no overdrawal when the frequency is below 49.5 Hz or below.

(b) Direct the SLDCs/STUs of the Northern Region to comply with the directions of NRLDC given under Section 29(1) of the Electricity Act 2003.

(c) Direct the SLDCs/STUs of the Northern Region to take necessary steps for proper demand management.

7. During the hearing, the representative of the petitioner made a brief presentation on the grid condition and overdrawal by the constituents of the Northern Region till 10.10.2011. He submitted that during the past few days, average frequency of the NEW grid was below 49.0 Hz and frequency remained below 49.5 Hz for more than 70% of the time during the day on account of heavy overdrawal by Northern Region constituents from the grid. In reply to our query regarding operation of Under Frequency Relays(UFR), the representative of the petitioner submitted that these relays are apparently being bypassed as a result of which the desired results from the UFRs are

not available. The representative of the petitioner also clarified that some of the identified radial transmission lines were opened in the past in the States of Uttar Pradesh and Haryana; however, opening of these lines did not provide the desired load relief. He further submitted that in a system of integrated grid, opening of trunk lines and isolating the States was almost impossible as it would lead to grid disturbance or reduced level of grid security and affect the generating stations also.

8. The representative of the petitioner prayed that suitable interim directions may be issued to the Northern Region constituents to stop overdrawal from the grid forthwith and to keep all the UFRs in operation to prevent threat to grid security.

9. Learned counsel for Uttar Pradesh Power Transmission Corporation Ltd, Respondent No.1, submitted that despite its resorting to heavy load shedding, the load relief is not visible, apparently on account of very large load requirement of the State. In reply to our query as to whether the SLDC has a contingency procedure to deal with the situation, the representative of Respondent No.1 replied in the affirmative. The representative of Delhi Transco Ltd. (Respondent No.8) submitted that due to heavy load shedding, the required load relief is not observed from the UFRs. He further submitted that the situation has been aggravated on account of reduced generations from NTPC stations. The representative of Haryana Vidyut Prasaran Nigam Ltd. (Respondent No.2) submitted that though it has issued directions to its distribution companies to curb load shedding, the directions are not being complied with. The Commission clarified that the respondent should approach the State Commission if the distribution companies are not complying with its directions. The representatives of

Punjab Transmission Corporation Ltd.(Respondent No.7) submitted that it has been complying with the provisions of the Grid Code by not overdrawing from the grid; however it is suffering on account of overdrawal by other constituents of the northern region. The representatives of Rajasthan Rajya Vidyut Prasaran Nigam Ltd. (Respondent No.3) has submitted that on account of power shortage, scheduled cuts in supply of power have been imposed in the state.

10. The representative of NRPC submitted that though it has been monitoring the UFRs operating in Northern Region through physical check, the constituent states may be bypassing the UFRs after the inspection by the teams of NRPC is over. Moreover, from the data available with NRPC, it is observed that requisite load relief was not achieved on 16.08.2011, when frequency went below 48.8 Hz.

11. The representative of NTPC submitted that NTPC alone cannot be held responsible for the current shortage of supply of power as there is shortfall in the state sector generation which has contributed to the low grid frequency. He further submitted that the reduced generation from NTPC stations was on account of coal shortage and the Commission may consider to hear the views of the agencies responsible for supply of coal.

12. We have considered the submissions of the petitioner, the respondents present and the representative of NTPC. We are deeply concerned with the dismal condition of the NEW grid which has been brought to our notice by the petitioner. No doubt there is shortage of coal supply which has adversely affected the generation. However, the

respondents are aware of the change in schedule on day ahead basis. Therefore, it is incumbent on the respondents to plan their demand side management keeping in view the availability of power in the grid. The respondents are not at liberty to make up the shortfall in their scheduled drawal by overdrawing from the grid. It should not be lost sight of by anybody that in an integrated grid like NEW grid, overdrawal by any constituent without corresponding injection will imperil the safety and security of the grid. Continued and unabated overdrawal from the grid has the potential for grid failure which has serious ramification on the essential services and economy of the country.

13. Regulation 5.4.2 of the Grid Code mandates certain statutory responsibilities on the part of SLDCs and distribution licensees in order to ensure the safety and security of the grid. Regulation 5.4.2 of Grid Code is extracted below:-

" 5.4.2 Demand Disconnection

- (a) *SLDC/ SEB/distribution licensee and bulk consumer shall initiate action to restrict the drawal of its control area ,from the grid, within the net drawal schedule whenever the system frequency falls to 49.7 Hz*
- (b) *The SLDC/ SEB/distribution licensee and bulk consumer shall ensure that requisite load shedding is carried out in its control area so that there is no overdrawal when frequency is 49.5 Hz. or below.*
- (c) *Each User/STU/SLDC shall formulate contingency procedures and make arrangements that will enable demand disconnection to take place, as instructed by the RLDC/SLDC, under normal and/or contingent conditions. These contingency procedures and arrangements shall regularly be / updated by User/STU and monitored by RLDC/SLDC. RLDC/SLDC may direct any User/STU to modify the above procedures/arrangement, if required, in the interest of grid security and the concerned User/STU shall abide by these directions.*
- (d) *The SLDC through respective State Electricity Boards/Distribution Licensees shall also formulate and implement state-of-the-art demand management schemes for automatic demand management like rotational load shedding, demand response (which may include lower tariff for interruptible loads) etc. before 01.01.2011, to reduce overdrawal in order to comply para 5.4.2 (a) and (b) . A Report detailing the scheme and periodic reports on progress of implementation of the schemes shall be sent to the Central Commission by the concerned SLDC.*
- (e) *In order to maintain the frequency within the stipulated band and maintaining the network security, the interruptible loads shall be arranged in four groups of loads, for scheduled power*

cuts/load shedding, loads for unscheduled load shedding, loads to be shed through under frequency relays df/dt relays and loads to be shed under any System Protection Scheme identified at the RPC level. These loads shall be grouped in such a manner, that there is no overlapping between different Groups of loads. In case of certain contingencies and/or threat to system security, the RLDC may direct any SLDC/ SEB/distribution licensee or bulk consumer connected to the ISTS to decrease drawal of its control area by a certain quantum. Such directions shall immediately be acted upon. SLDC shall send compliance report immediately after compliance of these directions to RLDC."

14. It is clear from the above provisions that the SLDCs/Distribution licensees shall carry out requisite load shedding to ensure that there is no over drawal below the frequency of 49.5 Hz. The said regulation further provides that the RLDCs may direct the SLDCs/distribution licensees to decrease drawal of its control area by certain quantum which shall be immediately acted upon and it is the responsibility of SLDC to sent compliance report of the direction to RLDCs. From the data submitted by the petitioner it is observed that the SLDCs of UP, Haryana and Rajasthan have failed to comply with the directions of RLDCs to curtail overdrawal.

15. Regulation 5.4.2 (d) of Grid Code provides for formulation and implementation of demand management schemes by each SLDC through respective State Electricity Boards/distribution licensees by 1.1.2011 to reduce overdrawal from the grid. The petitioner has submitted that the automatic demand management schemes as envisaged in Regulation 5.4.2(d) of Grid Code are either ineffective or yet to be implemented. The representative of NRPC has submitted that the UFRs may be bypassed after the monitoring inspection since the required load relief is not forthcoming. This is a matter of serious concern as the contingency measures are not in place to effectively address the situation of shortage of supply of

power. The protection mechanisms provided in the Grid Code have to be strictly complied with all concerned agencies.

16. Considering the seriousness of the situation, we direct issue of notices to the State Load Despatch Centres, State Transmission Utilities and State Electricity Boards/the Distribution licensees in the Northern Region to explain by 28.10.2011 the reasons for non-compliance of the provisions of the Grid Code with regard to maintenance of required grid frequency and non-compliance of the directions of NRLDC in violation of section 29 of the Act during the period 23.9.2011 to 6.10.2011 and thereafter.

17. We also direct the following agencies to submit the information regarding compliance of the provisions of the Grid Code by 28.10.2011:

(a) The State Load Despatch Centres/ State Transmission Utilities of the Northern Region to submit the current status of the contingency procedures and arrangements required to enable demand disconnection as mandated under Regulation 5.4.2 (c) of Grid Code.

(b) The State Load Despatch Centres/ State Transmission Utilities of the Northern Region to submit the current status of the automatic demand management schemes mandated under Regulation 5.4.2 (d) of the Grid Code indicating date of implementation, the reasons for non-implementation within the stipulated time, if any, the maintenance and operational preparedness of the scheme.

- (c) State Load Despatch Centres/ State Transmission Utilities of the Northern Region to submit a report on installation of UFRs and their healthiness in compliance with the Regulations 5.2(n) of the Grid Code.
- (d) State Load Despatch Centres/ State Transmission Utilities of the Northern Region to submit the contingency procedures to avoid overdrawal and meet the contingency conditions of the grid.
- (e) State Load Despatch Centres/State Transmission Utilities of the Northern Region shall submit the details of efforts made by the State to bridge the demand supply gap including increasing generation in State sector generating stations and procurement of power under open access. They shall also submit information on coal stock position in State sector generating stations.
- (f) NRLDC shall submit a proposal on the possible course of actions that can be taken during contingency in the event of non-compliance of its directions.
- (g) NRPC & NRLDC shall submit a report on UFR operation and actions taken in compliance of Regulations 5.2(n) of the Grid Code.

18. NTPC is directed to file a status report on the coal shortage, fuel stock position and reduced generation in its generating stations during the period 23.9.2011 to 6.10.2011 and thereafter and its contingency plan regarding the generation from its generating stations supplying power to the Northern Region over the next one month. We also direct Coal India Limited to make submission on availability position of coal for the generating stations of the Northern Region.

19. The petitioner has sought interim directions to the respondents for ensuring safety and security of the grid and to obviate any possibility of grid disturbance. We are convinced that urgent actions are called for to maintain the grid at the frequency specified in the Grid Code and to ensure smooth operation of the grid. Accordingly, the following directions are issued for strict compliance by the respondents till further orders:

- (a) The respondents shall not resort to any overdrawal from the NEW grid when the frequency is below 49.5 Hz. and shall comply with the provisions of Grid Code.
- (b) The respondents shall ensure that the directions of NRLDC issued under section 29 of the Act are faithfully complied with and reported to NRLDC immediately.
- (c) The respondents shall ensure that the Under Frequency Relays (UFR) are kept in service at all times and the feeders used for load shedding through UFRs are different from the feeders used for manual load shedding so that the security of the grid is not compromised.

20. We direct that it shall be the personal responsibility of the officers in overall charge of the State Transmission Utilities/ State Load Dispatch Centers to ensure compliance of the directions in Para 19 above and non-compliance of the above directions in any form will be viewed seriously and appropriate actions under provisions of the Act shall be taken.

21. The matter shall be listed for hearing on 1.11.2011.

sd/-
(M Deena Dayalan)
Member

sd/-
(V S Verma)
Member

sd/-
(S Jayaraman)
Member