

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Adjudication Case No. 4/2010

Coram:
**Shri M. Deena Dayalan, Member and
Adjudicating Officer**

Date of hearing: 11.4.2011

Date of Order: 23.9.2011

In the matter of

Maintaining grid security of the entire North East West (NEW) grid by curbing overdrawals and effecting proper load management by Northern Region constituents.

**And
In the matter of**

Rajasthan Rajya Vidyut Prasaran Nigam Ltd ... **Respondent**
Member Secretary, Northern Regional Power Committee
.. **Proforma Respondent**

The following were present:

1. Shri Vivek Pandey, NRLDC
2. Shri A Mani, NLDC – POSOCO
3. Shri S K Jain, RRVPNL
4. Shri A K Arya, RVPNL

ORDER

Petition No. 129/2010 was filed by Northern Regional Load Despatch Centre (NRLDC) seeking the following reliefs:

- (a) Direct the Northern Regional SLDCs and State Control Areas in the Northern Region to honour paras 5.4.2, 6.4.7 and 6.4.8 of the



Indian Electricity Grid Code (hereinafter referred to as "IEGC") and curb their overdrawals when the frequency is below 49.20 Hz. so that the NEW grid is secure;

(b) Direct SLDCs and State Control Areas in the Northern Region to honour the directions of RLDC under section 29 (1) of the Electricity Act, 2003 (hereinafter referred to as "the Act");and

(c) Direct SLDCs and State Control Areas in the Northern Region to take necessary steps for proper load management so as to avoid overdrawal in the ensuing months.

2. According to the petitioner, the frequency profile of the NEW grid had undergone sharp deterioration since the start of the month of April 2010 and the percentage of time during which frequency remained below 49.2 Hz reached up to 80 % on 9.4.2010. The petitioner submitted that the primary reason for the sustained low frequency was overdrawals by the State Control Areas/Regional Entities in Northern Region. As per the details submitted by the petitioner, during 1st to 9th April 2010 all the State Control Areas with the exception of Delhi, were heavily overdrawing from the grid. Based on SCADA data, it was urged that the maximum over-drawal by Rajasthan State control area during 1st to 9th April 2010 was up to 492 MW when frequency was below 49.2 Hz. (during the subject time period the



stipulated frequency range as per IEGC was 49.2-50.3 Hz.) and average overdrawal was 2.4 MU per day.

3. The petitioner submitted that in line with the provisions of IEGC, it issued different types of messages to the defaulting State Control Areas/Regional Entities in real-time with regard to overdrawal from the grid during low frequency period. Briefly, the scheme for issue of different types of message is as given below:

Message-Type	Subject Description
Caution message in line with para 6.4.7 of IEGC (Message type A)	Intimation of Low frequency operation and request to restrict the drawal within schedule
Violation of IEGC paras 5.4.2 (a) and 6.4.7 (Message type B)	Intimation regarding violation of paras 5.4.2 (a) and 6.4.7 of the IEGC and directions under paras 5.4.2 (b) of IEGC and sub-section (1) of 29 of the Electricity Act, 2003 for immediate action for restriction of overdrawal in order to avert threat to system security
Violation of IEGC para 5.4.2 (b) and sub-sections (2) and (3) of Section 29 of the Electricity Act, 2003 (Message type C)	Intimation of violation of para 5.4.2(b) of IEGC and sub-sections (2) and (3) of Section 29 of the Electricity Act, 2003 and request for immediate action for curtailing the overdrawal, in the interest of grid safety and security

4. As regards the respondent in the present Adjudication proceedings, it was submitted that during 1st to 9th April, 2010 at least 23 numbers of "Caution messages" (Message type A) and 18 numbers of "Violation



messages" (15 numbers type "B" Message and 3 numbers type "C" Messages) were issued to SLDC, Rajasthan.

5. The petition was heard after notice to the parties. Consequent to the hearing in which several utilities of the Region, including the respondent herein participated, the Commission vide its order dated 4.11.2010 noted that RRVPNL had not denied the factum of overdrawal and receipt of messages. Further, in the above order dated 4.11.2011, the Commission had also observed that there was indiscriminate overdrawal from the Grid and non-compliance of directions issued by NRLDC under sub-sections (2) and (3) of Section 29 of the Electricity Act, 2003 (hereinafter referred to as "the Act") by many utilities in Northern Region including the respondent herein viz. Rajasthan Rajya Vidyut Prasaran Nigam Ltd. (RRVPNL). The Commission accordingly, appointed the undersigned as the Adjudicating Officer for conducting the enquiry against the respondent for non-compliance with the directions of NRLDC under Section 143 of the Act.

6. The undersigned had issued notice under Section 143 of the Act directing the respondent to show cause as to why enquiry for the reported overdrawl should not be held against for non-compliance of the directions of the NRLDC. Thereafter, the undersigned issued notice



on 11.2.011 to the respondent for holding enquiry against it for non-compliance with the direction of NRLDC.

7. In its reply dated 14.3.2011, the respondent has made following submissions :

(a) SLDC had made all out efforts to curtail the overdrawal by giving messages to DISCOMS in writing as well as orally through telephone. The unscheduled load shedding is being carried out by giving telephonic messages in writing or verbally to individual grid sub-station. Messages conveyed to field offices for effecting load shedding in compliance to directions issued by NRLDC are done manually by SLDC and DISCOMS, due to which action for desired load relief takes some time. The instructions of SLDC/DISCOMs conveyed through 220 kV grid sub-station takes about 15 to 20 minutes to reach the actual locations of 33 kV and 11 kV feeder from where load shedding is being done.

(b) In the instant case, 11 numbers of B Messages and 3 numbers of C Messages were issued by NRLDC to RVPNL during 1st to 9th April 2010. As soon as any message was received from NRLDC, the same was forwarded to the concerned overdrawing distribution companies for immediate compliance. Apart from this, SLDC on its



own used to issue messages to overdrawn distribution company to curtail overdrawal. A number of messages were issued by SLDC to distribution companies on 8th and 9th April 2010 to curtail overdrawal.

(c) Out of the 14 instances, on 10 instances the frequency had improved to 49.2 Hz either in the instant block or in the next block. In the remaining 4 instances the frequency had improved gradually with the reduction in overdrawal .

(d) The messages conveyed to field offices for effecting load shedding in compliance of directions issued by NRLDC are done manually by SLDC as well as Discoms and not electronically as being done by NRLDC due to which action desired load relief takes some time.

8. In the subsequent reply submitted on 13.4.2011 also, the respondent reiterated that adequate measures to curtail the overdrawal were taken by it on NRLDC directions.

9. The respondent in its reply dated 28.4.2011 has further submitted that in compliance of Clause 5.4.2 (d) of the IEGC, the SLDC in consultation with distribution licensee has formulated scheme for demand management to reduce overdrawl when the frequency



declining below 49.5 Hz and same was forwarded to Commission for information.

10. The petitioner, NRLDC, in its submission dated 18.5.2011, in response to the directions vide Record of Proceedings dated 11.4.2011, submitted that the claim of compliance of messages by the respondent was based on frequency improvement to 49.2 Hz. irrespective of the elapse of time after issuance of the message and quantum of overdrawal reduction. In most of the instances System frequency improved to 49.2 Hz. after considerable time gap and there was very little reduction in overdrawal of the Rajasthan control area. NRLDC has also submitted that the respondent has claimed that in compliance of 5.4.2.(d) of IEGC, a demand management scheme has been formulated but this scheme is indicated to be manual while the IEGC stipulates for automatic demand management schemes.

11. Having heard the representatives of the parties and examined the material on record, I proceed to dispose of the matter hereunder.

Analysis of the actions taken by the Respondent on B and C Messages

12. Respondent has submitted that it received 11 numbers "B" and 3 numbers "C" Messages. Only these messages have been considered for analysis of the action or the inaction of the respondent.



13. The relevant provision under para 5.4.2 of IEGC (as was in vogue during April 2010) are reproduced below:

"5.4.2 Manual Demand Disconnection

- (a) As mentioned elsewhere, the constituents shall endeavour to restrict their net drawal from the grid to within their respective drawal schedules whenever the system frequency is below 49.5 Hz. When the frequency falls below 49.2 Hz, requisite load shedding (manual) shall be carried out in the concerned State to curtail the over-drawal.*
- (b) Further, in case of certain contingencies and/or threat to system security, the RLDC may direct an SLDC to decrease its drawal by a certain quantum. Such directions shall immediately be acted upon.*
- (c) Each Regional constituent shall make arrangements that will enable manual demand disconnection to take place, as instructed by the RLDC/SLDC, under normal and/or contingent conditions.*
- (d) The measures taken to reduce the constituents' drawal from the grid shall not be withdrawn as long as the frequency/voltage remains at a low level, unless specifically permitted by the RLDC."*

14. Further, para 6.4.7 of IEGC (as was in vogue during April 2010) provided as under:

- "7. Provided that the States, through their SLDCs, shall always endeavour to restrict their net drawal from the grid to within their respective drawal schedules, whenever the system frequency is below 49.5 Hz. When the frequency falls below 49.2 Hz, requisite load shedding shall be carried out in the concerned State(s) to curtail the over-drawal."*

15. The relevant provisions under Section 29 of the Act are reproduced below:

"29. Compliance of directions- (1) The Regional Despatch Centre may give such directions and exercise such supervision and control as may be required for ensuring stability of grid operations and achieving the maximum economy and efficiency in the operation of the power system in the region under its control.

(2) Every licensee, generating company, generating station, substation and any other person connected with the operation of the power system shall comply with the direction issued by the Regional Load Despatch Centres under sub-section (1).

(3) All directions issued by the Regional Load Despatch Centres to any transmission licensee of State transmission lines or any other licensee of the State or generating company (other than those connected to inter State transmission system) or sub-station in the State shall be issued through the State Load Despatch Centre and the State Load Despatch Centres shall ensure that such directions are duly complied with the licensee or generating company or sub-station. "

16. From the records of the case it emerges that out of 11 the messages, reported to have been received by the respondent itself, at least on 4 instances, the direction of NRLDC through "B" Messages were not complied with, as the overdrawal was continued even after more than 15 minutes of the message, with the frequency still below 49.2 Hz. In case of other messages either the overdrawal was reduced or the frequency was improved and went above 49.2 Hz. It is also significant to mention that the improvement in frequency cannot be attributed



exclusively to the respondent; but it could have been due to cumulative action by other utilities i.e. reduction of overdrawal or increase of underdrawal or increase in generation.

17. The non-compliance of 4 numbers "B" Messages are discussed below in detail:

(a) "B" Messages at 1413 hours and 1420 hours on 8.4.2010:

Before issuance of the first of the above stated "B" Messages, on 8.4.2010, the grid frequency remained below 49.5 Hz. since 1402 hours. The respondent was overdrawing about 400 MW from the grid. This was against the stipulation in para 5.4.2 (b) of IEGC. Message "B" was issued at 1413 hours when frequency was 48.91 Hz. and overdrawal by the respondent was about 320 MW. After this "B" Message frequency further deteriorated and overdrawal continued even with increased quantum up to about 440 MW, resulting in next "B" Message at 1420 hours. Even after second "B" Message the overdrawal continued. Although the frequency improved slightly at 1428 hours, for few minutes (but remained below 49.5 Hz.), it again went below 49.2 Hz. touching 48.82 Hz. and respondent continued overdrawal of about 300 MW. In both the "B" Messages the respondent was clearly directed to restrict drawal within its schedule. But overdrawal was continued for a

substantial period of time i.e. for about 1 hour and 30 minutes when frequency was below 49.5 Hz. (most of the time hovering around or remaining below 49.2 Hz.) even after direction by NRLDC to restrict drawal within its schedule. In its submission , respondent had also admitted that frequency improved only in 5th and 4th time block after issuance of "B" Messages at 1413 hours and 1420 hours, respectively. From the data submitted by the respondent it is noted that total outage of generation was 856 MW against which the load shedding was 184 and 362 MW only, at the time of these two "B" Messages. It is also noted that the actual demand on 8th April 2010 was lower than forecasted demand, implying that there was no sudden increase of demand due to which Rajasthan was compelled to overdraw from grid even at dangerously low frequency. It is observed that though overdrawal was reduced to some extent after the messages but it was not reduced to zero as directed in these messages. In the Message "B" issued by NRLDC to SLDC, Rajasthan, it was clearly directed to restrict drawal within its schedule. The relevant portion of the Message "B" issued by NRLDC are as under:

" Further, it is a matter of serious concern that despite the low frequency conditions in the grid, the overdrawal by Rajasthan State Control Area is continuing. You would agree that operation of grid at present level of frequency is a threat to system security and in order to ensure stability of the Grid, NRLDC is issuing directions under Clause 5.4.2 (b) of IEGC and Section 29(1) of



Indian Electricity Act 2003, to increase the generation and / or carry out manual load shedding in Rajasthan State Control Area in order to restrict its drawl within schedule and also inform the details of the action taken. Please note that the non-compliance of these directions would be construed as violation of IEGC and IE Act 2003 and would be brought to the notice of the Hon'able Central Electricity Regulatory Commission (CERC)."

Even the data submitted by the respondent corroborates the above point. Therefore, I hold that the action by the respondent was inadequate and there was clear non-compliance of direction of NRLDC, in the form of "B" Messages issued at 1413 and 1420 hours on 8.4.2010.

(b) Message "B" at 1712 hours on 8.4.2010 :

Before issuance of this "B" Message, at 1712 hours on 8.4.2010, the grid frequency was below 49.5 Hz. (remaining below 49.2 Hz. for substantial period of time) since 1624 hours , except improvement for few minutes and Rajasthan was overdrawing from grid about 200-400 MW. This was against the stipulation in para 5.4.2 (b) of IEGC. Message "B" was issued at 1712 hours when frequency was 49.02 Hz. and overdrawal by the respondent was about 280 MW. Frequency remained below 49.2 Hz. till 1752 hours and overdrawal of about 200 MW was continued. Consequently, "C" Message was issued at 1737 hours. It is evident from the data provided by the respondent also that frequency remained below 49.5 Hz. during the

next 5 time blocks and overdrawal was continued, in fact it was increased in the next 2 time blocks. From the data submitted by the respondent, it is noted that total outage of generation was 856 MW against which the load shedding was 326 MW only, at the instant of this "B" Message. In the "B" Message, SLDC, Rajasthan was clearly directed to restrict drawl within its schedule. But it was continued for a substantial period of time i.e. for about 40 minutes when frequency was below 49.2 Hz., even after direction by NRLDC to restrict drawl within its schedule. This establishes that there was inadequate action by the respondent on the "B" Message and there was non-compliance of directions of NRLDC, in form of Message "B" issue at 1712 hours.

(c) Message "B" at 1045 hours on 9.4.2010:

Before issuance of this "B" Message frequency was below 49.5 Hz. since 1009 hours and overdrawal by the respondent was about 250-400 MW. At 1045 hours "B" Message was issued to SLDC, Rajasthan. After "B" Message, overdrawal continued for substantial period of time, till 1127 hours, when grid frequency remained below 49.2 Hz. During this period one more "B" Message at 1056 hours and "C" Message at 11.09 hrs were issued. In the Message "B", SLDC, Rajasthan was directed to curtail overdrawal immediately, within its



schedule. Overdrawal, however, continued unabated for a substantial period of time i.e. for about 40 minutes when frequency remained below 49.2 Hz.. In the reply submitted by the respondent it is indicated that at the time of this "B" Message the overdrawal by the respondent was about 400 MW and the load shedding was about 200 MW only. It is also indicated in the reply that in the next three time blocks, the average frequency remained below 49.2 Hz. and the respondent had been overdrawing from the grid. This by itself indicates inadequate action by the respondent and non-compliance of direction of NRLDC, in the form of Message "B" issued at 1045 hours on 9.4.2010.

18. It is observed that on the above mentioned instances of "B" Messages the overdrawal was continued for a substantial period of time. Though in some cases, overdrawal was marginally and momentarily reduced to some extent, after a few minutes, it was increased, even when frequency remained low i.e. below 49.5 Hz. or 49.2 Hz. This constitutes non-compliance of para 5.4.2 (d) of IEGC (as was in vogue during April, 2010) also, which stipulates that measures taken to reduce constituents' drawl from grid shall not be withdrawn as long as the frequency remains low. Increasing of overdrawal instead of decreasing it, indicates clear violation of NRLDC messages.



19. In some other instances of "B" and "C" Messages also the respondent reduced the overdrawal after much delay i.e. after 15-20 minutes. However, keeping in view the curtailment of overdrawal to zero and/ or improvement of frequency above 49.5 Hz., these instances are ignored while reckoning non-compliance. However, in such complex and huge grid like NEW grid, such delayed responses may also endanger grid. The respondent submitted that after getting message it takes about 15-20 minutes for effecting load-shedding due to manual intervention and various stages involved. I am constrained to remark that this practice cannot be allowed to continue. In this regard, it must be noted that IEGC already contains provisions for automatic load shedding schemes to manage load properly and in an efficient way. I once again, emphasize that the automatic demand management scheme, as stipulated in IEGC needs to be implemented at the earliest and SLDC, must be suitably equipped to make the response time lesser so that NRLDC directions could be complied with as soon as received.

20. The respondent has also mentioned in its reply that it had immediately forwarded the messages to overdrawing distribution companies. The respondent should appreciate that the responsibility of SLDC does not end by forwarding the messages, it has to ensure compliance. Sub-section (3) of Section 29 of the Act, clearly mandates



that SLDC shall ensure that directions issued by RLDCs are duly complied with by the licensee. The SLDC being apex body and responsible for real time operation in the State, should have well defined plan to restrict the load in case of low frequency conditions. Under such a state of affairs, it will not be required to pass messages of NRLDC to all 220 kV and 132 kV sub-stations. Instead clear instructions must be available with the concerned agencies to cut the load on pre planned and selected sub-stations. The SLDC should have a proper load management scheme rather than blindly conveying the message to all 220 kV sub-stations.

21. From the details given above, it is evident that the respondent did not comply with the directions of NRLDC under sub-sections (2) and (3) of Section 29 of the Act, given through above mentioned 4 numbers "B" Messages. Therefore, under the provisions of sub-section (6) of Section 29 and sub-section (2) of Section 143 of the Act, I impose the penalty of ₹ one lakh on the respondent for each of the four instances of non-compliance of the message by NRLDC. The respondent is directed to deposit the penalty within one month from the date of issue of this order.

Sd/-
[M Deena Dayalan]
Member
and Adjudicating officer

