

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 133/2010 (Suo motu)

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

Date of Hearing: 22.6.2010

Date of Order: 3.2.2011

In the matter of:

Over-drawal from the Grid in Violation of the Statutory Provisions by
TNEB during 25.3.2010 to 18.4.2010

And

In the matter of:

Vs

Tamil Nadu Electricity Board, Chennai

..... **Respondent**

The following was present:

1. Shri. V Chandran, TNEB
2. Shri K Ramakrishnan, SRLDC
3. Shri M L Batra, Member Secretary, SRPC
4. Shri M Aggarwal SRPC

ORDER

On observing that there has been considerable over-drawal by the respondent during the period from 25.3.2010 to 18.4.2010, when the frequency was below 49.2 Hz and in defiance of the provisions of the Electricity Act, 2003 (the Act), Indian Electricity Grid Code (the grid code) and the Central Electricity Regulatory Commission (Unscheduled Interchange charges and related matters) Regulations, 2009 (hereinafter "the UI charges regulations"), the Commission vide its order dated 24.5.2010, directed the respondent to show cause, latest by 7.6.2010, as to why it should not be held guilty of contravention of and non-compliance with the provisions of the Act,

grid code and UI charges regulations extracted therein and appropriate proceedings be not initiated against it. Following acts of the respondent, TNEB, were specifically referred to in the above order as *prima facie* instances appearing to be contravention of statutory provisions:

(a) 526 instances of over-drawal from the grid when the frequency was below 49.2 Hz during the period 25.3.2010 to 18.4.2010.

(b) Over-drawal in excess of 12% of the schedule during 319 time blocks during the period 25.3.2010 to 18.4.2010 when the frequency was below 49.5 Hz.

(c) Over-drawal in excess of 3% of the schedule over a day when the frequency was below 49.5 Hz. on all the days from 25.3.2010 to 18.4.2010.

(d) Non-compliance of the 74 'C' message directions of SRLDC.

2. In response to the above stated show cause notice dated 24.5.2010, TNEB submitted its reply vide 8.6.2010. The submissions made by TNEB and the response of SRLDC thereto, are detailed in the succeeding paragraphs.

3. The respondent submitted that the expected demand on 25th, 26th and 27th of March 2010 was of the order of 10100 MW, 10000 MW and 8600 MW respectively. But the load actually met was of the order of 11110 MW, 10410 MW and 9270 MW respectively. Because of this, TNEB reviewed the increasing trend of the load and implemented the following Restriction and Control measures since 28.3.2010 to meet out the growing summer demand and in turn to curtail the over-drawal at low frequency:

(a) 20% power cut increased to 30% power cut on base Demand & Energy for HT Industrial and Commercial Services.

(b) Urban and Rural areas load shedding hours increased from 2 hours to 3 hours in rotation from 06:00 Hrs to 18:00 Hrs.

(c) 10 hours three phase supply for Agricultural services decreased to 9 Hours three phase supply. (6 Hours during day time and 3 hours during night time)

4. The respondent further stated that after introducing the revised Restriction and Control Measures on 28.3.2010, the number of instances of over-drawal from the grid at frequency below 49.2 Hz and the number of instances of over-drawal in excess of 12% of the schedule at frequency below 49.5 Hz had decreased.

5. SRLDC, however has contradicted the above submission based on the following details relating to the Maximum Demand (MW), Energy Availability (MU), Schedule (MU), Actual Drawal (MU) and Unscheduled Interchange (UI) pattern for the period 25.3.2010 to 31.3.2010:

Date	Max Demand (MW)	Energy Availability (MU)	Schedule (MU)	Actual Drawal (MU)	UI (MU)
25.3.2010	9282	209.37	76.89	85.82	8.93
26.3.2010	9942	217.59	78.29	83.30	5.01
27.3.2010	9948	222.90	77.30	81.53	4.23
28.3.2010	9482	214.35	81.28	85.54	4.26
29.3.2010	9824	218.95	80.33	84.33	4.00
30.3.2010	9716	222.59	81.19	81.94	0.75
31.3.2010	9958	223.42	80.48	78.60	-1.88

6. It is seen that the figures of maximum demand furnished by TNEB at Para 3 above is at variance with the demand recorded by SRLDC. It is also seen that TNEB had initiated actions to restrain over-drawal from the grid from 29.3.2010 onwards. However, the measures were of temporary nature as the over-drawing pattern again started from 2.4.2010 onwards.

7. TNEB has adduced the following reasons in justification of the high number of instances of over-drawal from the grid when the frequency was below 49.2 Hz and the number of instances of over-drawal in excess of 12% of the schedule when the frequency was below 49.5 Hz, on 3.4.2010, 7.4.2010, 8.4.2010, 9.4.2010, 10.4.2010, 15.4.2010 and 17.4.2010::

- (a) Kalpakkam Unit 2 was under shutdown from 2.4.2010.
- (b) NTPC Unit 7 was taken off bars on 7.4.2010
- (c) Raichur Units 2 & 4 were taken off bars on 7.4.2010
- (d) HVDC Talcher – Kolar pole 2 was tripped on 15.4.2010
- (e) The allotted quantum of power was far below the bid quantum in Power Exchange.

8. SRLDC has questioned the veracity of the above reasoning based on the following submissions:

- (a) MAPS Unit 2 was taken out on 2.4.2010 for Annual Maintenance as per planned outage program discussed and cleared by all constituents.
- (b) RSTPS Unit 7 hand tripped due to HP by-pass valve problem at 06:57 hrs and normalized at 22:35 hrs. Loss of generation due to forced outages of units is normally taken care of by the provisions made during preparation Load Generation Balance Report (LGBR).
- (c) TNEB does not have any allocation from the Raichur Units. Any loss of generation due to Raichur Units is taken care of by the Demand management of KPTCL.
- (d) HVDC Talcher - Kolar Pole 2 was under forced outage from 09:08 hrs to 09:40 hrs (for 32 minutes) on 15.4.2010 due to DC filter problem at Talcher and receipt of emergency switch-off signal at Kolar end. There was no change in schedule or

curtailment during this period. Accordingly there is no impact on schedule of TNEB.

(e) The quantum of power allotment from Power Exchanges depends on various factors including the bid price. Getting lesser allotment than the bid quantity shall not be considered as a justification for overdrawal from the grid.

9. TNEB has also referred to its agreement with M/s. JSW Power Trading Company Limited, New Delhi for supply of power of 300 MW round the clock from January 2010 to May 2010 and has submitted that from 9.4.2010 to 22.4.2010, all of a sudden M/s. JSW Power Trading Company Limited stopped supply of 300 MW power. In this regard, SRLDC has submitted that the revision of short-term open access (STOA) by JSW Power Trading was effected as per STOA Regulations and TNEB was aware of the revision prior to implementation. TNEB would have either taken up the matter with JSW Power Trading or planned for adequate demand management action instead of quoting the same as justification for over-drawal form the grid.

10. TNEB has also attributed the situation in the State to the absence of any appreciable capacity addition during the recent years. SRLDC did not offer any comment on this.

11. TNEB submitted that the highest capacity of hydro machines with TNEB is only 100 MW which limits in regulating the generation availability to meet sudden increase of demand. SRLDC in response submitted that TNEB is mentioning about the capacity of single hydro unit while it can simultaneously pick-up multiple units subject to margins available in the generating machines.

12. TNEB also referred to the fact that against the 500MW allocation of power from Nuclear Power Stations, the share realized during the period 25.3.2010 to 18.4.2010 was around 150 to 250 MW only due to low fuel supply. In this regard SRLDC submitted that the shortage of Nuclear Fuel for MAPS/ KAPS is a fact known to TNEB and the issue was persistently taken-

up with NPCIL through OCC meetings of SRPC. The LGBR/ planning for meeting load of TNEB were made considering the reduced availability of Atomic Power generating units.

13. Delay in bringing on new Central sector projects NLC TS II Expansion (2x250 MW) and Kudankulam (2x1000 MW) was also cited by TNEB who claimed that it had deprived the State of around 1250 MW. The respondent further highlighted that to make good this loss, TNEB was forced to procure power from the external sources through STOA incurring huge expenditure and also running the risk of curtailment of this power at a very short notice due to transmission congestion. Declining to comment on the commissioning of Projects in pipeline, SRLDC submitted that the transmission network was planned considering the long-term access requirements and hence TNEB's efforts to make good the entire shortfall through STOA purchase are not justified. As per system permissibility, TNEB should consider mitigating the shortfall partly through STOA purchases and partly through Demand Management. According to SRLDC, TNEB's inability to make adequate Demand Side Management, leads to its over-drawal at low frequency as well as over loading of transmission network.

14. TNEB has referred to its purchase of power round the clock through traders and power exchanges and has submitted that total energy of around 1315 MU and 1085 MU was procured in the months of March and April 2010, respectively. The respondent also pointed out that the Independent Power Projects in the State were also scheduled to the maximum, irrespective of the cost of energy from such sources. It has further been pointed out by TNEB that the power from the naphtha based Kayamkulam power was also availed continuously in full and the Eastern Region compensatory power for the costly RGCCPP Kayamkulam power was curtailed to 50 MW from 25.1.2010 as against 180 MW and repeated requests were made to restore to original allocation of 180 MW. SRLDC, on the other hand suggested that subject to the Transmission Network condition, TNEB could purchase power on short-term basis. The Transmission Network however, is stated to have been designed for handling long-term PPAs and TNEB should plan power

purchases without leading to Transmission Network congestion or constraints. Regarding reduction of allocation of power from Eastern Region, it is for the TNEB to take-up the matter at appropriate level.

15. TNEB also highlighted that the quantum of load shedding during the period 25.3.2010 to 18.4.2010 was in the range of 20 MU to 32 MU. Per contra, SRLDC in its reply submitted that as per LGBR, the projected short fall during the month of April 2010 was about 29.8 MU per day while the actual implemented load shedding was about 20 MU – 24 MU. Thus, according to SRLDC, the respondent was aware of the anticipated over-drawal situation well in advance and the demand management measures planned by it were inadequate and were not proactive.

16. TNEB has pointed out the following additional steps taken by it to curtail the over-drawal at low frequency:

- (a) Agricultural consumers were provided 2 phase supply and not 3 phase supply as per schedule.
- (b) Manual load shedding of additional feeders for short duration were carried out, over and above the urban and rural feeders that were under scheduled load shedding.
- (c) Generation has been picked up wherever possible including that from Hydro, Gas, Thermal, CPPs, IPPs and Naphtha based Basin Bridge Units (high cost).
- (d) Additional power from external sources has been procured including that from Naphtha based Kayamkulam station.
- (e) The feeders under regulatory measures were tripped.
- (f) 110 kV feeders were hand tripped.

17. According to SRLDC however, the details mentioned above are generic in nature and there would not have been any persistent over-drawal from the grid if TNEB had taken adequate measures.

18. TNEB has also contended that all the Under Frequency Relays (UFRs) are in service in its grid and actuated as per the setting. So the quantum of relief is assured and will safeguard the grid at any moment. The field operators have been instructed to trip the radial feeders as and when required to improve the grid frequency. SRLDC, however, urged that the Automatic Under Frequency Relays are not meant for normal frequency control. It is the protection scheme to safe guard the grid under system contingencies like sudden tripping of major generating units/ transmission elements etc. According to SRLDC, the system frequency should not dip to such a low frequency so that UFRs operates in case of over-drawal from the grid. It has been pointed out that due to excessive over-drawal by TNEB, the system frequency on many occasions moved down to critically low value triggering operations of UFRs in the control areas of other constituents too though they were not over drawing on such instances.

19. TNEB has also pointed out that the average frequency profile for the months of March and April for the years 2009 and 2010 shows that the frequency has improved. SRLDC in its reply has submitted that the improvement in the average frequency is attributable to the co-operation of all the constituents, monsoon, various Regulations, support from neighboring regions and real time grid operation of RLDC/ SLDCs. SRLDC has further urged that despite improvement in average frequency, the instances of critically low frequency condition still endangers the grid security. According to SRLDC, not only the improvement in average frequency but also the improvement in minimum frequency level of operation is to be compared. SRLDC has pointed out that there is only marginal improvement of 0.04 Hz from 48.53 Hz to 48.57 Hz in the minimum frequency during these months.

20. TNEB has submitted the details of the projects likely to be commissioned from 2010-11 onwards. The commissioning of these projects

as per the schedule would ease the grid position of the Southern Region and in particular Tamil Nadu. SRLDC has not offered any comments on these.

21. Stating that it has already tied up to purchase maximum requirement of power, TNEB reiterated its request that suitable action may be taken to strengthen the transmission line so as to increase the transfer capacity of the lines. According to the respondent, if the eligible share of Central Generating stations and power purchase were received by the State, frequency would have remained within the prescribed limits. SRLDC in its reply has questioned the justifiability of the request of TNEB for strengthening of Transmission Network considering the Short term Power Purchase actions of the State. The Transmission Network Planning and Development is based on the long-term access.

22. TNEB has also clarified that the total number of Type "C" messages issued was only 69 against 74 as stated in the show cause notice. It is clarified that 74 comes when counting the whole month of April 2010 where as for the period 25.3.2010 to 18.4.2010, it is 69 only.

23. The matter was heard on 22.6.2010. The representative of SRLDC submitted that TNEB took some action on the instructions of SRLDC but these were delayed and inadequate. In most of the cases opening of the radial feeders by TNEB did not result in requisite load relief. On the enquiry of the Commission, the representative of SRLDC replied that Operation Coordination Sub-Committee (OCC) of SRPC decides the quantum of load to be shed to curtail over-drawal from the grid. On this issue, Member Secretary, SRPC submitted that load shedding requirements are discussed in every OCC meetings. Member Secretary, SRPC even wrote a letter on 2.6.2010 to the Chairman of TNEB for restricting over-drawal from the grid.

24. Having heard the representatives parties and perused the material on record, we proceed to dispose of the petition:

25. We recall that SRLDC had filed Petition No. 107/2010 alleging over-drawal by TNEB during 24.2.2010 to 24.3.2010. The matter was referred for

adjudication under Section 143 of the Act, vide Commission's order dated 13.5.2010. We take judicial note of the submissions made in the above stated adjudication proceedings, especially by the Chairman of TNEB in the final hearing on 10.8.2010. In the above proceedings, the adjudicating officer had concluded as under:

"19. Upon hearing the parties and perusing the records, I cannot but feel a sense of frustration over the repeated cases of this nature. The Officers of TNEB have been attending various proceedings in the Commission on Grid Code violations and expressing their helplessness in arresting the overdrawal from the grid. While I am alive to and appreciate the problems expressed by the Chairman, TNEB, especially those which are beyond the control of the State, such as sudden withdrawal of unallocated quota by the Centre, diversion of power from the Eastern Region to Punjab and Haryana, non-availability of transmission corridor for reaching the power contracted at a high price, high percentage of infirm power capacity installed probably due to keenness for increased reliance on renewable sources, completely unpredictable fluctuations in wind generation, etc. I must emphatically record that these problems, in no way serve as justification for overdrawal which jeopardizes grid security. Even the Chairman of TNEB accepted that these circumstances were not justification for overdrawal at low frequency. However, the acts of over-drawal cannot be viewed in isolation and needs to be perceived together with the context in which they had occurred. Further, I could also sense the seriousness of purpose and sincerity in the Chairman's assurances. Accordingly, I propose to adopt a reformative, rather than a punitive approach in the matter.

20. Taking a view of the totality of the circumstances, I direct as under:

(a) The Superintending Engineer, SLDC, Tamil Nadu shall strictly comply with the instructions of SRLDC.

(b) The Chairman, TNEB shall separately address the issues of capacity addition in the State and allocation of power from the Central Generating Stations so that the possibility of over-drawal can be eliminated.

(c) Grid operation being a common service, laws governing them need to be followed in letter and spirit, as grid failure would lead to suffering by all the States. Member Secretary, SRPC shall pursue the efforts for building consensus on raising the UFR settings. If he does not success in his efforts, he may approach the Commission as provided under the Grid Code Regulations, 2010.

21. Accepting the assurances and commitments by the Chairman, TNEB that there would not be any further violation of grid discipline and that diligent action would be taken by SLDC Tamil Nadu on the instructions issued by SRLDC, I direct that these proceedings be dropped and the file be consigned to records.”

26. Having once accepted the assurances and commitments made by the Chairman TNEB, we would not like to deviate from the above stand especially in respect of the violations pertaining to an earlier period. Accordingly, in the light of the assurances and commitments made on 10.8.2010 by the Chairman, TNEB in the adjudication proceedings No. 1/2010, we direct that these proceedings be closed and the file be consigned to records.

27. Petition No. 133/2010 is disposed of in the above terms.

Sd/-

**(M. Deena Dayalan)
Member**

Sd/-

**(V.S.Verma)
Member**