

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Coram:

1. **Shri Bhanu Bhushan, Member**
2. **Shri R. Krishnamoorthy, Member**

Petition No.159/2007

In the matter of

Ensuring secure and reliable operation of Southern Regional Grid by maintaining the grid frequency above 49.0 Hz, and review of the UI price vector.

And in the matter of

Southern Regional Load Despatch Centre, Bangalore ... **Petitioner**

Vs

1. Transmission Corporation of Andhra Pradesh Ltd., Hyderabad
2. Karnataka Power Transmission Corporation Ltd., Bangalore
3. Tamil Nadu State Electricity Board, Chennai
4. Kerala State Electricity Board, Thiruvananthapuram
5. Electricity Department Pondicherry, Pondicherry
6. Electricity Department, Goa
7. NTPC Ltd, New Delhi
8. Neyveli Lignite Corporation Ltd., Neyveli
9. Nuclear Power Corporation of India Ltd., Mumbai
10. Southern Regional Power Committee, Bangalore **Respondents**

The following were present:

1. Shri V.K. Agrawal, GM, SRLDC
2. Shri T. Srinivas, Manager, SRLDC
3. Shri K.N. Srinath, KPTCL
4. Shri Sowmyanarayanan, Consultant TNEB
5. Shri A. Natarajan, TNEB
6. Shri S.R. Kumaraswamy, TNEB
7. Shri K. Srinivasa Rao, Manager, SRPC
8. Ms Anamika, PGCIL

**ORDER
(DATE OF HEARING : 3.1.2008)**

Southern Regional Load Despatch Centre (hereinafter referred to as "the applicant") in this application filed on 3.12.2007 has made the following prayers:

- (i) Issue directions to the respondents at Sl.No.1 to 6 to regularly carry out necessary exercise regarding short term and long term demand estimation and to plan in advance as to how they would meet their consumers load without overdrawing from the grid in line with Clause 6.4.5 of IEGC and requisite demand side management in line with Clause 6.4.4 of IEGC.
- (ii) Issue direction to respondents at Sl.No.3 viz., Tamil Nadu Electricity Board to refrain from overdrawing from the grid especially during low frequency conditions and honour the relevant IEGC and IE Act provisions.
- (iii) Issue directions to respondents at Sl.No.1 to 6 to raise the under frequency relay setting from the present level of 48.5 Hz to 48.8 Hz as prevalent in the other Regions, in order to avoid collapse/disintegration of the grid in the event of a contingency.
- (iv) To review the UI price ceiling so that during the high demand period all available generation may be harnessed.
- (v) Issue directions on any other matter as it may deem fit."

2. The applicant has stated that on account of the seasonal changes and increases in the demand, the constituents of the Southern Region resorted to high overdrawals of power from the regional grid, and as a consequence the Region experienced severe low frequency conditions for prolonged periods during the second week of October 2007. The applicant has placed on record the frequency profile of the Region for the period 8.10.2007 to 15.10.2007, showing overdrawals at frequency below 49.0 Hz. The record reveals that Tamil Nadu Electricity Board, the third respondent, overdrew at frequency below 49.0 Hz during 234 time blocks, followed by the utilities in the States of Andhra Pradesh with Karnataka, in whose cases number of overdrawals were 191 time blocks and 183 time blocks respectively. TNEB is stated to have overdrawn 20493 MWh, Andhra Pradesh, 10266 MWh and Karnataka, 8001 MWh.

3. The applicant has stated that the matter was taken up with the constituents of the Region and the Member-Secretary, Southern Region Power Committee emphasising the severity of the problem because of the sustained low frequency operation. The applicant pointed out to them that despite critically low frequency profile, a large quantum of liquid based generation like Kayamkulam CCPP and other generating stations in the State of Kerala was lying idle. It is stated that though with the onset of monsoon, the situation improved in the third week of October 2007 but the demand increased after recession of monsoons and the frequency profile of the Region again deteriorated. The frequency is said to have always remained below 49.5 Hz and was below 49.0 Hz during 39% of the time blocks during the last week of November 2007. The applicant has named the third respondent who continued to overdraw from the grid irrespective of the prevailing frequency thereby endangering the grid safety and security. The applicant is stated to have taken up the matter with Member-Secretary, SRPC in terms of clause 1.5 of the Indian Electricity Grid Code but to no avail.

4. The applicant has further stated that since most of the undispached generation was within the jurisdiction of Kerala State Electricity Board (KSEB), the fourth respondent, it approached KSEB to issue dispatch instructions for liquid fuel fired generating stations under the UI scheme. However, KSEB did not take any steps in this direction since the variable cost of liquid fuel fired generating stations was higher than the then prevailing ceiling rate of Rs.7.45/kWh. The applicant has also pointed out that in the Region, the operation of under frequency relays under defence mechanism commences at frequency below 48.5 Hz. Thus, there is no defence mechanism existing when frequency ranges between 49.0 Hz to 48.5 Hz, even under

the circumstances of grave threat to the grid security. The matter is stated to have been discussed at various meetings with the constituents of the Region but they turned deaf ear to the applicant's proposal to raise the under frequency relays settings. The applicant has also pointed out that contrary to clause 5.2 (e) of IEGC, the generating units synchronised with the grid do not have the governors in normal mode, in the absence of which, the operation of the grid at low frequency becomes more vulnerable.

5. Against the above noted facts, the application has been made with prayers noted in the opening part of this order.

6. Karnataka Power Transmission Corporation Limited, the second respondent, has filed its response. It has listed a number of instances on account of which, it states, it was forced to overdraw power. It, however, assured that it was taking all measures to meet the deficit during the coming season and would strive to maintain the frequency above 49.0 Hz.

7. We heard the representatives of the parties present at the hearing. The representative of the applicant argued for upward revision of UI vector so that the liquid fired generation got dispatched. It was argued that upward revision of UI vector would, to an extent, ease the situation and mitigate the problem of low frequency. Therefore, in our opinion, the primary cause for making this application was to seek revision of UI rates. The Commission has already addressed this issue. By its notification dated 28.12.2007, effective from 7.1.2008, UI vector has been revised and the ceiling UI rate fixed at Rs.10/kWh against the earlier ceiling rate of Rs.7.45/kWh.

The revision of UI vector may incentivise liquid fuel fired generation. With this, the principal grievance of the applicant gets resolved. At this stage, we would like to make it clear that payment of UI rate, even if at the enhanced rates, should not be taken as liberty by the constituents of the Region to overdraw at their will. They are still bound by the provisions of the IEGC in this regard, which envisage load-shedding and other suitable measures when frequency falls below 49.0 Hz.

8. As regards the other issues, such as planning for meeting the demand, setting of under frequency and df/dt relays and FGMO, they are of All-India nature and the Commission is already seized of them. Therefore, these issues are proposed to be addressed separately.

9. Member-Secretary, SRPC in his letter dated 14.1.2008 has submitted a Concept Paper for curbing sustained overdrawal/under generation beyond two hours. by the stakeholders in the Regional Grid Operation. He has proposed that penalty for overdrawal should be gradually increased and may go up to Rs.50/kWh. The issue needs a wider debate, as a part of UI scheme and cannot be decided in the present proceedings.

10. In the light of foregoing discussion, the present application stands disposed of.

Sd/-
(R. KRISHNAMOORTHY)
MEMBER

Sd/-
(BHANU BHUSHAN)
MEMBER

New Delhi dated the 9th June 2008