

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 188/SM/2012

Sub: Calculation of total transfer capacity, available transfer and transmission Reliability margin.

Date of Hearing : 20.12.2012

Coram : Dr. Pramod Deo. Chairperson
Shri S. Jayaraman, Member
Shri V.S.Verma, Member
Shri M.Deena Dayalan, Member

Petitioner : National Load Despatch Centre, New Delhi

Parties present : Shri S. K. Soonee, POSOCO
Shri V.K. Aggarwal, POSOCO
Shri S.R. Narasimhan, POSOCO
Shri S.C. Saxena, POSOCO
Shri N. Nallarasana, POSOCO
Ms. Jyoti Prasad, POSOCO
Shri Pinaki Misra, Senior Advocate
Shri Ankush Bajoria,
Shri Pradeep Jindal, CEA
Shri Dilip Rozerkar, CTU
Shri P.B. Ventakatesh, NTPC
Shri Uday Shankar, NTPC
Shri K.P. Satoparshy, NTPC
Shri Arun Kumar, CGPL

Record of Proceedings

In compliance with the directions of the Commission in order dated 17.12.2012, the representatives of Central Electricity Authority (CEA) and Central Transmission Utility (CTU) were present during the hearing. The Commission directed the representatives of CEA and CTU to explain the criteria of revision of TTC/ATC/TRM.

2. The representative of the Central Transmission Utility (CTU) submitted that the loadability of a transmission system depends upon three factors, namely (a) thermal limit; (b) Voltage Regulation limit; and (c) Stability limit. He explained that Surge Impedance loading (SIL) is a characteristic of line, in which the reactive power

generated by the transmission line equals the reactive power consumed by the line and is not a loading criteria which should be considered in calculation of TTC/ATC. For short lines, particularly for 220 kV line level, the loading of line could go up to their thermal rating. For short 400 kV line also thermal limit should be considered. However, for long 400 kV lines due to limitation of voltage regulation, lower loading than the thermal limits would need to be considered.

3. The representative of the Central Electricity Authority submitted that after the grid disturbances on 30/31.7.2012, three meetings of the committee comprising Member (PS) of CEA, Director (Operation) of PGCIL, and CEO, POSOCO were held to improve the reliability in the national grid. In the said meetings, the line loadings of the transmission lines were reviewed and it was found that limiting the line loading in certain cases had caused under-utilization of the transmission systems. Hence, there was a consensus in the Committee to improve the loadability of the transmission lines based on condition of minimum of thermal loading, voltage regulation and stability limit. It was decided that the stability limit would be ascertained through system studies to be undertaken by CTU/POSOCO. The representative of CEA submitted that in absence of system study, the SIL loading was considered as the limit of the transmission line loading in the first instance which needed to be reviewed based on the System Stability Studies.

4. The representative of POSOCO submitted that immediately after the grid disturbance, as precautionary measures, POSOCO reverted to SIL limit on transmission lines. In response to the Commission's query whether CEA has recommended such loading, the representative of the POSOCO clarified that the decision was taken in the meeting by Secretary (Power) with Chairman CEA and CMD, Power Grid to revise the line loading in the light of the surprise tripping of zone-3, which caused the grid disturbance. It was decided to check zone-3 setting of all transmission lines. He submitted that as the system operator, POSOCO was cautious to ensure that such surprise trippings of the transmission lines were not repeated. POSOCO had conveyed to all concerned including the Commission that loading of the lines had been reduced to SIL level vide its letter dated 2.8.2012.

5. The representative of POSOCO explained that the whole situation can be seen under three time periods, namely (a) situation before 31.7.2012, (b) situation from 1.8.2012 till 20.9.2012, and (c) situation beyond 20.9.2012. He further submitted that only for the second situation, the line loading was limited to SIL. At present, POSOCO is calculating TTC/ATC as per procedure prescribed in the CERC Regulations. Only due

to zone-3 detection, POSOCO had brought the line loadings up to SIL till all lines were checked for their zone setting.

6. The representative of CTU explained that the zone-3 settings in Power Grid lines have been revised. However, there are some lines under STU network which need zone-3 setting revision. The Commission directed the CTU to submit the details of such lines and its suggestions as to how the same could be implemented. This shall be based on System Stability Studies.

7. The representative of POSOCO also intimated that in many lines, the reactors were limiting the line loading and which needed to be removed. The Commission directed POSOCO to submit the details of such lines.

8. During the course of hearing, CEO, POSOCO submitted that there exists a Study Group at RPC level, which needs to be strengthened as the last leg of the system operator cannot do the system stability studies repeatedly. This position taken by the POSOCO of not carrying out the system stability was not acceptable to the Commission.

9. The Commission observed that the details of basis of calculation, including assumptions, for calculation of TTC/TRM/ATC are not being displayed on the website as provided in the detailed procedure of the Connectivity Regulations. Since, the basis of calculation of CTU for LTA, MTOA and of POSOCO for Short Term Open Access have to be in harmony, these would be required to be uploaded on the website of CTU.

10. After hearing the parties, the Commission directed the following:

(a) POSOCO shall conduct the load flow and stability studies for calculation of TTC/ATC/TRM and shall submit the results to CEA who shall study the results and file its comments before the Commission with copy to POSOCO and CTU by 10.1.2013;

(b) CTU shall submit on affidavit by 10.1.2013 with copy to POSOCO and CEA the details of STU lines requiring review of zone-3 settings alongwith its suggestions for proper implementation at RPC level;

(c) POSOCO shall submit to the CTU the details of the lines on which reactors need to be removed in terms of Regulation 2.2(j) of the Grid Code;

(d) POSOCO shall file its response to the submission of CEA and CTU in terms of (a) and (b) above by 15.1.2013.

(e) POSOCO shall file its response to the submissions of the representative of M/s Jindal Power Limited by 10.1.2013 including the opinions of Shri Bhanu Bhushan, Ex-Member, CERC and Shri Ramakrishna, Ex- Member, CEA. The response shall make a reference to the system stabilization study carried out by POSOCO along with CEA.

11. The Commission directed to CEA and CTU to depute their authorized representatives on the next date of hearing to assist the Commission.

12. The petition shall be listed for hearing. 17.1.2013.

By order of the Commission

Sd/-
(T. Rout)
Joint Chief Legal