

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 009/SM/2015

Coram:

Shri Gireesh B. Pradhan, Chairperson

Shri A. K. Singhal, Member

Shri A. S. Bakshi, Member

Date of order: 5.8.2015

In the matter of:

Following up actions on the recommendations of CAC Sub-Committee on Congestion in Transmission

ORDER

The Central Advisory Committee (CAC) had in its meeting held on 12.5.2014 decided to constitute a sub-committee from amongst the Members of the CAC to examine issues connected with congestion in transmission. The Sub-Committee on Congestion in Transmission was constituted by CERC vide letter dated 11.7.2014, with the following:

Members:

1. Shri R.V. Shahi, Former Secretary, Ministry of Power-Chairman
2. Shri Ashok Khurana, Director General, Association of Power Producers
3. Shri Hemant Sharma, CMD, GRIDCO
4. Shri R.N. Nayak, CMD, POWERGRID
5. Shri Vijayanand, CMD, APTRANSCO
6. Prof. S.C. Srivastava, IIT Kanpur
7. Shri Pankaj Batra, Chief Engineer (I/C)- FC&A, CEA
8. Shri Ravinder Gupta, Director (SP & PA), CEA
9. Shri A.K. Saxena, Chief (Engg.), CERC- Convenor



Special Invitees:

1. Shri S.K. Sonnee, CEO, POSOCO
2. Prof. S.A. Soman, IIT Bombay
3. Shri A.M. Khan, Member, MERC

2. The Sub-Committee has submitted the report on Congestion in Transmission on 8.6.2015 which is available on website at [http:// www.cercind.gov.in/subcommittee.html](http://www.cercind.gov.in/subcommittee.html).

3. The Sub-Committee has recommended measures to reduce congestion in transmission for which actions need to be taken by CEA, NRCE, CTU, POSOCO, POWERGRID, RPCs as well as CERC. The Commission has considered the report and accepted its recommendations.

4. The recommendations of the Committee with regard to the actions to be taken by the various agencies alongwith the timelines as decided by the Commission for various action points are as under:-

(A) Actions to be taken by POSOCO:

- (1) CTU, POSOCO, and CEA to provide regular guidance to the State Utilities and authorities, and more importantly devise a mechanism to monitor to ensure that the matching systems at State level are in place to coincide with the overall requirement as well as for the provisions related to SPS and dynamic control mechanism including SVCs, STATCOMs etc. in the State sector. (Para 2.4)



- (2) Fluctuating load/generation in renewable and its impact on transmission planning needs to be taken care. POSOCO to identify balancing capacity to manage the fluctuations. (Para 8.4.2). POSOCO to identify balancing capacity within 3 months of issue of the order.
- (3) CEA, CTU and POSOCO to create a Task Force to identify exhaustively all possible areas of transmission capacity enhancement in the existing systems within 6 months of issue of the report. This exercise should cover not only the Central transmission systems, but also the State level transmission and sub-transmission systems. (Para 2.4)
- (4) POSOCO should in coordination with and full support of concerned SLDCs and DISCOMs prepare islanding schemes for major cities and towns (considering the criticality) which will aim at matching the local supply with important and emergency loads. (Para 1.19.9). POSOCO to complete action in this regard within 6 months of issue of the order.
- (5) Revisiting the methodology for computation of ATC/TTC in the light of inputs from international consultant being engaged by CTU. (Para 2.1.5). POSOCO to complete action in this regard within 3 months from the date of receipt of report of consultant.
- (6) POSOCO to take steps to develop Interpreter as a suitable interface between SCADA and PSSE to enable revision of TTC in real-time and declaration of TTC/ATC on hourly/ weekly/monthly basis as done by PJM. (Para 3.1.9)



- (7) Loop flows, transit flows and counter flows should be considered for TTC / ATC calculations as considered appropriate by POSOCO. Congestion in real time be handled in accordance with the provisions in CERC Congestion Regulations.
- (8) SPS planned needs to be installed within 3 months and the same be considered by POSOCO in calculation of ATC as deemed appropriate. (Para 3.2.1)
- (9) POSOCO to commence use of dynamic line rating within 1 month, after taking a confirmation from the equipment owner regarding the facility ratings. (Para 3.2.2)
- (10) POSOCO being the apex organisation in regard to system operation & market operation in the country would take steps to make the information governing market operation as transparent as possible. (Para 5.4)
- (11) There is a need for developing a common electronic platform with access to all market participants. Necessary protocols for information sharing and dissemination needs to be finalized by POSOCO in consultation with stakeholders. (Para 5.3). POSOCO to complete action in this regard within 3 months of issue of the order.
- (12) Requisite exposure in regards to calculation of TTC / ATC will be an added strength and exposure be provided to CTU, CEA and NLDC / RLDCs/ SLDCs. (Para 3.1.7)

(B) Actions to be taken by CTU:

- (1) Probabilistic load forecasts and Mixed Integer Linear Programming (MILP) based optimisation tool need to be considered for network planning. CEA and CTU need to explore the use of aforementioned tools. NRCE may look into suitable timeframe for including probabilistic load forecasting. (Para 2.4.3)
- (2) CTU, POSOCO, and CEA to provide regular guidance to the State Utilities and authorities, and more importantly devise a mechanism to monitor to ensure that the matching systems at State level are in place to coincide with the overall requirement as well as for the provisions related to SPS and dynamic control mechanism including SVCs, STATCOMs etc. in the State sector. (Para 2.4)
- (3) CTU should constitute a group to provide first-hand information in regard to status of implementation of generation and transmission projects in the States and conduct meetings every 6 months to monitor gaps in execution and re-plan accordingly. (Para 2.4)
- (4) CEA, CTU and POSOCO to create a Task Force to identify exhaustively all possible areas of transmission capacity enhancement in the existing systems within 6 months of issue of the report. This exercise should cover not only the Central transmission systems, but also the State level transmission and sub-transmission systems. (Para 2.4)

- (5) There is need for co-ordination of development of intra-state transmission system by CTU. CTU to submit quarterly report on augmentation of transmission system in the Country to CERC. (Para 2.4.7)
- (6) In the context of a major shift in the Government's Policy for a quantum jump in developing renewable power generation systems, it would require short and medium term solutions, but more importantly, it needs a long term planning fully integrated with the future plans of Ministry of New and Renewable Energy. In these cases, organizations like POWERGRID would need to be supported in view of the pattern of utilization of these transmission systems, by way of Viability Gap Funding/ Power System Development Fund (PSDF) (Para xvii). Long term planning would require development of transmission systems in a manner that they are normally underutilized in the initial years but later utilized well. Here again commercial organizations would need to be financially supported through instruments like Viability Gap Funding/ PSDF (Para 7.2). CTU needs to take-up appropriate steps in this regard.
- (7) Sample audit of relays/protection system to be undertaken by CTU for States within 1 year and heavy fine should be imposed for non-adherence to standards. Unallocated power may be suspended in such cases. (Para 1.18.5)
- (8) CTU to use controlling devices such as FACTS controllers and damping controllers. Expedious installation of Dynamic reactive power compensation devices such as SVCs, STATCOMs already planned by CTU (22 nos.). (Para 3.2.6)

- (9) Revisiting the methodology for computation of ATC/TTC in the light of inputs from international consultant being engaged by CTU. (Para 2.1.5). CTU may accordingly keep NRCE posted with the inputs/recommendations of international consultant, within 15 days of submission of the report by consultant.
- (10) Keeping in view the necessity for transparency in declaration of TTC/ATC in planning horizon, the results of long term studies carried out by CTU should be made available on their website. (Para 2.2.3)
- (11) Requisite exposure in regards to calculation of TTC / ATC will be an added strength and exposure be provided to CTU, CEA and NLDC / RLDCs/ SLDCs. (Para 3.1.7)

(C) Actions to be taken by CEA:

- (1) Probabilistic load forecasts and Mixed Integer Linear Programming (MILP) based optimisation tool need to be considered for network planning. CEA and CTU need to explore the use of aforementioned tools. NRCE may look into suitable timeframe for including probabilistic load forecasting. (Para 2.4.3)
- (2) CTU, POSOCO, and CEA to provide regular guidance to the State Utilities and authorities, and more importantly devise a mechanism to monitor to ensure that the matching systems at State level are in place to coincide with the overall requirement as well as for the provisions related to SPS and



dynamic control mechanism including SVCs, STATCOMs etc. in the State sector. (Para 2.4)

- (3) CEA, CTU and POSOCO to create a Task Force to identify exhaustively all possible areas of transmission capacity enhancement in the existing systems within 6 months of issue of the report. This exercise should cover not only the Central transmission systems, but also the State level transmission and sub-transmission systems. (Para 2.4)
- (4) Reliability standards need to be planned for Indian Power System. To start with, NRCE may bring out Standards for "Protection System" and "Communication System". (Para 6.3). CEA may within two months initiate process for training of standards.
- (5) Revisiting the methodology for computation of ATC/TTC in the light of inputs from international consultant being engaged by CTU. (Para 2.1.5). CEA may complete action in this regard within 3 months of receipt of the report of consultants to them.
- (6) NRCE in consultation with POSOCO and CTU may explore alternative methods of calculation of TRM as suggested and provide to Commission for its consideration. (Para 3.1.9). NRCE may complete action in this regard within 3 months of issue of the order.
- (7) Requisite exposure in regards to calculation of TTC / ATC will be an added strength and exposure be provided to CTU, CEA and NLDC / RLDCs/ SLDCs. (Para 3.1.7)



(D) Action to be taken by PGCIL:

- (1) POWERGRID may carry out a comprehensive study jointly with CEA and NLDC for siting and sizing of Phase Shift Transformer (PST). (Para 3.2.3)

(E) Action to be taken by Member Secretary (RPCs):

- (1) Protection Sub-committee of RPC should bring out a protocol for checking the settings, ensuring healthiness of existing protection system and periodicity of carrying out this exercise. (Para 6.8)

(F) Secretary, Forum of Regulators:

“(1) TTC/ATC to be declared by STUs for state network in planning horizon as well as operating horizon (Para 5.3.2). Operational feedback by SLDCs to STUs be made mandatory through appropriate Regulations (Para 8.4.5).”

5. All organizations/entities as noted above shall take necessary follow up actions in a time bound manner on the points shown under them and submit quarterly ‘action taken report’ to the Commission within 15 days from the end of the quarter to which the report pertains.

sd/-
(A. S. Bakshi)
Member

sd/-
(A. K. Singhal)
Member

sd/-
(Gireesh B. Pradhan)
Chairperson

