

CENTRAL ELECTRICITY REGULATORY COMMISSION

3rd & 4th Floor, Chanderlok Building, 36, Janpath, New Delhi-110001

Minutes of Meeting: Constitution of Expert Group to review “Indian Electricity Grid Code and other related issues”- 3rd Meeting thereof.

1. Third meeting of Expert Group to review “Indian Electricity Grid Code and other related issues” was held on 20th June, 2019 at 2:30 pm in Third Floor, Conference Room, 36, Janpath, Chanderlok Building.
2. During meeting Chairman and Members of the Expert Group, representatives of NTPC, Neyveli Lignite Corporation, Tata Power, Staff of the Commission and Mercados representative were present. List of participants is enclosed as Annexure-A.
3. NTPC, NLC and Tata Power submitted their views before the Group.

A. Presentation by NTPC

- 3.1 NTPC representatives discussed the following key issues in their presentation:
 - Need for Demand forecasting/ RE forecasting and cycling by thermal generators.
 - Grid operation will require increased Ramp up/ ramp down requirements by conventional generators and Ancillary Services.
 - Need for further stabilizing the Grid frequency; Spinning reserves, Secondary control reserves and AGC.
 - The Grid operation needs to be harmonized on a national level.
 - For better Integration of RE, balancing has to be done at the National Grid level rather than at the State Grid level.
 - State Grid Codes should be harmonized with the IEGC.
 - There should be one Central Grid Code (IEGC) applicable for Grid Operation in the entire country.
 - For RE integration following need to be considered:
 - ✓ RE power needs to be considered as “Must-run”, backing down of RE should be avoided;
 - ✓ Balancing of RE may be done on national basis and may be centrally controlled;
 - ✓ Balancing resources may be pooled at national level; all the Gas, Hydro and Pumped storage plants, Grid scale battery storage may be considered for this purpose;

- ✓ Ramping up / Ramping down rate requirements may be met through appropriate price signal/ incentives may be introduced for managing this;
 - ✓ Incentives may be introduced for supporting RE integration and trading in RE may be encouraged;
 - ✓ Incentives for low load operation of thermal plants.
- Need for AGC to be introduced in more number of units so as to keep frequency within the governor dead band of target frequency of 50 Hz for >99% time and all machines can be operated on Governor control without much Governor hunting and also need for Appropriate allocation & Pricing mechanism for Spinning reserves for AGC.
 - All machines, above 100 MW, must operate on Governor control but not on RGMO and also Primary Up Reserve / Headroom need not be mandated at all stations (cheaper stations may be excluded, thereby reducing the cost of power)
 - The Primary reserve required to keep Quasi Steady State Frequency above 49.80 Hz (Estimate shows a freq decline of 0.15 Hz due to a contingency of 5000 MW Gen Loss) can be obtained from 60,000 MW capacity even during high RE scenario of 2021-22. This can be obtained from moderately high ECR stations and Ripple Factor may be set at ± 0.05 Hz till AGC is fully implemented.
 - At present, Power plant equipment including turbine are specified to be suitable for operation for a frequency range of -5% to +3%. The same should be +/-2%.
 - Need for addition of Synchronous condenser in planning code for Voltage management and Gas plants may be identified to be used as Synchronous Condenser. Reactive power exchange through synchronous condenser may be considered as Ancillary service.
 - IEGC should provide for forecasting of demand in different time horizons for all the states at the centralized level. Demand forecasting may be done by a central agency and this should be made available for all the stakeholders of the sector.
 - Need for establishing a uniform regulation in Technical Minimum across the States and Center; Currently states have a 70% technical minimum while Central Generating Stations have a technical minimum of 55%.
 - Effect of Transmission Charges on Viability of Renewable Energy Generation.
 - Need for product/mechanisms for RE Generation
 - Discussion on usage of State Gas Based Power Plants and their control to RLDCs
 - Necessity of AGC implementation; Every machine to be AGC compliant

- Requirement to maintain Frequency at 50 Hz in order to prevent Governor hunting.
- Allowing cheapest generating units to run at 105% MCR.
- Need for a Centralized Demand forecasting; the SLDCs forecast would be aggregated to RLDC at a national level.
- Lack of COD provision in the Grid Code for RE technologies, need for introduction of part commissioning of RE in Grid Code
- Difficulties faced due to SCED: Reduction in time before instructions are received from RLDCs; Units that should be kept on-bar and off-bar
- Review of Cold Start Up times for NTPCs super critical thermal stations.
- Review of compensation mechanism owing to Part Load Operations.

B. Presentation by Neyveli Lignite Corporation

3.2 NLC representative discussed the following key issues in their presentation:

- Issue of technical Minimum operation with respect to NLC.
- Difficulties faced in ramping up and ramping down of power plant due to RE variation.

C. Submissions by Tata Power

3.3 Due to lack of time Tata Power had not prepared a detailed presentation.

- Following issues were highlighted:
 - Sign Change Issue owing to DSM Regulations
 - Issues related to Availability Declaration in the PPA
 - Review of treatment of waste heat recovery plants in IEGC

D. Key Decisions:

3.3. The Group decided as follows:

- To seek legal opinion on essentials of Grid Security such as Reserve Maintenance, Inverter Operations with respect to implementation in states in order to achieve harmony across state and central grid.
- To explore the possibility of recommending a Day Ahead Market for RE and RE based products.
- The possibility of use of gas based plants by RLDC for tertiary reserves.
- Following two options were shortlisted for further discussion on the issue of reserves:
 - Cheapest Plants should run at 105% and should only have ramping down facility, reserves of other plants should be utilized for meeting contingency events

- States to nominate units for AGC on the basis of quota decided by RPC and RLDC
- NTPC was requested to submit a proposal towards modalities of AGC implementation.
- NLC was requested to formulate a proposal on must run status for RE for states in order to curtail instances of RE backing down as well submit the machine characteristics of NLC power plant.
- Group decided to review the following aspects in greater detail:
 - Aggregation of demand forecasting at State Level, followed by Regional Level to National Level
 - Frequent review of forecasting errors with states
- MNRE was requested to submit recommendations related to RE such as COD, part commissioning etc.
- The Ramping Methodology would be further relooked in the following context:
 - Rationalization with CEA regulations
 - Periodic testing of Ramping
 - Incentivizing Ramp Rate increase
- Committee also decided to give additional time to Tata Power present their views on IEGC

4. Additional Presentations:

- The Committee has requested presentations from Mercados EMI on the following issues:
 - Presentation on various International Grid Codes
 - Presentation on Qualified Coordinating Agency in RE rich states such as Tamil Nadu etc.
- Presentation on Draft Regulation on Real Time Markets on 1st July by staff of CERC.

The meeting ended with a vote of thanks to the chair