भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
केन्द्रीय विद्युत प्राधिकरण
Central Electricity Authority
ग्रिड प्रबंधन प्रभाग
Grid Management Division
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सं.: 12/एक्स/एस.टी.डी.(सी.ओ.एन.एन)/जी.एम./2023/ **दिनांक: 02.02.2023**

विषय: दिनांक 10/01/2023 को आयोजित आरई उत्पादन हानि और संबंधित मुद्दों के संबंध में बैठक का कार्यवृत्त ।

दिनांक 10.01.2023 को अपराह्न 05:30 बजे आयोजित आरई उत्पादन हानि और संबंधित मुद्दों के संबंध में बैठक का कार्यवृत्त आपकी जानकारी एवं आवश्यक कार्यवाही हेतु संलग्न है।

संलग्नक: यथोपरि।

(अंजुम परवेज)
निदेशक (ग्रि.प्र.)

बैठक के सभी प्रतिभागियों को ई-मेल द्वारा प्रेषित

Minutes of the Meeting held on 10.01.2023 (Tuesday) at 05:30 PM under the Chairmanship of Chairperson, CEA regarding RE generation loss and related issues

A meeting on the subject was held under the Chairmanship of Chairperson, CEA on 10.01.2023 at 05:30 P.M. with participants from CEA, NRPC, RLDCs, CTUIL, Grid-India, SECI and Powergrid. List of the participants is enclosed at **Annexure-I.**

2. At the outset Chairperson, CEA welcomed the participants and reviewed the action points agreed upon at the previous meeting. The action taken report of the minutes of the meeting held on 02.12.2022 under the chairmanship of Chairperson, CEA was presented by Deputy Director (GM) division, CEA as follows:

a) Status of Expected Commissioning of STATCOMS and SVCs as submitted by Grid-India is as follow:
   1. ±2x300MVAr STATCOM at Fatehgarh-II S/s with 4x125MVAr MSC, 2x125MAr MSR – 15.01.23.
   2. ±2x300 MVAr STATCOM at Bhadla–II S/s with 4x125 MVAr MSC, 2x125 MAr MSR – 15.01.23.
   3. ±300 MVAr STATCOM at Bikaner–II S/s with 2x125 MVAr MSC, 1x125 MAr MSR – 01.03.23.
   4. ±2x300MVAr STATCOM at Ramgarh S/s with 4x125MVAr MSC, 2x125MAr MSR (Schedule would be decided in 11th NCT meeting)
   5. ±2x300MVAr STATCOM at Fatehgarh-III S/s with 4x125MVAr MSC, 2x125MAr MSR (Schedule would be decided in 11th NCT meeting)
   6. No SVCs planned.

b) Clarification regarding reactive power support during HVRT provisions has already been issued by CEA and uploaded on CEA website.

c) List of generators who have installed the equipment/ facility but are not providing support during faults and who are providing support during faults but are not compliant as per the provisions of CEA Technical Standard for Connectivity are being complied by Grid-India.

3. The points regarding LVRT/HVRT settings, K-factors, SCR ratio, response time during HVRT and LVRT, grid forming capability and other suggestions as provided by Grid-India were discussed in the meeting. A detailed presentation was made by Grid-India is given at **Annexure-II.** The summary of discussion held on these aspects is given below:

a) **Control response time during HVRT/ LVRT for reactive power support**: It was emerged that as per international practices, the reactive power support during LVRT/HVRT should be achieved within 20 to 30 milliseconds. It was decided that necessary guidelines or detailed procedure may be framed and if required the provisions may be incorporated.in CEA Technical Standard for Connectivity.

b) **Reactive power compensation by RE Generating station:** Adequate reactive power compensation needs to be ensured by the RE plants as per the provisions of the CEA Technical Standard for Connectivity. It was suggested that equipment such as STATCOM at generator PSS may be promoted for compliance of reactive power compensation.

c) As per the provisions in CEA Technical Standard for Connectivity, RE generator are expected to design their machines (WTG/Inverter) considering temperature extremes corresponding to location of the generating station. It was informed that the design ambient temperature of 50^0 C for conventional generator has been defined in Central Electricity Authority (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations and design ambient temperature for RE plants can also be standardized. It was intimated that provisions for ambient temperature for RE plants would be incorporated in the forthcoming *Central Electricity Authority (Technical Standards for Construction of RE Power Plants) Regulations, 2023 for Solar Power Plants, Wind Power Plants and Battery Energy Storage Systems (BESS)*.

d) It was emphasized that area specific studies regarding multiple Fault Ride Through requirement needs to be carried out.

e) **Standards for Distributed Energy Resources (DER):** Grid India representative stated that with the expected rapid integration of DERs like roof top solar, EV charging, Solar pump set etc. sources in coming years, suitable standards in terms of visibility of these sources at control centers as well as their ability to provide essential reliability services such as voltage control, frequency control etc. may be specified. Fault Ride Through capabilities of these Distributed Energy Sources (DERs) must also be specified. He further stated that this has also been recommended by Giz. in their report on TECHNICAL STANDARDS AND COMPLIANCE MECHANISMS under Indo – German Energy Program for Energy Transition with DISCOMs in Oct, 2022.

f) **Standards for Grid Forming Capability of Inverters:** Grid India representative stated that non-availability of grid forming sources, especially in large RE complexes located at remote locations, may significantly delay the restoration of supply in case of any untoward incident. He suggested that standards for grid forming capabilities of inverters may be specified in the regulations. This will enable the inverter-based resources to play a constructive role in reliable grid operation.

4. It was concluded that a technical expert group be formed with members comprising from CEA, Grid-India, SECI, CTU, NISE and NIWE to carry out the in depth technical study regarding the aspects cited above and come up with the recommendations.

The Meeting ended with a Vote of Thanks to the Chair.

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Annexure-1

List of participants in the meeting held on 10/01/2023 at 5:30 PM in CEA, Sewa Bhawan.

Central Electricity Authority (CEA)

1. Sh. Ghanshyam Prasad, Chairperson
2. Sh. B K Arya, Member (GO&D)
3. Sh. Ashok Kumar Rajput, Member (Power System)
4. Sh. M. M. Dhakate, Chief Engineer (Grid Management)
5. Sh. Anzum Parwej, Director (Grid Management)
6. Sh. Jitendra Kumar Meena, Deputy Director (Grid Management)
7. Sh. Himalaya Shubham, AD (Grid Management)
8. Sh. Shubhender Singh, AD (Grid Management)

NRPC

1. Shri Naresh Bhandari, Member Secretary
2. Shri Santosh Kumar, Superintendent Engineer

CTU

1. Shri P C Garg, COO
2. Shri Ashok Pal, Dy. COO
3. Shri P S Das, Sr. GM
4. Shri Kashish Bhambhani, GM
5. Shri Ajay Kumar, Asst. Manager
6. Shri Roushan Kumar, Engineer

POWERGRID

1. Smt. Manju Gupta, Chief GM

Grid-India/NLDC/NRLDC

1. Shri Rajiv Porwal, CGM, NRLDC
2. Shri Alok Kumar, Sr. GM (SO), NRLDC
3. Sh. Somara Lakra, Sr. GM, NRLDC
4. Sh. Vivek Pandey, GM (SO), NLDC
5. Smt. Suruchi Jain, DGM (SO), NRLDC
6. Sh. Priyam Jain, Chief Manager (SO), NLDC
7. Sh. Rahul Shukla, Manager, NLDC
8. Sh. Ibtesam Asif, Asstt. Manager(SO)
9. Sh. Sujeet Banarjee, CGM, SO, NLDC
10. Shri MV Pradeep Reddy, SRLDC
11. Shri Muthu Kumar, SRLDC
12. Shri Rahul Shukla, NLDC
13. Shri Gaurav Malviya, NRLDC
14. Shri Venkateshan M, SRLDC,
15. Shri Sharath Chand, SRLDC

Solar Energy Corporation of India (SECI) Limited

1. Sh. S. K. Mishra, Director (PS)
2. Sh. Sh. Prashant K. Upadhyay, Sr. Manager (PS)

3. Sh. Kaustuv Roy, GM(PS)