ग्रिड कंट्रोलर ऑफ इंडिया लिमिटेड
(भारत सरकार का उद्यम)
GRID CONTROLLER OF INDIA LIMITED
(A Government of India Enterprise)
[formerly Power System Operation Corporation Limited (POSOCO)]
राष्ट्रीय भार प्रेषण केन्द्र / National Load Despatch Centre
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वितरण सूची के अनुसार/As per Distribution List

विषय/Sub: Minutes of meeting held with Solar & wind Energy developers/Associations in Hybrid mode to disseminate compliance requirements and resolve operational issues.

महोदय/महोदया,

Please find attached herewith minutes of meeting held in hybrid mode on 28th March 2024 between Grid-India and Solar & Wind Energy developers/Associations to disseminate compliance requirements and resolve outstanding issues in First time charging (FTC), trial operation, certification and operations.

सधन्यवाद,

भवदीय

Vivek Pandey
वरिष्ठ महाप्रबंधक, प्रणाली प्रचालन 12/04/2024

वितरण सूची/ Distribution List:

1. Head - Policy & Regulatory, National Solar Energy Federation of India 135-137, Rectangle 1, D4, Saket– 110017, New Delhi, India	**2. Director General,** Sustainable Projects Developers Association (SPDA) 910, 9th floor, Surya Kiran Building, 19, KG Marg, New Delhi-110001
3. Chairperson, CEA 2nd floor, Sewa Bhawan (North) West Block, R.K. Puram New Delhi – 110066, India	**4. Member (GO&D), CEA** Sewa Bhawan, R.K.Puram, New Delhi - 110066
5. Director (Solar), Solar Energy Corporation of India Limited (SECI) 6th Floor, Plate-B, NBCC Office Block Tower 2, East Kidwai Nagar, New Delhi, 110023	**6. Chief operating Officer (COO)** Central Transmission Utility of India Limited, Saudamini, Plot No.2, Sector-29 Gurugram 122001, Haryana
7. Joint Secretary, MNRE, Atal Akshay Urja Bhawan, CGO Complex, Lodhi Road, New Delhi – 110003	**8. Chief Engineer (R&R),** Ministry of Power (MoP), Shram Shakti Bhawan Rafi Marg, New Delhi-110001
9. Member Secretary, Northern Regional Power Committee 18-A, Qutab Institutional Area, Shaheed Jeet Singh Marg, Katwaria Sarai, New Delhi-110 016	**10. Member Secretary,** Western Regional Power Committee MIDC Area, Marol, Andheri East, Mumbai - 400093
11. Member Secretary Southern Regional Power Committee Central Electricity Authority No. 29 Race Course Cross Road Bangalore-560 009	**12. Executive Director** Northern Region Load Despatch Center 18-A, Shaheed Jeet Singh Sansanwal Marg, Katwaria Sarai, New Delhi - 110016
13. Executive Director Western Region Load Despatch Center F-3, M.I.D.C. Area, Marol Andheri (East), Mumbai-400093	**14. Executive Director** Southern Region Load Despatch Center 29, Race Course Cross Road, Banglore - 560009
15. Chairperson, RUMSL Main Road No. 2, Urja Bhawan, Near 5 No Bus Stop, Shivaji Nagar, Bhopal, Madhya Pradesh - 462016	**16. Chairperson, Gujarat Power Corporation Limited (GPCL)** Block No. 8, Sixth Floor, Udhyog Bhavan, Sector 11, Gandhinagar – 382 011

Discussion summary of the meeting chaired by CMD, Grid-India on 28th March, 2024 at 15:00 Hrs. in NLDC, New Delhi regarding RE integration and operational issues

CMD, Grid-India chaired a meeting in NLDC to deliberate the issues regarding RE integration. Meeting was held in hybrid mode. Representatives from NSEFI, WIPPA, IWMTMA, RE developers, SECI, RPC, CTUIL, CEA, and Grid India attended the meeting. List of participants is attached as Annexure –I.

1. CMD Grid-India extended a warm welcome to all participants. He said that the transition to the green energy future for India is an ambitious and long journey for India. He mentioned that unlike distributed RE capacity addition in other parts of the world, India has adopted a unique approach of adding large capacity concentrated in specific RE zones. He highlighted that rapid capacity addition is important for resource adequacy and energy security. He complimented the RE developers for efficiently managing the financial and construction related risks associated with massive investment being done and urged that risks during O&M phase are also significant and should not be undermined. He emphasized the importance of conformity to standards and adoption of good utility practices to ensure equipment safety and grid security for the entire life span of 25-35 years. He invited the RE developers for regular interactions to address mutual concerns and suggested that in the first meeting the focus could be on issues related to First Time Charging (FTC), trial operation and CoD. Subsequent meetings could cover issues related to forecasting and scheduling, operational challenges, compliance to standards, event analysis. He shared that Grid-India would continue to conduct interactive sessions and workshops for facilitating the applicants in meeting the compliance requirements.

2. NSEFI representative thanked CMD Grid-India for organizing the meeting and acknowledged the proactive approach of RLDCs and NLDC in facilitating the RE capacity addition. Representative from RENEW stated that the workshops and Report on RE related Grid events from Grid-India have been helpful in explaining the technical issues related with model details, test report & discrepancies between the behaviour of RE plants in real-time and their originally submitted models.

3. Sr. GM, NLDC gave a brief presentation (enclosed as Annex-II) on the process associated with grant of approval for connectivity, first time charging and integration of RE facilities with the grid. It was explained that model verification and conformity to standards is being checked jointly by Grid-India and CTUIL at the time of grant of approval for connectivity which prevents the duplication of data submission requirement. The process of connectivity and FTC approval has also been streamlined. During the presentation the following common shortcomings in the data & model submitted by developers were also explained to help the developers in addressing the same for expediting the approvals.

   <u>Test Reports:</u>

   1. Some of test reports are being submitted with tests carried out as per other standards instead of CEA Technical Standards for Connectivity to the Grid Regulations
   2. Many important testing parameters such as Short Circuit Ratio (SCR), K-factor for LVRT/HVRT, IBR protection settings, Active Power recovery time after the Fault Ride through (FRT), reactive power response time during FRT are absent in the test reports. In such cases, the requisite information is sought from OEM/RE developers.

Simulation Models:

1. Consideration of High Short Circuit ratio (SCR) as compared the actual SCR in the model.
2. Improper modelling - Post fault characteristics, Collector System Network etc.
3. Consideration of different LVRT/HVRT K-factors in models in place of implemented value at site.
4. Non-consideration of communication delays, polling rates/update rates of equipment in modelling.
5. No/incorrect modelling of relay in simulation model for IBRs, Collector system etc.
6. Change in simulation model parameters without proper justification in subsequent submissions.

First Time Charging Process

1. Sharing of requisite data for smooth verification of trial run operation.
2. Delay in PPC Commissioning; Testing of PPC as per IEGC, 2023.
3. DR (Disturbance Recorder) installation not as per CEA Technical Standards.
4. Event logger of IBR/WTG are not synchronized with substation SCADA.
5. Communication protocol (MODBUS) of IBR leading to delay in reporting of event (incorrect sequence of event).

4. RE developers expressed concerns regarding tests requirements and reports at various stages, which they felt were not aligned with the (IEC) standards. Grid-India informed that the trial run operation is mandated by IEGC which became effective from Oct 2023 and its purpose is to check the functioning of the plant. It was suggested that specific difficulties, if any, in trial operation may be shared for consideration of Hon'ble CERC.

5. Thar Surya representative said that they have indoor inverters with air-cooled facility, and they have installed 4x12.464 MVAr capacitor bank for reactive power compensation. They requested for approval for FTC of the capacitor bank. NRLDC representative explained that Thar Surya need to assess the shunt compensation requirement in accordance with temperature conditions mandated in CEA (Technical standards for connectivity to the grid), regulation 2007. Thar Surya representative stated that they would reassess the compensation requirement and install additional reactive compensation in accordance with CEA connectivity standard. NRLDC advised Thar Surya to submit the technical details of the 4x12.464 MVAr capacitor for processing the FTC approval.

6. RE developers requested for the update on draft procedures on "A*ggregation of pooling station for the purpose of combined scheduling and deviation settlement through QCA"* and "F*irst time energization and integration of new or modified power system element"* prepared by Grid-India as mandated under IEGC 2023. Grid-India shared that procedures have already been submitted to Hon'ble CERC for their approval.

7. M/s Suzlon representative stated that the need to submit the test report of the PPC deployed at different locations should not be insisted if it has been submitted earlier. Grid-India stated that PPC setting would have to be adapted to the prevailing configuration of the respective sites. So the functional and operational testing along with submission of test report is required for each location separately to assess the efficacy of the PPC controls under different operating conditions.

8. M/s Masaya solar expressed difficulties in time stamping & time synchronization due to different communication protocol followed for different equipment installed at site. They suggested that Grid India could notify the procedure for testing time synchronization of event loggers. Grid-India requested M/s Masaya Solar to share a draft for consideration. NSEFI agreed to organize knowledge sharing sessions amongst RE developers to facilitate resolution of such technical issues.

9. Several RE developers raised concerns about the corroboration of output from wind and solar plants during the trial run. Grid-India shared that the assessment of trial operation performance is based on the reference charts and corroboration data as per prevailing ambient conditions, furnished by developers themselves. It was suggested that they could submit the uncertainty margin as per OEM, that could be considered during performance assessment. Furthermore, Grid-India emphasized that any difficulties encountered by RE developers during the trial run of either wind or solar plants could be presented to the Hon'ble commission for resolution.

10. M/s Serentica raised the issue regarding long term GNA for Bulk Consumer through GOAR. CTU and Grid-India acknowledged the significance of this matter and emphasized that further discussions are needed to address it comprehensively and it was highlighted that the matter would be appropriately taken up with Hon'ble CERC.

11. Some of developers raised the issue of NoC for sale of infirm power. Grid-India elaborated that NOC from REIA / beneficiaries is required before sale of infirm power to safeguard the rights of beneficiaries of the plant and to avoid any dispute.

12. CMD Grid-India requested SRLDC, WRLDC, NRLDC, CTUIL and RPCs for their suggestions regarding issues associated with processing of applications for connectivity and FTC approval.

13. All Concerned RLDC heads emphasized the submission of verified & proper Model, data & test report to avoid multiple iteration. It was also emphasized that timely submission of details allows thorough checks and verification of models and data during the connectivity stage. This proactive approach not only facilitates faster processing of the FTC process but also helps in identify and address any potential issues or discrepancies at early stage. It will also ensure hassle free operation and reliable & secure operation of grid.

14. Representative from CTUIL shared the followings points:

1. All data/information submitted with the applications for connectivity should be duly verified by RE developer to avoid multiple iterations in validation and delays in processing the applications.
2. A sizeable portion of the RE facilities that were commissioned in the initial years are still non-compliant. They need to take measures to comply with the standards.
3. CTU emphasized the importance of strict adherence to harmonics compliance standards. They pointed out that non-compliance with these standards has led to increased acetylene content and failure of reactors at certain locations. Furthermore, there is a risk that this issue could propagate to transformers at pooling stations. CTU advised RE developers to conduct field measurements on an annual basis as per the Central Electricity Authority (CEA) standards.

15. MS SRPC emphasized the importance of timely submission of information and urged stakeholders to avoid last-minute data submissions. They stressed that any shortcomings or issues could be effectively addressed with the assistance of OEMs during the commissioning phase itself. Addressing concerns at this stage is crucial, as attempting to resolve them later could prove to be more challenging and may lead to delays or complications in the project execution process.

16. In his concluding remark Member (PS), CEA requested RE developers to proactively engage and submit their comments, inputs when the standards/regulations are in the draft stage. He shared that the draft standards for construction of RE plants would soon be published.

17. In the concluding remarks, CMD Grid-India acknowledged the emergence of new technologies such as electrolysers, Battery Energy Storage Systems (BESS) and other innovations entering the market. He emphasized that with the operation experience, regulations and standards would continue to evolve globally as well as in India. He said that adapting to the new requirements would be essential for sustainability. He suggested that we should start deliberating to evolve a mechanism to contractually taken care of the financial implications up to some extent. CMD Grid-India also highlighted the need for clear delineation of responsibilities between the SPPD, WPPD & Renewable Energy (RE) developers. He emphasized the importance of ensuring that each party understands and fulfills their obligations as per existing regulations to facilitate smooth execution of all required activities.

18. Meeting ended with vote of thanks.