

भारत सरकार/ Government of India विद्युत मंत्रालय/ Ministry of Power केन्द्रीय विद्युत प्राधिकरण/ Central Electricity Authority ग्रिड प्रबंधन प्रभाग/ Grid Management Division

सं.: 12/एक्स/एस.टी.डी.(सी.ओ.एन.एन)/जी.एम./2023/ 3/2 दिनांक: 25.09.2023

विषय: दिनांक 13.09.2023 (बुधवार) को अपराह्न 05:00 बजे अध्यक्ष, सीईए की अध्यक्षता में आरई डेवलपर्स के लंबित कॉन-4/फर्स्ट टाइम चार्जिंग (एफटीसी) आवेदनों से संबंधित मुद्दों पर बैठक का कार्यवृत्त।

Minutes of the Meeting held on 13.09.2023 (Wednesday) at 05:00 PM under the Chairmanship of Chairperson, CEA to discuss issues related to pending CON-4/ First Time Charging (FTC) applications of RE developers.

अध्यक्ष, सीईए की अध्यक्षता में दिनांक 13.09.2023 को अपराह्न 05:00 बजे आयोजित बैठक के कार्यवृत्त आपकी जानकारी एवं आवश्यक कार्यवाही हेतु संलग्न है। यह पत्र सक्षम अधिकारी द्वारा अनुमोदित है।

Please find enclosed the minutes of the meeting held under Chairmanship of Chairperson, CEA on 13th Sep, 2023 at 05:00 PM. It is issued on approval of Competent Authority.

संलग्नकः यथोपरि।

(चन्द्र प्रकाश) (मख्य अभियन्ता

बैठक के सभी प्रतिभागियों को ई-मेल द्वारा प्रेषित

Minutes of the Meeting held on 13.09.2023 (Wednesday) at 05:00 PM under the Chairmanship of Chairperson, CEA to discuss issues related to pending CON-4/ First Time Charging (FTC) applications of RE developers.

A meeting under the chairmanship of Chairperson, CEA was held on 13.09.2023 (Wednesday) at 05.00 P.M. with the participants from GRID India, Central Transmission Utility of India Limited (CTUIL) and various RE developers to discuss the issues related to pending applications of CON-4/ FTC applications of RE developers. The list of the participants is enclosed at <u>Annexure-I</u>.

2. Chief Engineer (Grid Management), CEA stated that GRID-India vide mail dated 12/09/2023 informed that no FTC applications are pending while CTUIL has submitted the list of pending applications.

3. Chairperson, CEA asked CTUIL to highlight the major reasons for holding the CON-4 applications of RE developers.

4. The points highlighted by CTUIL and discussed with RE developers are as under: -

(a) **Non-submission of CON-4 application in time:** As per GNA Regulations 2022 and Report of the Working Group, the CON-4 applications are to be submitted one year prior to physical interconnection. The one-year period is to enable any modification in plant required for compliance with CEA Technical Standards e.g. installation of Reactive Power equipment, Filters for harmonics mitigation etc. However, it has been observed that the RE applicants submit CON-4 application only 2-4 months prior to the Scheduled Commercial Operation Date (SCOD).

The representative of RE developers stated that there are practical challenges w.r.t to the location of WTGs which keeps on changing due to ROW, soil conditions, Ministry of Defence clearance, etc. and accordingly due to change in 33kV network layout of the project or due to change in location of the WTGs, there is change in reactive power requirement. Whenever there is change in the layout/ model of the project it leads to more number of iterations of simulation studies. In case of solar projects, no Independent Power Producer (IPP) commit capital cost for the modules one year before the Scheduled Commercial Operation Date (SCOD) and further the supplier changes the modules for supply after the tendering which leads to change in the modelling data and leads to more number of iterations of simulation studies. A time of 6 to 8 months before SCOD would be appropriate for submitting the modelling data.

Representative of M/s Ayana Renewable Power Six Pvt. Ltd. ("ARPSPL") stated that they had approached for FTC to SRLDC in Aug, 2022 and based on the communication from SRLDC they have already commissioned 112 MVAr Capacitor Bank. Subsequently, they have approached CTU with CON-4/CON-5 in June, 2023. Now CTU / GRID-INDIA in line with CEA MoM dated 12.05.2023, treating their case as submitted after 30th April and asking them to install dynamically varying reactive power support. As the Generation project is ready for commissioning and the 400/220kV Koppal PS is expected to be commissioned by Sept/Oct 2023, the representative requested that their application for CON-4 may be considered as submitted before 30th April 2023 and they may be allowed physical connection to the GRID / FTC considering the 112 MVAR capacitor bank already installed.

As informed by NTPC, their 50MW RE capacity is ready for interconnection. 50MW out of its total 150MW capacity may be permitted physical connectivity to the grid/FTC (with undertaking) subject to condition that the CON-4 application for balance 100MW shall be processed only after fulfilment of pending compliances.

The concerns were raised by CTUIL and requested the developers to submit the applications as per CERC regulation so that timely connectivity applications are processed and approval given well in time.

(b) **Implementation of methods for adherence of power quality norms**: The number of cases has been observed with harmonics exceeding prescribed limits. For their mitigation, the RE developer plans for filters in plant models. However, their actual implementation requires more time. For under process CON-4 applications, it is proposed that six (6) months' time may be given to RE developers for implementing the same. Till such time they may be allowed to interconnect with ISTS.

The representative of RE developers stated that the simulation studies are done on a particular SCR value at that location. The filters and reactors banks for mitigating the harmonics are designed accordingly. However, the situation changes on the ground when the actual SCR value is different than the one taken in simulation studies. The harmonics values are not compliant when the SCR changes. Sufficient time is required for any modification and fine tuning of the filters to contain the harmonics within the acceptable levels.

GRID-India submitted that if modelling data is submitted 6 months before SCOD, then there would be ample time for the RE developer to fine tune the filters. The modelling data submitted by RE developers needs to be compliant w.r.t to harmonics and if any minor changes are there at the ground then they can fine tune subsequently.

- (c) Completion of compliances for CON-5/6 issued provisionally: the provisional CON-5 were issued to RE developers based on Minutes of the Meeting held under the Chairmanship of Chairperson, CEA on 18/5/2023. As per the above MoM, such RE developers has to meet all compliances by 30/09/2023 else they shall be disconnected from the Grid. As on date, the developers are not able to meet the requirements and the same is under progress.
- (d) Consideration of IEEE-2800-2000 recommendation w.r.t Harmonics: Presently, IEEE-519-2014 Standards are followed for checking Current Harmonics limits at POI. 2022 version of IEEE has been released wherein for RE dominated power systems, it is recommended to apply IEEE 2800 or 1547. It is suggested to consider the same in the CEA (Technical Standards for Connectivity to the Grid) Regulations.
- (e) Inverter HVRT Test report as per point of interconnection (POI) requirement: As per CEA (Technical Standards for connectivity to the grid) Regulations, HVRT compliances has to be met at POI. By virtue of internal network of RE plants, individual inverter experience higher voltage than POI (typically 5%-10%). Therefore, for meeting the HVRT requirements at POI, Inverter capability is required on higher side. As on date, inverter OEMs test their Inverters at voltage specified in CEA Technical Standards for Connectivity (at POI). This causes tripping of inverters during HVRT.

Accordingly, PV inverter OEM may be instructed by CEA to carry out testing at voltage 5%-10% higher than PoI.

The representative of RE developers stated that inverter OEMs do not agree on warranty terms for the increased voltage at inverter terminals. The OEMs provide certification for 1.1 p.u at the inverter terminals.

GRID-India stated that CEA (Technical Standards for Connectivity to the Grid) Regulations mandates for 1.1 p.u. at the POI. The inverter needs to be connected for this much voltage at the POI. The RE developers should do the simulation study and install the inverters accordingly.

5. After the detailed discussions and based on the submissions made by GRID-India, CTUIL and RE Developers, Chairperson, CEA directed the following –

(i) W.r.t to point 4 (a), as per CERC GNA Regulations 2022, CON-4 applications are to be submitted one year prior to physical interconnection however, practically the applications are being submitted 2-3 months before SCOD. There is not ample time left with GRID-India and CTUIL to process the application. The RE developers must comply with the CERC Regulations and apply for connectivity accordingly. During the deliberation, the developers have agreed to apply for the connectivity/ GNA at least 8 months before SCOD. However, they would make further endeavor to submit as per the CERC Regulations.

Further, as Ayana had applied to Grid India for FTC in Aug, 2022, their case may be processed by CTU/Grid India as submitted before 30th April and may be allowed to interconnect at Koppal S/s with the undertaking that they would comply with the required dynamic compensation within six months from the grant of Con 5 by CTU, failing which they will be liable for disconnection.

50MW out of its total 150MW capacity may be permitted physical connectivity to the grid/FTC (with undertaking) subject to condition that the CON-4 application for balance 100MW shall be processed only after fulfilment of pending compliances.

It was also clarified that the dynamic compensation is the requirement of CEA regulation of 2013 and hence needs to be complied with.

(ii) W.r.t to point 4(b), as there are limited suppliers, the orders are likely to materialize in around 4 to 6 months. Therefore, the RE developers may be allowed to connect their plants to the grid with the present filter configuration provided that they must comply with the power quality norms latest by 31.03.2024 failing which the plants will be disconnected by the load dispatch. The above extended timeline would be applicable for connectivity applications submitted by 30th September 2023.

For future cases, the RE developers must plan commissioning along with dynamic compensation and harmonics etc. as per CEA (Technical Standards for Connectivity to the Grid) Regulations.

(iii) W.r.t to point 4 (c), a notice for disconnection is to be sent by GRID-India to all the RE developers who got provisional CON-6/FTC but compliances are still not met.

- (iv) W.r.t to point 4 (d), it will be examined in detail by CEA and if any changes is required in the CEA (Technical Standards for Connectivity to the Grid), Regulations suitable action will be taken. Amendment, if any, will applicable prospectively.
- (v) W.r.t to point 4 (e), As per the Part II clause B2 (7) of CEA (Technical Standards for Connectivity to the Grid) Regulations, the HVRT compliance shall be as under: -

"The generating station connected to the grid, shall remain connected to the grid when voltage at the **interconnection point**, on any or all phases (symmetrical or asymmetrical overvoltage conditions) rises above the specified values given below for specified time —

Over voltage (pu)	Minimum time to remain connected (Seconds)
1.30 < V	0 Sec (Instantaneous trip)
1.30 ≥ V > 1.20	0.2 Sec
1.20 ≥ V >1.10	2 Sec
<i>V</i> ≤ 1.10	Continuous

The HVRT compliance shall be for the voltages at POI.

RE developer must take suitable action as per this above provision.

(vi) CTUIL and Grid India have been requested to allow the pending applications at the earliest in view of the capacity crunch in the grid especially envisaged during October 23/ Nov 23 and further from January 24 onwards. In case of any marginal requirement or study results submission etc, a reasonable time line, but not exceeding 6 months, may be given on case to case basis. However, on noncompliance of the same the capacity shall be disconnected from the grid. All future applications submitted from 01.10.2023 onwards must have all compliances in place.

The meeting ended with thanks to the chair.

Annexure-I

List of participants in the meeting on 13/09/2023 at 05:00 PM

Central Electricity Authority (CEA)

- 1. Sh. Ghanshyam Prasad, Chairperson
- 2. Sh. B.K. Arya, Member (GO&D)
- 3. Sh. Chandra Prakash, Chief Engineer (Grid Management)
- 4. Sh. Sandeep Kumar, Deputy Director (Grid Management)
- 5. Sh. Dhruv Kawat, Assistant Director (Grid Management)

GRID India

- 1. Sh. Rajiv Porwal, Director (SO)
- 2. Sh. Vivek Pandey, GM
- 3. Sh. Alok Kumar, GM
- 4. Sh. Abhijeet Prakash, Chief Manager

Central Transmission Utility of India Limited (CTUIL)

- 1. Sh. Ashok Pal, Dy. COO
- 2. Sh. PS Das, Sr. GM
- 3. Sh. Anil Kr. Meena, GM
- 4. Sh. Ajay Kumar, Asst. Manager
- 5. Sh. Roushan Kumar, Engineer

Representative of RE developers