

Advisory on Processing of Connection Details Application w.r.t Renewable Plants/Parks

Date: 20.11.2025

1. Clarification w.r.t mismatch of installed capacity (IC) in simulation study models and connectivity grant letter:

- As per Regulation 5.2 of CERC GNA Regulations, 2022 (including its amendments thereof) as below:

“5.2 Notwithstanding anything contained in Regulation 5.1, an entity covered under Regulation 4 of these regulations, with prior approval of the Nodal Agency, within the quantum of Connectivity granted to it, shall be eligible to install additional generation capacity, or ESS, including the capacity owned by any other entity, with -----”

- In simulation study models submitted at the stage of submission of connection details application under Regulation 10.1 of the CERC GNA Regulations, 2022, the installed capacity (IC) of the Grantee should exactly match the value mentioned in the intimation for final grant of connectivity. Further, the fuel breakup (i.e. solar capacity/wind capacity/storage capacity etc.) should also match the details provided connectivity grant letter. However, if an applicant seeks issuance of technical connection details for part capacity, the simulation study model IC can be less than the IC mentioned in connectivity grant letter.
- In case of a mismatch in the IC value as per name plate rating of active power generating unit/equipment (IC greater than the IC mentioned in connectivity grant letter) in the simulation study models, the grantee(s) are required to apply for enhancement in IC/addition of generation capacity under Regulation 5.2 of the CERC GNA Regulations, 2022.
- However, considering the **modular nature of renewable energy (RE) generating equipment**, which typically involves smaller unit ratings compared to conventional generators, such an application is **required only when** the number of WTGs/Inverters/PCSs considered in the simulation study **exceeds the minimum number required** to meet the IC specified in the connectivity grant letter.

2. Clarification w.r.t number of scenarios to be considered for dynamic analysis in case of hybrid RE power plant:

- For Hybrid RE projects having mix of Solar, Wind, and/or BESS, the scenarios to be considered for dynamic analysis are tabulated below:

Sl. No.	Type of Hybrid Power Project	Scenarios to be consider	Additional Study
1.	Solar and wind	Both Solar and wind in operation	-
2.	Solar, Wind and BESS	Solar and wind in operation and BESS in charging mode	In Addition, for frequency response tests (Including immediate Frequency Response*), this scenario with BESS in discharging mode to be considered.
3.	Solar with BESS	Solar in operation and BESS in charging mode	In Addition, for frequency response tests (Including immediate Frequency Response*), this scenario with BESS in discharging mode to be considered
4.	Wind with BESS	Wind in operation and BESS in charging mode	In Addition, for frequency response tests (Including immediate Frequency Response*), this scenario with BESS in discharging mode to be considered
5.	Standalone BESS	BESS operating in discharging mode	In Addition, for frequency response tests (Including immediate Frequency Response*), scenario of BESS in charging mode to be considered

**Immediate (within 1 second) real power primary frequency response of at least 10% of maximum Alternating Current active power capacity for frequency deviation in excess of 0.3 Hz*

- In addition to the consolidated Freq. Response, the response of individual technologies i.e. (solar, wind and storage shall also be checked). In case of inadequate response by any technology, other scenarios shall also be studied as suggested by CTUIL & Respective RLDC.
- Further, list of tests for all above combinations of hybrid RE projects shall be as per the list of Studies published on 9th March 2025.

<https://ctuil.in/uploads/assets/174149678682List%20of%20studies%20to%20be%20done%20by%20RE%20developers%20to%20CTU.pdf>).

- *Presently, the simulation model requirements/expectations of BESS resources are evolving in nature, as BESS being New Technology, therefore other simulation test case(s) in addition to the above list may also to be conducted by the entity (if required).*

3. Steady - state analysis scenarios to be studied for determining the additional reactive power compensation requirement (if any):

S. No.	Type of Hybrid Power Project	Scenarios to be considered
1.	Solar and wind	a) Solar and Wind b) Only Solar c) Only Wind d) Solar Max. + Remaining Wind e) Wind Max. + Remaining Solar
2.	Solar with BESS	a) Solar and BESS b) Only Solar c) Only BESS (Charging + Discharging)
3.	Wind with BESS	a) Wind and BESS b) Only Wind c) Only BESS (Charging + Discharging)
4.	Solar, Wind and BESS	a) Solar, Wind and BESS b) Solar and Wind c) Only Solar + BESS (Discharging) d) Only Wind + BESS (Discharging) e) Only BESS (Charging + Discharging)
5.	Standalone BESS	a) Charging Mode b) Discharging Mode

- Further, the active power at POI shall not exceed the connectivity quantum as per CTU grant and the despatches of individual resources shall be as per operational methodology.

4. Scenarios for Power quality Assessment:

- **Solar + Wind Hybrid** - The tests shall be carried out for different active power level steps (10% to 100%). For each active power case, dispatch of solar and wind shall be as per the expected operational scenario. The harmonic current injection for each type of source shall be as per its dispatch in the respective scenario.
- **Solar + Wind + Storage Hybrid** - The tests shall be carried out for different active power level steps (10% to 100%). For each active power case, dispatch of solar and wind shall be as per the expected operational scenario. The harmonic current injection for each type of source shall be as per its dispatch in the respective scenario. Two scenarios to be done - One for BESS in charging mode and other in discharging mode.

- Further, if required, any other possible operational scenarios, may be studied by the applicant, which might be more critical for Filters design.

5. Clarification w.r.t submission of consolidated simulation study models for interconnection studies of projects connected behind a single point of interconnection:

In case two or more plants are connected behind a single point of connection (POI) through sharing of common dedicated transmission infrastructure, steady state, dynamic & power quality analysis of the plant coming at later stage are to be performed on consolidated simulation study models of all earlier approved plants.

E.g. If plant A, B & C are connected at a common POI through common dedicated transmission infrastructure and plant B is coming first then plant A and at last plant C is coming for connection details approval. In this case, plant B would carry out all relevant studies considering only their own plant model whereas plant A would consider consolidated models of plant A & B and plant C would consider consolidated models of plant A, B & C.

6. Clarification w.r.t submission of connection details application in case of connectivity grant through multiple intimation letters for a single project:

As per the requirements and requests of the Connectivity applicants and grantees and in order to efficiently study the generation/load project as a whole, applicants who have obtained multiple connectivity grants for the same project of the same grantee (e.g. 3 separate connectivity applications each of 100MW for the same 300MW project) may submit a single NSW application for connection details, subject to clear identification of the in-principle or final grant intimation in the said NSW application. Accordingly, studies may be carried out on a single consolidated model of entire project capacity of the applicant.

7. Clarification w.r.t documents required at the time of signing of Connectivity Agreement - CAT-2 and Connectivity Agreement-IEGC

The following documents are required to be submitted along with the Agreement (Format-CONN-CA-5 Cat-2) in case of Generator and Connectivity Agreement-IEGC in case of transmission Licensee:

- Board Resolution** authorizing a designated person for signing of Connectivity Agreement [CAT-2 or CAT-IEGC (as applicable)] as per CERC GNA Regulations, 2022.
- PERT Chart of Generators/Transmission Licensee (as applicable).

- c) Copy of issued Connection Details Letter.
- d) Copy of issued Final Grant Letter (In case of generating plant/park).
- e) **Government-issued ID proof** of the authorised signatory.

8. Closure of connection details application in case of non - receipt of responses within specified timeline:

It has been observed that some entity(ies) do not submit timely response of CTU/Grid India observations which results in significant delay in processing of Connection Details Application by CTU and unnecessarily keep the pending application list long.

In case, entity(ies) do not submit responses to CTU/Grid-India observations within two (02) months, the application for connection details would be closed. Entity(ies) may apply afresh on NSWS portal once the simulation models or other issues are resolved for their project.

9. Clarification w.r.t consideration of grid parameters for power quality studies:

For power quality studies, grid impedance (fundamental) modelling is to be done based on actual fault MVA of grid bus and actual X/R ratio.