



**OPERATION DIVISION :: ZONE-II :: VISAKHAPATNAM**

From:  
The Executive Engineer,  
Operation -Zone-II,  
Visakhapatnam.

To  
M/s BHEL  
HTVSP168, Cat-III A  
BHPV Post  
Mindi section

**Lr.NO:EE/O/Zone-II/VSP/AE.Comml./F.No. /D.No. 2154 /24, Dt. 07.06.2024.**

Sir,  
Sub:-APEPDCL-Operation Division - Zone-II - VSP - Procedure for synchronization of newly proposed solar power plants (1MW and above) and Non solar power plants (Captive-Power Plants ) -Guidelines issued - Procedure to be followed - Communicated -Reg.

Ref:-1 ) E.O.O (RA & PP) RT No.167/2023 Dated: 05.10.2023  
2) Circular Memo No. CGM/RA & PP/EPDCL/VSP/GM/DEE/E-421825/D.No.1/491403/23  
dt: 02.08.2023

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It is to inform that the procedure for synchronization of newly proposed solar power plants (1MW and above) and non solar power plants (Captive Power Plants ) is as follows:

- I. The Procedure for issue of Connectivity Approval and Synchronization of newly Proposed Power Plants (Non-Solar) in APEPDCL, Jurisdiction .
  - a. The Developer shall submit an application to APEPDCL to establish Power Plant with a Fee of **Rs.2,30,000/-+ GST @ 18% in the form of DD in favour of Pay Officer/APEPDCL Visakhapatnam (Total Rs.2,71,400/-)**.
  - b. Along with the application, the Developer has to submit the following Documents
    - i. Certificate issued by RoC/Registrar of Firms/Registrar of Societies
    - ii, NOC from the local body,
    - iii. Authorization Letter attesting the Specimen Signatures in favour of the Person signing on the Application
    - iv. If the developer has an existing HT Service Connection, a copy of the latest HT bill has to be furnished. If not, the developer shall register for new HT service connection under appropriate category as per the existing departmental procedures and pay the necessary charges for erection of required network and the copy of new HT service Registration documents is to be furnished.
  - c. On receipt of the application along with the fee and documents, Technical feasibility will be issued by APEPDCL, corporate office based on the feasibility study (Format enclosed) report signed by the concerned EE/Operation & EE M&P through Superintending Engineer Operation for connectivity approval of the Power Plant.



- d. After getting connectivity approval, the developer shall submit the BG within 30 days for an amount of Rs.5 Lakhs/MW for first 12 months, and there after Rs. 10Lakhs/MW till commissioning as per orders issued in APTRANSCO orders T.O.O.2029. Dt.03.12 2020
- e. After completion of the Power Plant Installation, the project developer shall inform the CGM, RA&PP, APEPDCL for statutory inspection when the project is ready for synchronization, duly submitting the following documents
  - i. Details of Generator and Turbines.
  - ii. CEIG approved layout & Drawings.
  - iii. Detailed metering scheme drawings and Single line Diagram.
  - iv. Existing metering particulars (viz. Capacity and Class of accuracy of Energy meters, PTs, CTs & Calibration reports issued by NABL accredited Lab).
- f. **Procedure for Synchronization of the power plant:**
  - i. Technical Feasibility for connectivity to the proposed Power Plant will be issued by APEPDCL (Obtaining from the concerned SE/O).
  - ii. The plant installation completion shall be informed to APSLDC duly submitting the requisite format for synchronization clearance as per T.O.O.2268, dt 29.09.2021.
  - iii. The Statutory inspection report (Format S-5 of T.O.O.2268, dt. 29.09.2021) will be forwarded by APEPDCL to APSLDC for issuing clearance for Synchronization.
- g. **Post receipt of Synchronization clearance from APSLDC, Synchronization approval will be accorded by APEPDCL**
- h. **Plant shall be Synchronized in presence of Synchronization Committee (2 Nos Officials each from APTRANSCO (EE/O&M & MRT) & APDISCOM (EE/O & MRT)**

**II. The Guide lines and the modalities for evacuation of In-House Solar Power Plants with capacity greater than 1 MW) connected internally to their LT Distribution Network for Captive Use is as follows.**

- All the power Plants with capacity greater than 1 MW shall be taken permission from APEPDCL before commissioning of the Project either connected to the internal Grid of the firm or to the Grid of APEPDCL..
- Synchronization approval has to be obtained from APSLDC by the developers to synchronize the Solar Power Plants (with capacity greater than 1 MW) at load point internally to their LT Distribution Network within the premises for Captive use.



## Procedure for Installation & Synchronization of such Solar Power Plants:

- I. The Developer has to submit an application to APEPDCL to establish Solar power Plant with a Fee of Rs.2,00,000/-+ GST @ 18% in form of DD in favour of Pay Officer/APEPDCL/Visakhapatnam (Total Rs.2,36,000/--)
- II. On receipt of the application along with the fee, feasibility study will be ascertained from the concerned Executive Engineer/Operation & Executive Engineer/ M&P through the concerned Superintending Engineer/ Operation for connectivity approval of SPP.
- III. After receipt of Feasibility study report on evacuation of power from the proposed Solar Power Plant, approval will be given.
- IV. After completion of the Solar Power Plant Installation, the project developer has to approach the concerned CGMs of DISCOMs for statutory inspection when the project is ready for synchronization, duly submitting the following documents
  - a) Approved electrical layout, single line diagram (SLD) approved by CEIG.
  - b) Total no. of grid interactive solar PV modules.
  - c) Safety and protection Equipment
  - d) Notarized Undertaking
- V. Statutory inspection of the Solar Power Plant in Form S-5 (As per TOO 406) is to be carried out by the concerned Executive Engineer/Operation and Executive Engineer/M&P duly ensuring the following:

**The automatic Switch off:** Solar Plant should be ensured in case of no grid supply, low or over voltage conditions and single phasing etc.

**a) HT Side Protection:** The Consumer HT Breakers at Consumer end shall be with protection of both Under/Over Voltage by providing Intelligence Electronic Device (IED) type Directional Over Current and Earth Fault Relays so as to trip on the following conditions:

  - i. No grid supply
  - ii. A fault after the Breaker (Consumer Side Faults)
  - iii. Export of Solar power to Grid
  - iv. Under/Over Voltage Protection
  - v. Under/Over frequency Protection

**b) 2-Position AB Switches/Isolators at HT side:** The consumer shall provide 2- Position AB Switches along with Earth Switch with proper mechanical interlock at consumer incoming side, which shall be opened duly closing the earth switch, in case of any maintenance work by Distribution Licensee.

**c) LT Side Protection:** Incoming side of LT Circuit Breaker shall be provided at the LT Distribution Panel to trip automatically when there is no Grid Supply or a fault after the LT Breaker.

**d) Solar Inverter Feature:** In case of Grid supply failure, the Inverter shall immediately switch over to the Off position automatically by sensing the Grid reference voltage. It shall have the following features:

  - Harmonic distortion, DC Injection, flicker shall be within the limits as per the Grid Connectivity Standards
  - In built Anti Islanding Protection



II. It shall be ensured that all internal safety and protective mechanisms viz. earthing, surge protection, DC ground fault, transients and AC supply faults etc.

III. **DG set operation:** The DG set shall always be on standby mode. This shall operate only in case of grid supply failure in the condition that both HT and LT Breakers of Consumer, at consumer end are in trip condition to prevent back charge of power while operating generator. This DG Set shall not be integrated with Solar Plant.

IV. The Power quality tests shall be done periodically, once in a Year in the presence of DISCOM Engineers as per the CEA (Technical Standards for Connectivity of the Distributed Generation Resources) Regulations 2013. In case of failure of power quality test, the consumer shall take corrective action within one month from the date of testing. Notice is to be issued by the Executive Engineer/Operation concerned to take corrective action within one month, failing which supply to be disconnected.

**VI. Notarized Undertaking is to be obtained from the Developer in respect of the following:**

- a) Solar Plant installed at Developer end is being utilized for captive loads only.
- b) The developer hereby certifies that the equipment is having harmonic distortion, DC Injection, flicker etc within the limits as per the Grid Connectivity standards.
- c) Data transfer/ communication system to APSLDC as approved by APTRANSCO is installed.
- d) The Solar Power Plant is adhering to the standards specified by the CEA, especially with respect to inverter specifications, penetration levels, safety aspects like anti islanding and protection devices etc are undertaken.
- e) A reliable protection system is provided to detect various faults/abnormal conditions and appropriate means to isolate the faulty equipment or system automatically is also provided.
- f) The plant and all the equipment are certified and verified by CEIG/CEA
- g) The fault of any equipment or system of the Generating Plant will not affect the grid adversely.
- h) The Developer is solely responsible for any accident to human beings/ animals whatsoever (fatal/ non-fatal) that may occur due to back feeding from the Solar Plant when the grid supply is off.
- i) The Developer is solely responsible for any damage to the APEPDCL equipment/ Lines that may occur due to back feeding from the Solar Plant when the grid supply is off.
- j) The excess energy injected into the grid will not be claimed.
- k) APEPDCL reserves the right to disconnect the installation at any time in the event, solar power plant is damaging the grid or meter etc. or to prevent any accident or damage.

VII. After conducting statutory inspection by the concerned Executive Engineer/Operation in S5 along with the inspection report on the afore mentioned aspects shall be submitted to Corporate office.

VIII. After completion of the Solar Power Plant Installation, synchronization of the project is divided into 4 stages as given below:

**1. Approaching the APSLDC by the project developer for getting permission for synchronization:**

The developer shall submit the SCADA compatibility of the power plant along with the Statutory inspection report to APSLDC (As Per TOO 2369)



**ii. Actual process of synchronization of the generator with grid which will be supervised by a team of officers:**

The synchronization process shall be carried out in the presence of the following committee members after issuance of permission by Corporate Office & APSLOC

**Designated Officers in the Synchronization Committee:**

1. Executive Engineer/Operation concerned
2. Executive Engineer/M&P concerned
3. Executive Engineer/ DPE concerned

The coordinator for the synchronization process will be the concerned Executive Engineer/ Operation.

**1X)** Plant shall be Synchronized in the presence of Synchronization Committee. The synchronization report duly authenticated by the Committee Members and the Developer has to be submitted to the Corporate Office.

**X)** All the developers are liable for payment of Grid support charges and any other charges as specified by APERC from Time to time.

**XI)** In respect of the Solar Power Plants which were already synchronized to the Grid without prior intimation to the DISCOM, Superintending Engineers/ Operation are directed to arrange for identification of such Power Plants and issue Notices for regularization within three months from the date of receipt of the notice, duly following the procedure of modalities framed duly collecting application fee.

The Above procedures are to be followed before installation of Solar Power Plant/Non Solar Power Plants . If any plants installed without prior permission, further action will be taken as per department rules in vogue.

This is communicated for favour of information and follow the procedures please.

Yours Faithfully



Executive Engineer  
Operation/Zone-II/VSP

Copy to:

The Deputy Executive Engineer, Operation , Gajuwaka } Instructed to serve the notice to the consumer, Obtain dated acknowledgement and submit the same to this office.

Copy submitted to the Superintending Engineer , Operation circle, Visakhapatnam.

Copy submitted to the Superintending Engineer , DPE, APEPDCL, Visakhapatnam.

Copy submitted to the Chief General Manager/RA &PP/Corporate office/Visakhapatnam

Copy communicated to the Senior Accounts Officer, Operation circle, Visakhapatnam