

## **Commissioning Procedure for Utility Scale Solar Power Projects** **having PPA with DISCOM/UPPCL**

The Solar PV Project will be declared as commissioned & Commercial Operation Date achieved when all equipment as per rated project capacity has been installed and energy from the Project has flown into the grid, which will be verified by a **Commissioning Committee identified by UPPCL/UPNEDA** (which will comprise of STU and Test and certification concerned officer, DISCOM and SNA officers) to witness the Commissioning of the Project.

Following is the chronology of the procedure to be followed for commissioning of the Project.

- i) SPP<sup>#</sup> shall give to the concerned SLDC, State Nodal Agency (SNA) and UPPCL (Procurer) sixty (60) days advanced preliminary written notice and at least thirty (30) days advanced final written notice, of the date on which it intends to synchronize the Power Project to the Grid System. The SPP shall be solely responsible for any delay or non-receipt of the notice by the concerned agencies, which may in turn affect the Commissioning Schedule of the Project. Early Commissioning of a Solar Project prior to the SCD is permitted on acceptance of power by UPPCL. In order to facilitate this, SPP shall inform the SLDC and UPPCL well in advance, which is not less than 60 days prior to the date on which it intends to synchronize the Power Project to the Grid System.
  
- ii) The Power Project may be synchronized by the SPP to the Grid System when it meets all the connection conditions prescribed in Uttar Pradesh Grid Code then in effect and otherwise meets all other Indian/State legal requirements for synchronization to the Grid System.
  
- ii) Not more than 7 days prior to the proposed commissioning date; the SPP shall give the final written notice to Commissioning Committee (which will comprise of STU and Test and certification concerned officer, DISCOM and SNA officers) requesting it to visit the site to witness synchronization (for ascertaining injection of power into grid.) and commissioning of the project. Following documents are required to be made available by the SPD<sup>#</sup> at site to the committee.
  - a. Installation report duly signed by the authorized signatory as per **Annexure 1**. The SPD is advised to take due care in furnishing such Installation Report.
  - b. Plant Layout, Plant (AC & DC) SLD, along with Inverter-wise module details.
  - c. CEA/CEIG (as applicable) report containing approval for all the components, including modules, inverters, transformers and protection system, along with all annexures/attachments, as applicable. It would be the responsibility of the SPD to obtain the certificate.

- iii) The Commissioning Committee shall visit the Project site to verify the technical compliance on site as per the information submitted by the SPD and to witness the synchronisation and commissioning. On the date of site-visit, the SPD shall be required to demonstrate that equipment of rated capacity as per table given at **S.No. (i) of Annexure-2** has been installed and energy from the project has flown into the grid.
- iv) Joint Meter Reading (JMR) shall be taken at Delivery Point /plant premise on the date of site visit by the Commissioning Committee. This shall include information of respective meters installed at delivery/ interconnection point and in plant premises.
- v) In case the Project meets the requirements as verified by the Commissioning Committee witnessing the commissioning, the Project shall be declared as having been commissioned and in Commercial Operation as on the date of synchronization with the grid as that will be indicated in the Commissioning Certificate. Sample Commissioning Certificate at Annexure A
- vi) Subsequent to the visit of the Commissioning Committee to the Project site, the SPD shall submit the documents as mentioned below to SNA (UPNEDA) in hard copy/scanned form, in order to fulfil the requirements for issuance of COD Certificate:
  - a. Installation report duly signed by the authorized signatory as per **Annexure 1** along with Snap shots of the plant, including but not limited to, solar PV modules, all central inverters (showing instantaneous and total generation of a particular date), switchyards\switchgears, Power Transformers, metering (as per applicable regulations) at delivery point etc.
  - b. Issued Synchronization and commissioning certificate.
  - c. CEA/CEIG (as applicable) report containing approval for all the components, including modules, inverters, transformers and protection system, along with all annexures/attachments, as applicable.
  - d. Joint Meter Reading (JMR) taken at Delivery Point /plant premise on the date of site visit by the commissioning committee. including information of respective meters installed at delivery/ interconnection point and in plant premises.
- vii) Based on the documents as per above , the SNA shall declare the Project in Commercial Operation from the date as mentioned in the Commissioning Certificate at **Annexure -A** in the format as per **Annexure-B**
- viii) Subsequent to Commissioning, the SLDC shall provide the SCADA login details to the SPD for online real time data monitoring of the Project. The SPD may be required to push the required plant related data to SLDC designated server.

(# SPP/SPD means Solar Project Proponent/Solar Power Developer)

**INSTALLATION REPORT**

*(To be provided by SPD and to be made available at site to synchronization/commissioning committee)*

<b>Sr. No.</b>	<b>Details</b>	
I	Capacity of the Project (MW)	
II	Capacity already commissioned (MW)	
III	Capacity proposed to be commissioned (MW)	
IV	Technology used (Mono/ Multi Crystalline / thin film / Others; please specify along with capacity of each type)	
V	Type of Tilt (Fixed Tilt/Seasonal Tilt/Tracking)	
VI	Rating of the each module (Wp)	
VII	Number of modules installed of each type	
VIII.	Make of Module(s) installed of each type (including name of supplier)	
IX	Number of PCUs / Inverters installed	
X	Make of the PCUs/ Inverters	
XI	Rating of PCUs/ Inverters	
IX.	Date of installation of full capacity (as per capacity proposed to be commissioned)	
X	PV arrays	
XI	PCUs / Inverters	
XII	Transformers	
XIII	Capacity of the Project (MW)	

## Declaration of Rated Capacity

(for Reference only; The Commissioning Procedure will be guided by as per PPA)

❖ **Capacity of Solar PV Projects:**

i) The Project configuration shall be allowed as per the following matrix:

Sr. No.	Solar PV Project Capacity Bid	Minimum DC Arrays Capacity to be installed	Minimum Rated Inverter Capacity*	Maximum AC Capacity Limit at Delivery point
1	-----MW	----- MW	----- MW	----- MW

\*In case the rated inverter capacity is mentioned in kVA, the IEC test certificate declaring the power factor of the Inverter/PCU at rated power has to be submitted and the power factor shall be multiplied by the kVA rating to calculate the rated capacity of the inverter in kW.

- ii) The SPD shall be required to demonstrate compliances with the “*Technical Requirements for Grid Connected Solar PV Power Plants*” as mentioned in the RfS and Guidelines.
- iii) Higher DC capacity arrays can also be allowed, subject to the condition that the AC capacity limit as mentioned in (i) above for scheduling at the Delivery Point as per Article ----- “Right to Contracted Capacity & Energy” of the PPA is complied with.
- iv) For commissioning of the Project, cumulative capacity of DC arrays and cumulative capacity of the inverters installed shall be considered. In case of part commissioning of the Project, it shall be required to have the DC Arrays Capacity and inverters capacity be installed not less than the proposed part commissioning capacity.

**Annexure -A**

**Date:** -----

**----- MW (AC) SOLAR PV PLANT – PART COMMISSIONING /**  
**COMMISSIONING CERTIFICATE**

**Reference:** Project ID – UPNEDA-RS

This is certified that M/s -----**Private Limited** has successfully Synchronized & commissioned ----- MW Solar PV Power Generation Project at Village:-----, Tehsil:----- District:-----, Uttar Pradesh on date: - -----2021 and ----- MW is available for commercial operation as per clause 5.1.6 and 5.1.7 of the PPA.

Brief detail of the above Solar PV Power Generation Project Synchronized, Commissioned and available for commercial operation are: -

1. Detail of Power transformer –
2. Detail of Inverter Distribution transformer (IDT)-
  - a) 2 no's of ----- MVA transformer, 33/0.800/0.800 kV serial no-----, -----.
3. Detail of Auxiliary Transformer-1 no. of ---- KVA, 33/0.415 kV serial no. -----.
4. PV Modules – make ----- (-----No. of Modules -wattage)
5. Location: Village: ----- Tehsil:-----, District:-----, Uttar Pradesh
6. Connectivity: -----MW Solar PV plant connected to 132 KV ----- Substation through Single circuit 132 kV transmission line
7. Date of Commissioning and Commercial Operation: -----2021

Executive Engineer,  
T&C, UPPTCL, district-----

Executive Engineer,  
DISCOM, , district

Executive Engineer,  
ETD, UPPTCL,

Project Officer,  
UPNEDA,

Project Head, SPD

**Annexure -B**

**COD Certificate**  
**of Solar PV Power Project**  
**(To be issued by the State Nodal Agency)**

This is to certify that <M/s> having its registered office at ----- has successfully commissioned Capacity < MW > out of total <MW> installed Capacity on (Date) of their Solar PV Power Generation Project at Village -----, Tehsil ----- District. -----

The COD Certificate has been issued on the basis of the following documents enclosed: -

- (i) Installation Report including Snap shots of the Project from various angles
- (ii) Electrical Inspector Report
- (iii) Synchronization and Commissioning Certificate

**(For SNA)**