



Bangalore Electricity Supply Company Limited

(wholly owned Government of Karnataka undertaking)

Guidelines for Grid connectivity of Solar Rooftop Photo Voltaic (SRTPV) systems installed as per the KERC(Implementation of Solar Rooftop Photovoltaic Power plants) Regulations, 2016:

1. The SRTPV Application is invited from all the consumers of BESCOM through **On-line mode only and no off-line Applications are allowed.**
2. Applications can be submitted from **1kWp to upto 1000kWp.**
3. The fee details:

| Sl. No. | Capacity of proposed SRTPV system | Registration fee | Facilitation fee |
|---------|-------------------------------------|------------------|------------------|
| 1 | From 1kWp Upto & inclusive of 5 kWp | Rs.500/- | Rs.1000/- |
| 2 | Above 5 kWp & upto 50 kWp | Rs.1000/- | Rs.2000/- |
| 3 | Above 50 kWp & upto 1000 kWp | Rs.2000/- | Rs.5000/- |

4. The Sub-divisional officer (SDO) shall be **Nodal point of contact** for Solar RTPV program.
5. Type of Metering:

| Sln. | Type of Metering | Eligible Consumers |
|------|--|---|
| 1 | Gross Metering & Net Metering | Applicable for Domestic consumers i.e Residential, Hospital and Educational institutions consumers. (HT-4, HT-2(C), LT2(a) & LT2(b)) |
| 2 | Net Metering | Applicable to Industrial, Commercial and all categories of consumers other than Domestic consumer's i.e Residential, Hospital and Educational Institutions. |

6. The Power Purchase Agreement(PPA) Execution and Approval letter issuing Authority for SRTPV installations:

| Sl. No. | Capacity wise SRTPV PPA execution & Approval letter Issuing Authority | BESCOM Officer's |
|----------------|--|--|
| 1 | From 1kWp to 500kWp | Assistant Executive Engineer(Ele) C, O & M Sub-Division |
| 2 | Above 500kWp upto 1000kWp | Executive Engineer(Ele) C, O & M Division |

7. The SRTPV plant Commissioning & Synchronizing Authority:

| Sl. No. | Capacities | BESCOM Officer's |
|----------------|----------------------------|---|
| 1 | 1kW to 17.5kW | Assistant Executive Engineer(Ele) C, O & M Sub-Division |
| 2 | Above 17.5kW to upto 500kW | Assistant Executive Engineer(Ele) C, O & M Sub-Division in Co-ordination with Meter Testing (MT) staff |
| 3 | Above 500kW to upto 1000kW | Executive Engineer(Ele) C, O & M Division in Co-ordination with Meter Testing (MT) staff |

8. The Applicant can select any PV modules and system installer to install the SRTPV System.
9. The Applicant shall use only **tested Bi-directional Meters** from **BESCOM empanelled firms available at Vendor outlets.**
10. The Applicant shall use **Grid tied inverter from BESCOM empanelled firms only.**
11. **Interconnection voltages** as per KERC Regulation-2016, sl. No. 6 (1)(a) shall be as below:

| Sl No. | System Capacity | Voltage level |
|---------------|-----------------------------------|----------------------|
| 1 | From 1kWp Upto & inclusive 5kWp | 240 Volts |
| 2 | Above 5 kWp & upto 50 kWp | 415 Volts |
| 3 | Above 50 kWp & above upto 500 kWp | 11 kV |

12. The cost of distribution network upto the interconnection point shall be borne by the applicant as per KEREC Regulation-2016, sl. No. 6 (1)(d).
13. The **check meter** shall be provided for SRTPV systems capacity of **more than 17.5 kW**.
14. CT's, PT's and Metering Cubicle shall be procured from BESCO approved Vendors only.
15. For Gross Metering and Net Metering, meters shall be procured from BESCO approved/ empanelled Vendors only.
16. For HT installations, as per BESCO order no. BESCO/GM (M & C)/DGM (M)/BC-24/F-1013/12-13 dated 12.02.2013, if the existing metering system is 3 phase 3 wire, it shall be converted to 3 phase 4 wire.
17. SRTPV applicant shall be totally responsible for planning, design, construction, reliability, protection and safe operation of all the equipment's subject to the regulations for construction, operation, maintenance, connectivity and other statutory provisions as per KEREC Standardized PPA clause 1.6 (a).
18. The Technical, Safety, Grid Connectivity standards are to be followed as per KEREC Standardized PPA as below:
 - a. **clause 1, Technical and Interconnection requirement,**
 - b. **clause 2 (Safety) &**
 - c. **clause 7 (Metering)**
19. BESCO personnel reserve the right to inspect the entire plant routinely at any time as per the Conditions of Supply to the Distribution Licensees clause 18:00, access to Consumer Premises.
20. SRTPV plant of **less than 50kW** capacity shall be connected only to the existing distribution transformer through which the eligible consumers are being supplied electricity as per KEREC regulation 2016, clause 6(1)(e).
21. The total capacity of the existing SRTPV and proposed SRTPV plants on that distribution transformer shall not exceed 80% of the rated capacity.

Example: If the rated capacity of the distribution transformer is 100 kVA, the total allowable capacity of the SRTPV plants to be connected shall be 68kWs (80 KVA)

22. SRTPV plant of **more than 50kW** shall be connected only to the existing 11kV Distribution System.
23. The total capacity of the existing SRTPV and proposed SRTPV plants shall be limited so that the line current does not exceed 80% of the rated current carrying capacity of that line.
24. The Sub-divisional officer (SDO) shall verify for Technical feasibility of the installation and if the application is technically feasible, shall issue the intimation letter for execution the Power Purchase Agreement (either for full or partial SRTPV capacity).

Example:

- Existing DTC capacity of 100kVA
 - Already connected/ under progress (SRTPVs) is 60 KWS
 - Newly proposed is 50 KWS
 - Then total Solar capacity on the DTC is 110kW (> 80% of the DTC capacity
 - Hence, the application is technically feasible for partial capacity of 8 kW only (for total 80% ie 68 Kws/ 80 KVA) as against newly proposed capacity of 50kWs.
25. If the application is not technically feasible, the SDO shall **cancel the Application** and **intimate** the same to the Applicant.
 26. The SDO/DO shall execute the PPA and issue the Approval letter for start of SRTPV work to the applicant.
Note: For above 500kWp SRTPV plants, draft PPAs are to be approved by KERC through Corporate Office.
 27. The Application shall be cancelled by the SDO/DO , if the consumer does not come forward for execution of the PPA within 7 days from the date of intimation letter.
Note: In case of cancellation of the Application, the Application fee and facilitation fee are non-refundable.
 28. The consumer portion of work has to be completed and work completion report has to be submitted within 5 months from the date of approval letter for having entered into PPA upto 500kWp or the PPA approved date mentioned in the KERC letter for above 500kWp SRTPV plants.
 29. The SDO/DO shall commission and synchronise the SRTPV Plant within 15 days from the date of submission of work completion report by the Applicant, after ensuring that the SRTPV applicant has attended all the observation made by SDO/DO/MT staff, if any.

30. The SDO/DO shall issue Synchronisation certificate to the Applicant.
31. The SRTPV Consumer shall pay the Electricity tax and other statutory levies, pertaining to SRTPV generation, as levied from time to time as per KERC PPA clause 6 (c).
32. As per Government of Karnataka Notification No. EN 135 EBS 2018 dated: 27.08.2018,
 - A. Generating units having capacity to produce electricity **above 1 MW from Solar Rooftop sources** of energy shall be inspected by the Electrical Inspector before commissioning.
 - B. Solar Rooftop generation units installed as per the KERC (Implementation of Solar Rooftop Photovoltaic Power plants) Regulations, 2016 shall be inspected periodically as per Regulations 30 of Central Electricity Authority (Measures Relating to Safety and Electric Supply) Regulations, 2010.

1. Procedure and Time Lines for Grid connected SRTPV plants

A. For SRTPV plants ranging from **1kWp to upto 500kWp**:

| Step | Procedure | Formats | Time lines |
|-----------------|--|----------------------|---|
| Step - 1 | The Applicant shall be submit Only On-line Application to the Sub-divisional Officer (SDO) | Format-1 | 3 days from the Date of Registration of Application |
| Step - 2 | <p>a. <u>If the Application is Technically feasible (Fully/ Partially):</u> The SDO shall issue the Intimation letter to the Applicant for Execution of the Power Purchase Agreement (PPA).</p> <p>b. <u>If the Application is not Technically feasible:</u> The SDO shall cancel the Application and intimate the same to the Applicant.</p> | Format-2 | |
| Step - 3 | <p>The Applicant shall submit the PPA to SDO for execution, in the non-judicial Rs.200/- stamp paper as per the KERC standard PPA Format:</p> <p>a. Gross Metering</p> | Format-3 | 7 days from the Date of Intimation letter issued by SDO |
| | b. Net Metering | Format-3A | |
| Step - 4 | The SDO shall execute the PPA and issue the Approval letter for start of SRTPV work If the Applicant fails to submit the PPA within 7 days from the date of intimation letter, the SDO shall cancel the Application and intimate the same to the Applicant | Format-4 | 2 days from the Date of submission of the PPA |
| Step - 5 | The consumer portion of work has to be completed and work completion report has to be submitted within 5 months from the date of Approval letter for start of SRTPV work | Format-5 | 1 month prior to the last date of completion of the project |
| Step - 6 | <p>The SDO shall Commission and Synchronise the SRTPV Plant within 15 days from the date of submission of work completion report by the Applicant after ensuring that the SRTPV applicant has attended all the observation made by SDO/MT staff, if any.</p> <p>Synchronization Certificate shall be issued by SDO</p> | Format-6 & Format-6A | 7 days prior to the last date of completion of the project |

B. For SRTPV plants ranging above 500kWp to upto 1000kWp:

| Step | Procedure | Formats | Time lines |
|-----------------|---|----------------------|---|
| Step - 1 | The Applicant shall submit Only On-line Application to the Sub-divisional Officer (SDO) | Format-1 | 3 days from the Date of Registration of Application |
| Step - 2 | a. <u>If the Application is Technically feasible (Fully/ Partially):</u> The SDO shall issue the Intimation letter to the Applicant for Execution of the Power Purchase Agreement (PPA). b. <u>If the Application is Not Technically feasible:</u> The SDO shall cancel the Application and intimate the same to the Applicant. | Format-2 | |
| Step - 3 | The Applicant shall submit the PPA to DO for execution, in the non-judicial Rs.200/- stamp paper as per the KERC standard PPA Format: | Format-3 | 7 days from the Date of Intimation letter issued by SDO |
| | a. Gross Metering b. Net Metering | Format-3A | |
| Step - 4 | The DO shall execute the PPA and forward the same to CO, BESCOM for KERC approval If the Applicant fails to submit the PPA within 7 days from the date of intimation letter, the DO shall cancel the Application and intimate the same to the Applicant. | - | 2 days from the Date of submission of the PPA |
| Step - 5 | The Corporate Office (CO), BESCOM shall forward the PPA for KERC Approval | - | 3 days from the Date of receipt of PPA by DO |
| Step - 6 | The CO, BESCOM shall forward the approved KERC letter to DO | - | 3 days from the Date of receipt of the PPA by KERC |
| Step - 8 | The DO shall issue the Approval letter for start of SRTPV work | Format-4 | 3 days from the Date of receipt of Approval letter from CO |
| Step - 9 | The consumer portion of work has to be completed and work completion report has to be submitted within 5 months from the date of approval of letter of DO | Format-5 | 1 Month prior to the last date of completion of the project |
| Step -10 | The DO shall Commission and Synchronise the SRTPV Plant within 15 days from the date of submission of work completion report by the Applicant after ensuring that the SRTPV applicant has attended all the observation made by DO/MT staff, if any. Synchronization Certificate shall be issued by DO | Format-6 & Format-6A | 7 days prior to the last Date of completion of the project |