

MANGALORE ELECTRICITY SUPPLY COMPANY LTD.,

(A Government of Karnataka Undertaking)

Corporate Identity No : (CIN) U40109 KA 2002 SGC 030425



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- Sub :** Revised Guidelines for Grid Connected Solar Rooftop & Small photovoltaic Power plants(SRTPV) on Gross and Net metering in MESCOM -reg.
- Ref :**
1. This office letter No.SEE(C&RP)/EE(Coml)/AEE(Coml)F-349/14-15/cys-50 dated 19.11.2014
 2. This office letter No.ಅ.ಇಂ(ವಿ)(ವಾರಸಂ)/ಕಾ.ನಿ.ಇಂ(ವಾ)/ಸ.ಕಾ.ನಿ.ಇಂ/2016-17/ಸಿವೈಎಸ್-02 dated 13.04.2016.
 3. KERC tariff order No. S/03/1 dtd. 10.10.2013, 02.05.2016, 18.05.2018, 01.08.2019, 22.05.2020, 18.08.2021.
 4. This office letter No.SEE(C&RP)/EE(Coml)/AEE(Coml) /16-17/cys-10 dated 20.06.2016.
 5. Guidelines issued vide OM No. cys-04 dtd. 19.10.2016.
 6. Solar Policy 2014-21 notification No. EN 49 VSC 2016 dtd 12.01.2017.
 7. KERC Standard format for PPA No.KERC/S/F-61/Vol-21/358 dtd. 07.06.2018.
 8. KERC Standard PPA format for Gross metering No. KERC/S/F-61/Vol-21/726 dtd. 07.08.2018.
 9. KERC Tariff order dtd. 18.08.2021.

PREAMBLE:

1. GoK announced solar policy 2022 under ref(6) and set target to install a minimum of 6000 MW Solar Power Projects by March 2021, of which share of grid connected solar rooftop photovoltaic projects shall 2400MW under Solar rooftop category.
2. Consequent to changes made in the PPA Format and modification to the norms for solar rooftop and small photovoltaic power plants issued by KERC and Determination of tariff guidelines issued vide letter cited under ref(5).
3. Hon'ble KERC in the letter cited under ref(9), has determined tariff in respect of Solar Power Projects (including Solar Rooftop Photovoltaic Projects) for FY 22 to 23 dtd. 18.08.2021.

Hence, this revised guidelines;

No: MESCOM-COML0COMM/183/2021-COML/I/10655/2021

date: 29/12/2021

On Grid Solar Rooftop Photovoltaic program on Gross & Net metering shall be implemented in MESCOM jurisdiction with the following guidelines.

1. The interested applicants of domestic, commercial, educational institutions, industrial establishments etc., who are consumers of MESCOM can submit online/offline applications for installing SRTPV power plants duly paying the registration fee along

with necessary documents such as latest Electricity bill, declaration for not availing the subsidy from MNRE.

2. Application can be submitted for 1KW to upto 2000 kWp and to limit the installed capacity Solar rooftop photovoltaic plant to 100% of sanctioned load of installation of consumer.
3. The fees payable are as follows:

Sl.No.	Capacity of proposed SRTPV plant	Registration Fee	Facilitation Fee
1	Upto & inclusive 5 kWp	Rs.500/-	Rs.1000/-
2	Above 5 kWp to upto 50kWp	Rs.1000/-	Rs.2000/-
3	Above 50 kWp and above upto 500 kWp	Rs.2000/-	Rs.5000/-

4. The sub divisional office(SDO) shall be nodal point of contact for Solar Rooftop Photovoltaic Power project program.
5. Tariff and policy:

Sl.No	Type of metering	Eligible consumers
1	Gross Metering & Net Metering	Applicable for Domestic consumers, Hospital and Educational institutions consumers (HT-4, HT-2C, LT2(a) & LT2(b)) Note: Commission vide order dated 19.09.2016 has allowed one time irrevocable option of either gross and net metering for consumers at the time of signing of PPA.
2	Net Metering	Applicable for industrial, commercial and all categories of consumers other than domestic, hospital and educational consumers.

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	MESCOM Officer's
1.	From 1kWp to 150 kWp	Assistant Executive Engineer (Ele) C, O & M Sub Division. Note: Assistant Executive Engineer (Ele) C, O & M Sub Division duly availing approval of concerned Exe. Engineer, O & M division for SRTPV capacity 50 Kw and above.
2.	Above 150kWp upto 2000 kWp	Executive Engineer(Ele) , O & M Division

7. The SRTPV plant Commissioning & Synchronizing Authority:

Sl.No	Capacities	MESCOM Officer's
1.	1kWp to 17.5 kWp	Assistant Executive Engineer(Ele) C, O & M Sub Division
2.	Above 17.5kWp upto 50 kWp	Assistant Executive Engineer(Ele) C, O & M Sub Division in Co-ordination with Meter Testing(MT) staff

3.	Above 50kWp upto 2000 kWp	Executive Engineer(Ele) C, O & M Division in Co-ordination with Meter Testing(MT) staff
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8. The draft PPA for capacity above 500 kWp shall be submitted to SEE(Coml), Corporate Office, MESCOM for KERC approval along with following documents:
 - a. Facilitation fees of KERC Rs. 5000/- (the validity of DD to be checked before submission).
 - b. Draft PPA -02 set.
 - c. The details of the building and shadow free area for installation of the SRTPV panels of capacity duly verified and certified by concerned EEE & AEE.
 - d. The Technical feasibility report, Block diagram and other layout diagram to be signed by Asst. Executive Engineer (Ele), O & M Sub division and to be counter signed by Executive Engineer (Ele), O & M Division -02 sets.
 - e. The Metering arrangement at interconnection at 11 KV- 02 sets.
 - f. Brief report by Executive Engineer (Ele), O & M Division -02 sets.
9. The Applicant can select any PV modules and system installer to install the SRTPV system.
10. The applicant shall use only **tested Bi-directional meters** from **BESCOM/MESCOM empanelled firms available at vendor outlets.**
11. The Applicant shall use **Grid Tied inverter from BESCOM empanelled firms only.**
12. Interconnection voltages as per KERC Regulations 2016, Sl.No.6(1)(a) shall be as below:

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

13. The up-gradation of infrastructure upto the point of interconnectivity should be carried by the SRTPV consumer at their own cost under prevailing conditions of deposit contribution work i.e. service line, meter, metering cubicle, CT's, Transformer as per KERC Regulations 2016 Sl.No.6(1)(d).
14. The up-gradation of infrastructure beyond the point of interconnectivity is to be taken up by the MESCOM, if required.
15. The Check Meter shall be provided for SRTPV systems capacity of more than 17.5 kW.
16. MESCOM approved meters, CT's, PT's and metering cubicle shall be provided.
17. The 3 phase 4 wire metering system should be provided if the existing metering system is of 3 phase 3 wire system.
18. It is the total responsibility of the SRTPV applicant 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 CEA guidelines.
19. The Technical, safety, Grid Connectivity standards are to be followed as per KERC standardized PPA as below:
 - a. Clause 1, Technical and Interconnection requirement,
 - b. Clause 2 (Safety) &
 - c. Clause 7 (Metering)
20. MESCOM personnel reserve the right to inspect the entire plant routinely at any time as per the distribution code approved by KERC.

21. MESCOM personnel reserve the right to inspect the entire plant routinely any time as per the Conditions of Supply to the Distribution Licensees clause 18, access to Consumer Premises.
22. 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 KERC regulations 2016, clause 6(1)(e).
23. 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 (80KVA).
24. SRTPV plant of more than 50 kW shall be connected only to the existing 11kV Distribution System.
25. 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.
26. 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 100 kVA.
 - Already connected/ under progress(SRTPVs) is 60 KWs
 - Newly proposed is 50KW capacity.
 - 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% i.e. 68 Kws/80KVA) as against newly proposed capacity of 50 kW.
27. If the application is not technically feasible, the SDO shall cancel the Application and intimate the same to the Applicant.
28. 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.
29. The Application shall be cancelled by the SDO/DO, if the consumer does not come forward for execution of the PPA within 03 days from the date of intimation letter.
30. The Consumer portion of work has to be completed and work completion report has to be submitted within 150days from the date of approval letter for having entered into PPA.
31. The SDO/DO shall inspect the SRTPV plant within 5 working days from the date of work completion report for commissioning of the project.
32. The SRTPV plant shall be commissioned within 180days from the date of approval or deemed approval of PPA, after ensuring that the SRTPV applicant has attended all the observation made by SDO/DO/MT staff, if any.
33. 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).
34. 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.

35. In case of consumer intending to install SRTPV plant with multiple RR No.s in single premises with or without SRTPV unit, any change in sanctioned load/contract demand, change in tariff category of consumer already having SRTPV unit in his/her premises, the KERC order dated 15.09.2017 and tariff order dated 18.08.2021 (clause xiv, c, page 25) shall be referred.

36. General:

1. Commercial settlement tariff; MESCOM shall pay for Net/Gross energy as determined by Hon'ble KERC time to time.
2. The time frames for implementing scheme is enclosed as Annexure-A.
3. The Schematic Diagram is enclosed as Annexure-B.
4. Standard PPA Format (Gross Metering) is enclosed as Annexure-C
5. Standard PPA Format (Net Metering) is enclosed as Annexure-D
6. The set of formats to be enclosed as Format 1 to Format-9.

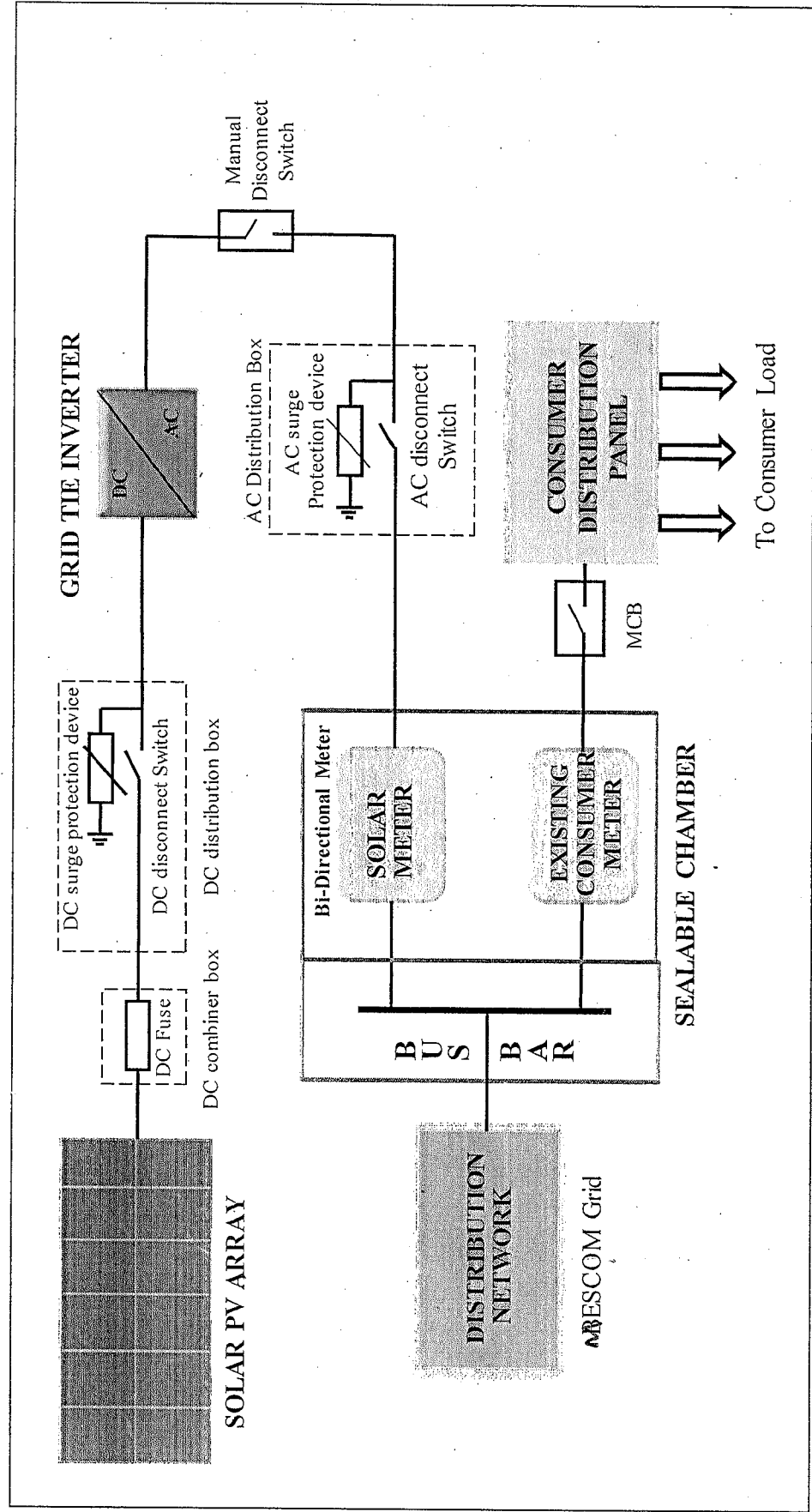
All the other provisions of the guidelines issued vide letter No. cys 04 dtd.19.10.2016, remains unaltered.


Superintending Engineer Ele., (Coml)
MESCOM, Mangalore.

Copy to:

1. The Chief Engineer(Ele), O & M Zone, MESCOM.
2. All Superintending Engineer(Ele), O & M Circle, MESCOM.
3. All Executive Engineer(Ele), O & M Division, MESCOM.
4. All Asst. Executive Engineer(Ele), O & M Sub division, MESCOM.
5. SPS to MD/DT.

Schematic Diagram of Rooftop Facility for Gross Metering interconnection



Approved PPA format for Solar Rooftop PV Plants

STANDARD FORMAT OF POWER PURCHASE AGREEMENT FOR ROOFTOP SOLAR PV PLANTS
WITH GROSS METERING

This Power Purchase Agreement is entered into at (place)..... on this day of between Electricity Supply Company Limited (...ESCOM), a Government of Karnataka undertaking, being a Company formed and incorporated in India under the Companies Act, 1956, with its registered office at Karnataka State, represented by, hereinafter, referred to as the "...ESCOM", (which expression shall, unless repugnant to the context or meaning thereof, include its successors and permitted assigns), as party of the first part

AND

.....(Name) the consumer of ...ESCOM, residing at (address) hereinafter, referred to as the "Seller" (which expression shall, unless repugnant to the context or meaning thereof, include his successors and permitted assigns), as party of the second part.

Whereas,

- a. The Seller intends to connect and operate the Solar Roof Top Photo Voltaic (SRTPV) system with ESCOM's HT/LT, Distribution system for sale of the Solar Power to ESCOM, in terms of the Karnataka Electricity Regulatory Commission's (KERC) Order No. S/03/01 dated: 18.05.2018.
- b. The Seller intends to install a SRTPV system of kWp capacity on the existing roof top of the premises, situated at..... and bearing RR. No..... in the same premises, under Sub-Division of ESCOM.

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- c. The Seller intends to sell the energy, generated from the SRTPV system to ESCOM, on gross-metering basis, from the date of commissioning of the SRTPV system.

Explanation: *The 'Commissioning' means the stage at which the SRTPV system starts generating the power and injects into the grid.*

- d. ESCOM intends to purchase the energy, generated by such SRTPV system, on gross-metering basis, at the tariff determined by the KERC:

Now therefore, in consideration of the foregoing premises, the parties, hereto, intending to be legally bound, hereby, agree as under:

1. Technical and Interconnection Requirements:

Seller shall ensure his SRTPV system complies with the following, technical and interconnection requirements and shall:

- 1.1 Comply with the applicable standards and conditions, in respect of integrating the SRTPV system with the distribution system.
- 1.2 Connect and operate the SRTPV system to ESCOM's distribution system, in accordance with the State Grid Code, and Distribution Code as amended from time to time.
- 1.3 Install, prior to connection of SRTPV system to ESCOM's distribution system, an inverter with an automatic inbuilt isolation device.
- 1.4 Provide external manual isolation mechanism with suitable locking facility, so that SRTPV system will not back-feed into the ESCOM's network, in case of power outage of the ESCOM's distribution system, and it shall be accessible for ESCOM to operate, if required, during maintenance / emergency conditions.

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- 1.5 Install all the equipment of the SRTPV system, compliant with relevant International (IEEE/IEC) and Indian Standards (BIS).
- 1.6 (a) The SRTPV system shall be designed, engineered and constructed and operated by the seller or any other person on his behalf, with reasonable diligence, subject to all applicable Indian Laws, Rules, Regulations as amended from time to time and orders having the force of law.
- (b) The Seller, shall commission the SRTPV system, within six months from the date of approval or deemed approval of the PPA by the Commission.
- 1.7 Adhere to the following power quality measures, as per the International and Indian standards and/or such other measures, stipulated by the KERC/ ESCOM:
- a. Harmonic current: Harmonic current injections from a generation unit shall not exceed the limits specified in IEEE 519.
 - b. Voltage at the injection point should be in the operating range of 80% to 110% of the nominal connected voltage.
 - c. Flicker: Operation of Photovoltaic system shouldn't cause voltage flicker in excess of the limits stated in the relevant sections of the IEC standards or other equivalent Indian standards, if any.
 - d. Frequency: When the system frequency exceeds the upper limit, specified in the IEGC as amended from time to time, the SRTPV system shall shift to island mode.
 - e. DC Injection: Photovoltaic system, should not inject DC power more than 0.5% of full rated output at the interconnection point or 1% of rated inverter output current into distribution system, under any operating conditions.
 - f. Power Factor: While the output of the inverter is greater than 50%, a lagging power factor of greater than 0.9, shall be maintained.

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- g. The SRTPV system, in the event of voltage or frequency variations must island/disconnect itself, as per the IEGC/KEGC Regulations, within the stipulated period.

2. Safety:

The Seller, shall comply with the following safety measures:

- 2.1 The Seller shall comply with the Central Electricity Authority (Measures Relating to Safety and Electricity Supply) Regulations, 2010.
- 2.2 The Seller shall ensure that, the design, installation, maintenance, and operation of the SRTPV system, are in a manner, conducive to the safety of the SRTPV system, as well as, the ESCOM's distribution system.
- 2.3 If the Seller's SRTPV system either, causes damage to and/or produces adverse effects on the other consumers' or ESCOM's assets, Seller will disconnect SRTPV system immediately, from the distribution system, by himself or upon directions from the ESCOM and rectify the same at his own cost before reconnection.

3. Clearances and Approvals

The Seller, shall obtain ESCOM's and other statutory approvals and clearances, before connecting the SRTPV system to the distribution system.

4. Access and Disconnection

- 4.1ESCOM shall have access to metering equipment and disconnecting device of SRTPV system, both automatic and manual, at all times.
- 4.2 In emergency or outage situation, where there is no access to a disconnecting device either, automatic or manual, theESCOM shall have the right to disconnect power supply to the premises.

*Approved PPA format for Solar Rooftop PV Plants***5. Liabilities**

The Seller, shall be solely responsible for availing any fiscal or other incentive, provided by the State/ Central government at his own expenses.

6. Commercial Settlement**6.1 Tariff and Charges**

a. The ESCOM shall pay the tariff for the gross energy at Rs.per kWh, as determined by the KERC in the Order dated 18.05.2018, for the term of this agreement.

b. If for any reason the date of commissioning is delayed, beyond the agreed commissioning date, the tariff payable by the ESCOM, shall be lower of the:

i) Tariff agreed to in this agreement.

OR

ii) Any revised tariff, determined by the Commission, prevailing on the date of commissioning.

OR

iii) 90% of the tariff agreed to in this agreement.

c. The import energy recorded in the bi-directional meter during a billing period, shall be billed at higher of the:

i) Tariff agreed to in this agreement

OR

ii) Prevailing retail supply tariff applicable to the category of the installation of the seller.

d. The Seller, shall pay the Electricity tax and other statutory levies, pertaining to SRTPV generation, as may be levied from time to time.

e. The Seller, shall not have any claim for compensation, if the solar power generated by his SRTPV system, could not be absorbed by the distribution system

Approved PPA format for Solar Rooftop PV Plants

due to failure of power supply in the grid/ distribution system for the reasons, such as line clear, load shedding and line faults, whatsoever.

7. Metering:

7.1 In addition to the existing consumer meter, the Seller shall arrange to install the Bi-directional meter (whole current/CT operated) at the point of interconnection to the distribution system, at a suitable place in the premises, accessible for recording export of energy, from the SRTPV system to the grid. The bi-directional meter, shall comply with the Central Electricity Authority (Installation and operation of meters) Regulations, 2006 and shall have the following features:

- i. Separate registers, for recording export and import energy with facility to download by Meter Reading Instrument (MRI).
- ii. kVA, kW and KVAR measuring registers, for both import and export of energy.
- iii. The Meter, shall have RS232 (or higher) communication optical port / Radio Frequency (RF) port to support Automatic Meter Reading (AMR).

8. BILLING AND PAYMENT:

8.1 ESCOM, shall issue monthly electricity bill for the gross-energy exported to the grid on the scheduled date of meter reading.

8.2 ESCOM shall pay for the gross energy exported as per the tariff agreed in this agreement within 30 days of issue of bill.

8.3 The import of energy recorded in the bi directional meter during the billing period, shall be billed as per the Clause 6.1 of this agreement and shall be deducted out of the amount payable towards gross energy exported.

Approved PPA format for Solar Rooftop PV Plants

8.4 The ESCOM, shall pay interest at the rate of 0.75% per month, in case of any delay in payment, beyond 30 (thirty) days period from the date of issue of bill, for the gross energy exported.

8.5 The Seller shall continue to pay the charges for the consumption of electricity to his premises as per the retail tariff bill issued to him as required.

9. Term and Termination of the Agreement

9.1 This agreement, shall be in force for a period of 25 years from the date of commissioning of the SRTPV system, unless terminated otherwise, as provided hereunder.

9.2 If the ..ESCOM commits any breach of the terms of the Agreement, Seller shall serve a written notice specifying the breach and calling upon the ESCOM to remedy/ rectify the same, within 30 (thirty) days or at such other period and at the expiry of 30 (Thirty) days or such other period from the delivery of the notice, Seller may terminate the agreement by delivering the termination notice, if the ..ESCOM fails to remedy/ rectify the same.

9.3 If the Seller, commits any breach of the terms of the Agreement, the ..ESCOM shall serve a written notice specifying the breach and calling upon the seller to remedy/ rectify the same within 30 (thirty) days or at such other period and at the expiry of 30 (Thirty) days or such other period from the delivery of the notice, the ..ESCOM may terminate the agreement by delivering the termination notice, if the seller, fails to remedy/ rectify the same.

9.4 Upon termination of this Agreement, Seller shall cease to supply power to the distribution system and any injection of power shall not be paid for by the ..ESCOM.

Approved PPA format for Solar Rooftop PV Plants

10. Dispute Resolution:

All the disputes, between the parties, arising out of or in connection with this agreement, shall be first tried to be settled through mutual negotiation.

The parties shall resolve the dispute in good faith and in equitable manner.

In case of failure to resolve the dispute, either of the parties may approach the appropriate Forum.

IN WITNESS WHEREOF, the Seller and the ESCOM have entered into this Agreement to be executed as of the date and the year first set forth above:

For AND ON BEHALF OF Electricity Supply Company Limited	For AND ON BEHALF OF SELLER
By: Designation: Address:	By: Designation: Address:
WITNESS In Presence of Name: Designation:	WITNESS In Presence of Name: Designation:
WITNESS In Presence of Name: Designation:	WITNESS In Presence of Name: Designation:

STANDARD FORMAT OF POWER PURCHASE AGREEMENT FOR ROOFTOP SOLAR PV PLANTS WITH NET METERING

This Power Purchase agreement is entered into at (place).... on this.... Day of..... between Bangalore Electricity Supply Company Limited (BESCOM), a Government of Karnataka undertaking, being a Company formed and incorporated in India under the Companies Act-1956, with its registered office located at, Karnataka State, represented by.....hereinafter referred to as the "BESCOM", (which expression shall, unless repugnant to the context or meaning thereof, include its successors and permitted assigns), as party of the first part

AND

.....(Name) the consumer of BESCOM residing at (address)....., hereinafter, referred to as the "Seller" (which expression shall, unless repugnant to the context or meaning thereof, include his successors and permitted assigns) as party of the second part.

Whereas,

- a. The Seller intends to connect and operate the Solar Roof Top Photo Voltaic (SRTPV) system with BESCOM's HT/LT Distribution system for sale of Solar Power to BESCOM, in terms of the Karnataka Electricity Regulatory Commission (KERC) Order No. S/03/01 dated: 18.05.2018.
- b. The Seller intends to install a SRTPV system ofkWp capacity on the existing roof top of the premises, situated at..... and bearing number RR. No in the same premises, under Sub-Division of BESCOM.
- c. The Seller intends to sell the energy, generated from the SRTPV system to BESCOM on net metering basis, from the date of commissioning of the SRTPV system.

Explanation: the 'Commissioning' means the stage at which the SRTPV system starts generating the power for the use by the Seller and injects surplus power if any, into the grid.

- d. BESCOM intends to purchase the energy, generated by such SRTPV system, on Net-metering basis, at the tariff determined by the KERC.

Now therefore, in consideration of the foregoing premises, the parties, hereto, intending to be legally bound, hereby agree as under:

1. Technical and Interconnection Requirements:

Seller shall ensure his SRTPV system complies with the following technical and interconnection requirement and shall:

- 1.1 Comply with the applicable standards and conditions, in respect of integrating the SRTPV system with the distribution system.
- 1.2 Connect and operate the SRTPV system to BESCO's distribution system, in accordance with the State Grid code, and distribution Code as amended from time to time.
- 1.3 Install, prior to connection of SRTPV system to BESCO's distribution system, an inverter with an automatic inbuilt isolation device.
- 1.4 Provide external manual isolation mechanism with suitable locking facility, so that SRTPV system will not back-feed into the BESCO's network in case of power outage of the BESCO's distribution system, and it shall be accessible for BESCO to operate, if required, during maintenance / emergency conditions.
- 1.5 Install all the equipment of SRTPV system compliant with relevant International (IEEE/IEC) and Indian standards (BIS).
- 1.6 (a) The SRTPV system shall be designed, engineered and constructed and operated by the Seller or any other person on his behalf, with reasonable diligence, subject to all applicable Indian Laws, Rules, Regulations as amended from time to time and orders having the force of law.

(b) The Seller, shall commission the SRTPV system, within six months from the date of approval of the PPA.
- 1.7 Adhere to the following power quality measures, as per the International and Indian standards and/or such other measures stipulated by KERC/BESCO:

- i) Harmonic current: Harmonic current injections from a generation unit shall not exceed the limits specified in IEEE 519.
- ii) Voltage at the injection point should be in the operating range of 80% to 110% of the nominal connected voltage.
- iii) Flicker: Operation of Photovoltaic system shouldn't cause voltage flicker in excess of the limits stated in the relevant sections of IEC standards or other equivalent Indian standards, if any.
- iv) Frequency: When the system frequency exceeds the upper limit, specified in the IEGC as amended from time to time, the SRTPV system shall shift to island mode.
- v) DC Injection: Photovoltaic system should not inject DC power more than 0.5% of full rated output at the interconnection point or 1% of rated inverter output current into distribution system under any operating conditions.
- vi) Power Factor: While the output of the inverter is greater than 50%, a lagging power factor of greater than 0.9, shall be maintained.
- vii) The SRTPV system, in the event of voltage or frequency variations must island/disconnect itself, as per IEGC/KEGC Regulations, within the stipulated period.

2. Safety:

The Seller, shall comply with the following safety measures:

- 2.1 The Seller shall comply with the Central Electricity Authority (Measures Relating to Safety and Electricity Supply) Regulations, 2010.
- 2.2 The Seller shall ensure that, the design, installation, maintenance and operation of the SRTPV system, are in a manner conducive to the safety of the SRTPV system, as well as the BESCOM's distribution system.
- 2.3 If the Seller's SRTPV system either, causes damage to and/or produces adverse effects on the other consumers' or BESCOM's assets, Seller will disconnect SRTPV system immediately, from the distribution system, by himself or upon directions from the BESCOM and rectify the same at his own cost before reconnection.

3. Clearances and Approvals

The Seller shall obtain BESCO's and other statutory approvals and clearances before connecting the SRTPV system to the distribution system.

4. Access and Disconnection

4.1 BESCO shall have access to metering equipment and disconnecting device of SRTPV system, both automatic and manual, at all times.

4.2 In emergency or outage situation, where there is no access to a disconnecting device either, automatic or manual, the BESCO shall have the right to disconnect power supply to the premises.

5. Liabilities

The Seller, shall be solely responsible for availing any fiscal or other incentive provided by the State/ Central government, at his own expenses.

6. Commercial Settlement-

6.1 Tariff:

- a. The BESCO shall pay for the Net energy at Rs....per kWh, as determined by the KERC in the Order dated 18.05.2018, for the term of this agreement.
- b. If for any reason the date of commissioning is delayed, beyond the date of commissioning agreed. The tariff payable by the BESCO shall be lower of the:
 - i) Tariff agreed to in this agreement
OR
 - ii) Any revised tariff, determined by the Commission, prevailing on the date of commissioning
OR
 - iii) 90% of the tariff agreed to in this agreement.
- c. The Seller, shall pay the Electricity tax and other statutory levies, pertaining to SRTPV generation, as may be levied from time to time.

- d. The Seller shall not have any claim for compensation, if the Solar power generated by his SRTPV system could not be absorbed by the distribution system due to failure of power supply in the grid/ distribution system for the reasons, such as line clear, load shedding and line faults, whatsoever.

7. Metering:

- 7.1 The Seller, shall arrange to shift the existing meter to the generation side of SRTPV plant to measure solar power generation and install Bi-directional meter (whole current/CT operated) at the point of interconnection to the distribution system, at a suitable place in the premises, accessible for recording export of energy, from the SRTPV system to the grid and import of energy to the premises of the consumer from the grid. The bi-directional meter, shall comply with the Central Electricity Authority (Installation and operation of meters) Regulations, 2006 and shall have the following features:
- i. Separate registers, for recording export and import energy with facility to download by Meter Reading Instrument (MRI).
 - ii. kVA, kW and kVAR measuring registers for both import and export.
 - iii. The Meter shall have RS232 (or higher) communication optical port / Radio Frequency (RF) port to support Automatic Meter Reading (AMR).

8. BILLING AND PAYMENT:

- 8.1 BESCO shall issue monthly electricity bill for the net energy on the scheduled date of meter reading.
- 8.2 In case, the exported energy is more than the imported energy, BESCO shall pay for the net energy exported, as per Tariff agreed in this agreement, within 30 days from the date of issue of bill, duly adjusting the fixed charges and electricity duty, if any.
- 8.3 In case, the exported energy is less than the imported energy, the Seller shall pay BESCO for the Net energy imported as per the prevailing retail supply tariff, determined by the Commission from time to time.
- 8.4 The BESCO shall pay interest at the same rates, as is being levied on the consumers, for late payment charges, in case of any delay in payment beyond 30 (thirty) days period from the date of issue of bill, for the Net energy exported.

Explanation: *Net metered energy means the difference of meter readings of energy injected by the SRTPV system into the grid (export) and the energy drawn from the grid for use by the Seller (import,) recorded in the bi-directional meter.*

9. Term and Termination of the Agreement

- 9.1 This agreement, shall be in force for a period of 25 years from the date of commissioning of the SRTPV system, unless terminated otherwise, as provided here under.
- 9.2 If the BESCOM commits any breach of the terms of the Agreement, Seller shall serve a written notice specifying the breach and calling upon the BESCOM to remedy/ rectify the same, within 30 (thirty) days or at such other period and at the expiry of 30 (Thirty) days or such other period from the delivery of the notice, Seller may terminate the agreement by delivering the termination notice, if the BESCOM fails to remedy/ rectify the same.
- 9.3 if the Seller commits any breach of the terms of the Agreement, BESCOM shall serve a written notice specifying the breach and calling upon the Seller to remedy/ rectify the same within 30 (thirty) days or at such other period and at the expiry of 30 (Thirty) days or such other period from the delivery of the notice, the BESCOM may terminate the agreement by delivering the termination notice, if the Seller fails to remedy/ rectify the same.
- 9.4 Upon termination of this Agreement, Seller shall cease to supply power to the distribution system and any injection of power shall not be paid for by the BESCOM.

10. Dispute Resolution:

All the disputes between the parties arising out of or in connection with this agreement shall be first tried to be settled through mutual negotiation.

The parties shall resolve the dispute in good faith and in equitable manner.

In case of failure to resolve the dispute, either of the parties may approach the appropriate Forum.

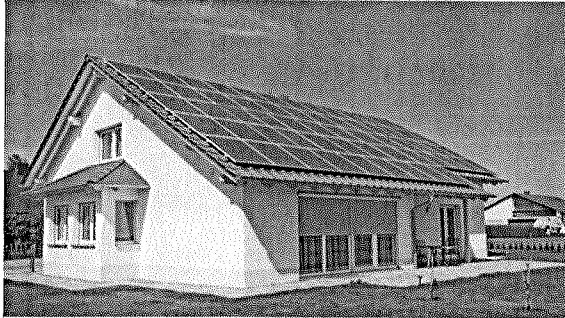
IN WITNESS WHEREOF, the Seller and the BESCO have entered into this Agreement executed as of the date and the year first set forth above

For AND ON BEHALF OF Bangalore Electricity Supply Company Limited	For AND ON BEHALF OF SELLER
By: (Name) Designation: Address:	By: (Name) RR No: Address:
1. WITNESS In Presence of Name: Designation:	1. WITNESS In Presence of Name:
2. WITNESS In Presence of Name: Designation:	2. WITNESS In Presence of Name:



Format-1

Application Form for Grid Connected Solar Roof Top PV system on Net Metering Basis



Please affix recent passport size photograph of applicant.

1. Applicant Details

Individual <input type="checkbox"/>	Company/Trust / Co-operative <input type="checkbox"/>	Partnership <input type="checkbox"/>
Name of the Applicant		
Address & Contact details		
House/Flat/Shop No.		Cross
Main	Location	
Street	City	
Landmark	Pin code	
Land Line Ph. No.	Mobile	
Email		

2. Installation Details

Sub-division name /code		
RR Number		
Account ID No.		
Sanctioned Load in kW.....	Contract Demand in KVA	
Single Phase <input type="checkbox"/>	Three phase <input type="checkbox"/>	
Category of Installation (please tick (√) on the appropriate box)		
Residential <input type="checkbox"/>	Commercial <input type="checkbox"/>	Industrial <input type="checkbox"/>
Educational Institution <input type="checkbox"/>	Government Organization <input type="checkbox"/>	Others <input type="checkbox"/>

3. Rooftop System details (please tick (√) on the appropriate box)

Proposed Capacity of Solar RTPV power plant in kW peak			
Type of Installation	<input type="checkbox"/> Single phase LT (upto and inclusive of 5kWp)	<input type="checkbox"/> Three phase LT (above 5kWp upto 50kWp)	<input type="checkbox"/> HT(above 50kWp upto 1MWp*)
Approximate shadow free area of Rooftop in sq. mts.			

4. Subsidy

Whether applicant wish to avail MNRE subsidy	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Whether MNRE Subsidy is sanctioned or not	<input type="checkbox"/> Yes	<input type="checkbox"/> No

Documents enclosed:

1	Copy of latest Electricity bill	<input type="checkbox"/> Yes	<input type="checkbox"/> No
2	Authorization letter in case of company/Trust/Co-operatives /Partnership	<input type="checkbox"/> Yes	<input type="checkbox"/> No
3	Copy of the Subsidy sanction letter from MNRE	<input type="checkbox"/> Yes	<input type="checkbox"/> No
4	Self-certification for not availing subsidy from MNRE	<input type="checkbox"/> Yes	<input type="checkbox"/> No

Note: * For the applicants who obtain subsidy from MNRE, the capacity range is from 1kWp to 500kWp (as per MNRE guidelines).

Certificate:

1. The above stated information's are true to best of my knowledge.
2. **Certified** that my building can take up the proposed weight of Solar PV system.

Place:

Signature of the applicant

Date:

Name:

Instructions:

1. The filled-in application along with the necessary documents shall be submitted to jurisdictional O&M, Sub-division office, MESCOM.
2. The fee payable shall be payable in cash and are as follows:

Sl. No.	Capacity of proposed SRTPV system	Registration fee	Facilitation fee
1.	Upto and inclusive of 5.0 kWp	Rs.500/-	Rs.1000/-
2.	Above 5.0 kWp and upto 50kWp (67 Hp/59 kVA)	Rs.1000/-	Rs.2000/-
3.	Above 50 kWp (67 Hp/59 kVA) and upto 1MWp*	Rs.2000/-	Rs.5000/-

3. The AEE, O&M sub-division is the signing authority for PPA upto sanctioning load upto 150kWp and EE, O&M division is the signing authority for PPA of sanctioning load of 150kWp and above. For PP Agreements more than 500kWp applied loads, individual approvals have to be obtained from KERC.
4. For applications of loads requesting above 500 kWp to 1 MWp, the proposals from O&M division office will be processed at the Corporate Office by SEE(Coml) in concurrence with the Director(Technical), MESCOM on case by case. In this case, the office of SEE(Coml) will only act like a facilitator for obtaining approval to the PPA.
5. The applicant is required to select a reputed system installer to install the SRTPV System, who have experience in design, supply and installation of SRTPV system.
6. 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. 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.
7. **On-grid inverters:** MNRE approved manufacturer firms shall be used. Test reports for the tests conducted for IEC/IS standards and specification of the model shall be submitted (Format - 5).
8. Bi-directional meter as per CEA guidelines shall be purchased from MESCOM approved vendors. The vendors list of bi-directional meters can be downloaded from MESCOM website.

General Terms and Conditions:

1. The rooftop/terrace must have easy access.
2. The applicant should be the owner of the property or authorized person. If the property is in the name of the Company, Trust, Co-operatives / partnership firms, then authorization shall be assigned to a person for correspondence, paperwork, execution of various agreements, etc. Such person must be authorized by the management of the organization. In case of partnership firms, the authorized signatory must be one of the partners, to whom written consent has been given by the other partners.
3. If consumer is not availed subsidy, shall furnish self-certification for not availing subsidy from MNRE.
4. The authorization Format-1A/1B and self-certification Format-1C can be downloaded from the website.
5. Application registered is not transferable.

6. MESCOM shall not be held responsible for any legal disputes between the applicant and SRTPV system installer arising out of the contract.

7. The tariff for injecting surplus energy by rooftop installation will be as per the tariff determined by KERC from time to time.

Format-1A

Certification for not availing subsidy from MNRE

This is to certify that I _____(Name of applicant) have applied for installation of SRTPV system at our premise _____(address) with _____(Installation RR No.) and have not availed any subsidy or grant from Ministry of New and Renewable Energy (MNRE) or from any other state and Central agency in this regard.

I hereby also agree not to claim any subsidy or grant in future either from MNRE or from any other State/Central agency for the same.

Place:

Signature of Applicant

Date:

Name:

MANGALORE ELECTRICITY SUPPLY COMPANY LIMITED
(wholly owned Government of Karnataka undertaking)




SOLAR ROOFTOP PHOTOVOLTAIC SYSTEMS APPLICATION REGISTER

Sl. No.	Registration		Name of the Applicant	Address	RR No.	Sanctioned Load in KW / KVA	DTC details		Proposed SRTPV Capacity in kWp	Registration Fee details			Feasibility Report date	SRTPV installation approval reference			Facilitation Fee details			Date of PPA with MESCOM	Rate at which PPA executed	Chief Electrical Inspectorate Approval reference (above 1MW)		Commissioning Approval reference			Date of Commission & Synchronize	Remarks
	Number	Date					Capacity	TIMS code No.		Amount	Receipt No.	Date		Authority (ABE/EE)	Number	Date	Receipt No.	Amount	Date			Authority (ABE/EE)	Number	Date	Authority (ABE/EE)	Number		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	19	20	21	22	23	24	25	26	27	28	29	30
1																												
2																												
3																												
4																												
5																												
6																												
7																												
8																												
9																												
10																												

Note: Once the Solar RTPV installation is synchronized, the RR No. of the SRTPV installation shall be prefixed with the existing RR Number. For ex: SRTPV - RR No.

Format- 3

	MANGALORE ELECTRICITY SUPPLY COMPANY LIMITED (Wholly owned Government of Karnataka Undertaking)
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Revenue Report (To be submitted by the AAO/SA)			
Sl. No.	Parameter	Utility Observation	
A	Applicant details		
1	Name of the Applicant	<input type="checkbox"/> Yes	<input type="checkbox"/> No
2	RR Number	<input type="checkbox"/> Yes	<input type="checkbox"/> No
3	Type of connection:	<input type="checkbox"/> 1ph LT	<input type="checkbox"/> 3ph LT <input type="checkbox"/> HT
4	Sanctioned load in kW/KVA		
5	Tariff applicable		
6	Arrears/ Audit short claims (if any)		

(Signature and Name in capital letters)

Assistant Account Officer / Senior Assistant,
O&M Sub-division/ Section _____,
MESCOM

Format- 4



MANGALORE ELECTRICITY SUPPLY COMPANY LIMITED
(Wholly owned by Government of Karnataka Undertaking)

Technical Feasibility Report (To be submitted by the Section officer)		
Sl No.	Parameter	Utility Observation
A	Applicant details	
1	Name of the Applicant	
2	RR Number	
3	Application Registration Number	
4	Tariff	
5	Type of connection: 1phLT or 3ph LT/HT	
6	Pole Number	
7	Next RR Number	
8	Sanctioned Load in kW / Contract demand in KVA	
B	Distribution Transformer Details	
1	Location	
2	Capacity in KVA	
3	Total Connected load in kW	
4	Tongtester reading of current in all 3 phases and neutral	
5	SRTPV already Proposed/connected in kWp	
6	Proposed SRTPV capacity in kWp	
7	Total Generation Capacity (5+6) in kWp	
8	Whether the transformer capacity is adequate to deliver the proposed SRTPV system in addition to existing solar RTPV systems.*	Yes/No
C	Feeder Details	
1	Name of the 11kV feeder	
2	Feeder Number	
3	Name of the Sub-Station	
4	Type of the conductor/cable(size)	

5	Total connected load on the feeder in kVA	
6	Total capacity(kWp) of SRTPV systems connected on the feeder	
7	Peak load on the feeder in Amps	
8	Proposed SRTPV installation is technically feasible, if the total SRTPV capacity is less than or equal to the 11kV feeder capacity. Note: 1) The Transformer shall be loaded upto 80% of capacity. 2) Total generation capacity on the feeder in Amps should be less than 80% of the current carrying capacity of the feeder in Amps in feasible cases.	Yes/No (if it is not feasible, state reasons)


Enclosure: Single line diagram of LT network connected to the distribution transformer for >50KW and single line diagram of feeder for 50 KW to 2000KW.

I hereby certify that the above said SRTPV installation is technically feasible.

Signature and Name

**Section officer/AEE,
O&M Section _____,
MESCOM**

Format-5

	Mangalore Electricity Supply Company Limited <i>(wholly owned Government of Karnataka undertaking)</i>
Telephone : Email ID : Ref No.:	Office of the Date:

To,

(Name & address of the applicant)

.....
.....

Madam/Sir,**Sub:**Execution of Power Purchase Agreement (PPA) for Gross/Net Metering.**Ref:** Application Reg. No. dtd:

With reference to your application cited under reference for gross/net metering, it is pleased to inform that your application is technically feasible for grid connectivity and you are requested to enter into the Power Purchase Agreement (PPA) within 5 days for the date of this letter, failing which your application will be treated as cancelled.


The standard Power Purchase Agreement approved by KERC is available in the MESCOM website www.mescom.karnataka.gov.in.

Yours faithfully,

AEE/Executive Engineer(Ele)
O&M sub-div/division,
MESCOM

Format-6a

Gross-metering

	Mangalore Electricity Supply Company Limited <i>(wholly owned Government of Karnataka undertaking)</i>
Telephone : Email ID : Ref No.:	Office of the Date:

To

.....
.....
.....

Madam/Sir,

Sub: Approval for installingkWp solar RTPV system under
Gross-metering.

Ref: 1. Application Reg.No.:.....dtd:.....
2. PPA Executed date:

With reference to your SRTPV application, approval is herewith accorded for installing Solar RTPV system ofkWp on your rooftop under Gross metering basis as per following terms and conditions:

1. As per CEA guidelines, you are 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.
2. You can select a reputed system installer of your choice, who have experience in design, supply, installation and commissioning of SRTPV system.
3. Only MESCOM empaneled inverters and meter shall be used. The empaneled list of inverters and meters are available in MESCOM website.
4. Upgradation of infrastructure, if required, (service main, meter with CT, upgrade) upto the grid connectivity point is to be done at your cost.
5. All the other components of Solar RTPV system shall comply with applicable IS/IEC standards. The Technical specification of each equipment's is available in MESCOM website.

6. The work of grid connectivity shall be carried out in accordance with the gross metering schematic diagram available in MESCOM website.
7. You shall provide Bi-directional meter (whole current/CT operated) after the point of grid connectivity in addition to the existing meter.
8. The Bi-directional meter, existing meter and grid connectivity point shall be housed in the sealable meter housing box.
9. The location of the meters should have easy access for taking monthly reading by the meter readers.
10. The Applicant shall provide Bi-directional check meter in series with the proposed Bi-directional meter (Main meter) when the SRTPV system, capacity is more than 17.5 kWp.
11. The draft PPA for capacity above 500 kWp shall be submitted to SEE(Coml), Corporate Office, MESCOM for KERC approval along with following documents:
 - a. Facilitation fees of KERC Rs. 5000/- (the validity of DD to be checked before submission).
 - b. Draft PPA -02 set.
 - c. The details of the building and shadow free area for installation of the SRTPV panels of capacity duly verified and certified by concerned EEE & AEE.
 - d. The Technical feasibility report, Block diagram and other layout diagram to be signed by Asst. Executive Engineer (Ele), O & M Sub division and to be counter signed by Executive Engineer (Ele), O & M Division -02 sets.
 - e. The Metering arrangement at interconnection at 11 KV- 02 sets.
 - f. Brief report by Executive Engineer (Ele), O & M Division -02 sets.
12. You should complete the SRTPV installation work before **dd/mm/yyyy**.
13. After completion of the work in all respects, you have to submit the work completion report in Format-7 along with following documents:
 - a. Test reports of PV modules and equipments (expect Grid tied inverter and bi-directional meter) as per IS/IEC standards.
 - b. Test certificate of Bi-directional meter issued by MT division, MESCOM.
 - c. First sheet of Bank pass book containing details of Name of the Bank, Type of account, Account No, Name of the Branch, IFSC code etc.
 - d. Receipt of facilitation fee.


14. If for any reason the date of commissioning of delayed beyond the date of commissioning agreed, the tariff payable by the MESCOM shall be lower of the:
- i. Tariff agreed to in the PPA OR
 - ii. Tariff as per the average pooled power purchase cost notified by the Commission prevailing on the date of commissioning.

Please note that MESCOM will not be held responsible for any legal disputes between the applicant and SRTPV system installer arising out of the contract.

Yours faithfully,

**AEE/Executive Engineer(Elc)
O&M sub-div/division,
MESCOM**

Format-6A
Net-metering

 MESCOM	Mangalore Electricity Supply Company Limited <i>(wholly owned Government of Karnataka undertaking)</i>
Telephone : Email ID : Ref No.:	Office of the Date:

To

.....

Madam/Sir,

Sub: Approval for installingkWp solar RTPV system under Net-metering.

Ref: 1. Application Reg.No.:.....dtd:.....
 2. PPA Executed date:

With reference to your SRTPV application, approval is herewith accorded for installing Solar RTPV system ofkWp on your rooftop under Net metering basis as per following terms and conditions:

1. As per CEA guidelines, you are 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.
2. You can select a reputed system installer of your choice, who have experience in design, supply, installation and commissioning of SRTPV system.
3. Only MESCOM empaneled inverters and meter shall be used. The empaneled list of inverters and meters are available in MESCOM website.
4. Upgradation of infrastructure, if required, (service main, meter with CT, upgrade) upto the grid connectivity point is to be done at your cost.
5. All the other components of Solar RTPV system shall comply with applicable IS/IEC standards. The Technical specification of each equipment's is available in MESCOM website.

6. The work of grid connectivity shall be carried out in accordance with the net metering schematic diagram available in MESCOM website.
7. Bi-directional meter (whole current/CT operated) shall be provided before the point of interconnection and the existing meter shall be shifted to the generation side of SRTPV plant to measure solar power generation.
8. Both the meters shall be within the same proximity and easily accessible for taking monthly reading by the meter reader.
9. The Applicant shall provide Bi-directional check meter in series with the proposed Bi-directional meter (Main meter) when the SRTPV system, capacity is more than 17.5 kWp.
10. The draft PPA for capacity above 500 kWp shall be submitted to SEE(Coml), Corporate Office, MESCOM for KERC approval along with following documents:
 - Facilitation fees of KERC Rs. 5000/- (the validity of DD to be checked before submission).
 - Draft PPA -02 set.
 - The details of the building and shadow free area for installation of the SRTPV panels of capacity duly verified and certified by concerned EEE & AEE.
 - The Technical feasibility report, Block diagram and other layout diagram to be signed by Asst. Executive Engineer (Ele), O & M Sub division and to be counter signed by Executive Engineer (Ele), O & M Division -02 sets.
 - The Metering arrangement at interconnection at 11 KV- 02 sets.
 - Brief report by Executive Engineer (Ele), O & M Division -02 sets.
11. You should complete the SRTPV installation work before **dd/mm/yyyy**.
12. After completion of the work in all respects, you have to submit the work completion report in Format-7 along with following documents:
 - a. Test reports of PV modules and equipments (except Grid tied inverter and bi-directional meter) as per IS/IEC standards.
 - b. Test certificate of Bi-directional meter issued by MT division, MESCOM.
 - c. First sheet of Bank pass book containing details of Name of the Bank, Type of account, account No, name of the Branch, IFSC code etc.
 - d. Receipt of facilitation fee.

13. If for any reason the date of commissioning of delayed beyond the date of commissioning agreed, the tariff payable by the MESCOM shall be lower of the:

- i. Tariff agreed to in the PPA **OR**
- ii. Tariff as per the average pooled power purchase cost notified by the Commission prevailing on the date of commissioning.

Please note that MESCOM will not be held responsible for any legal disputes between the applicant and SRTPV system installer arising out of the contract.

Yours faithfully,

**AEE/Executive Engineer(Elc)
O&M sub-div/division,
MESCOM**

Format -7

Work Completion report
(To be submitted by the applicant)

To,

The Assistant Executive Engineer(Ele) / Executive Engineer (Ele),
.....C, O & M, Sub-division/Division
.....

Madam/Sir,

Sub: Submission of work completion report.

Ref: 1) PPA execute date:.....
2) Your letter nodtd.....(Format-6/6a).

With reference to the above, the work of installation of SRTPV system on the roof of existing installations bearing RR No..... is completed and I would like to submit the following information for your kind needful.

A. Facilitation fee paid details:

1.	Facilitation fee in Rs.	
2.	Receipt no.	
3.	Date	

B. Solar PV module

1.	Make	
2.	Type of the module	
3.	capacity of each module in kWp	
4.	No. of Modules	
5.	Sl.No. of Modules	
6.	Total Capacity in kWp	

C. Inverter

1.	Make	
2.	Type	
3.	Capacity	
4.	No. of inverters	
5.	Sl.No	

D. Cables: DC

1	Make	
2	Size & Type	

E. AC wiring

1	Make	
2	Size & Type	

F. DC distribution box

1	Make	
2	Sl. No.	
3	DC Surge Protection Device	
4	MCB / Isolator quantity & capacity	

G. AC distribution box

1	Make	
2	Sl. No.	
3	AC Surge Protection Device	
4	MCB / MCCB quantity & capacity	

H. Earthing

1	Earth resistance (less than 5 ohms)	
2	Size of the Earth flat (3 x 70 sq.mm galvanic iron flat)	
3	Three separate earthing points 1. Modules & DC Surge arrester: 2. Inverter & AC Surge arrester 3. Lightning Arrester:	

I. Bi-directional meter details (please enclose the test report of bi-directional meter tested at MT division, MESCOM)

Sl.No	Particulars	Main Meter	Check Meter
1	Make		
2	Type		
3	Sl.No		
4	Single Ph/Three Ph		
5	CT Ratio		
6	PT Ratio		
7	Date of Test by MT, MESCOM		

j. Caution signs

Size of the caution label: 105 mm width X 20 mm height, with white letters on a red background

1	Panels	
2	Inverters	
3	DC/ AC distribution box	

k. Provision of manual and automatic switch : Yes / No

1. Installation inspection date:

The SRTPV system has been installed and inspected in compliance with the Electricity Act 2003, the Indian Electricity rules 1956(Rule 47A).


Inspection by	Inspection date
AEE,C O&M, Sub Division (for SRTPV below 10kWp)	
Electrical inspectorate (Solar RTPV systems above 10kWp) Approval letter shall be submitted	

Certified that the above said SRPTV system was installed by me and the equipment's used comply the Technical and Safety standards issued by Indian Electricity Act 2003, the Indian Electricity rules 1956 & MESCOM from time to time.

Applicant Signature: _____
Name: _____
Date: _____

System Installer Signature & seal: _____
Name of the firm: _____
Date: _____

Format-8

	Mangalore Electricity Supply Company Limited <i>(wholly owned Government of Karnataka undertaking)</i>	
	Telephone : Email ID : Ref No.:	Office of the Date:

Commissioning Report of SRTPV system (Net/Gross metering)

A	Consumer Details	
1	Name of the Consumer	
2	Category	
3	RR No./Account ID/Connection ID	
4	Pole Number	

B	Meter Details	Bio-directional Meter		Existing Meter
		Main Meter	Check Meter	
1	Meter make: 1ph / 3 ph			
2	Type			
3	Serial number			
4	Capacity			
5	Meter constant			
6	Initial reading (Tri vector parameters)			
	i) Import			
	ii) Export			

Note:

1. The Bio-directional meter records solar generation and existing meter records installation consumption in case of Gross Metering.
2. The Bi-directional meter records of solar energy to grid and Import of energy by the installation. Existing meter records the total solar energy generated.


C	Grid Tied Inverter		
1	Make		
2	Serial number		
3	Capacity		
4	Input voltage		
5	Output voltage		
6	Whether Anti-islanding feature is in working condition	Yes/No	
D	PV Module		
1	Make		
2	Serial number		
3	Type of module		
4	Capacity of each module		
5	Number of modules		
6	Total capacity of module		
E	Earthing verified: DC earthing, AC earthing, LA earthing of SRTPV system	Yes/No	
F	Details of protective system available	<ul style="list-style-type: none"> • AC & DC DB: Yes/No • Manual Switch solar side: Yes/No • Relay operated automatic switch at net-meter side: Yes/No 	
G	CEI, GoK/AEE, MESCOM inspection & approval letter obtained	Yes/No	
H	Work completion report of SRTPV system obtained from agency	Yes/No	
I	Date of synchronizing with MESCOM grid	dd/mm/yyyy	

AEE(Ele.)/EE(Ele.)
MT S/D/Dvn, -----, MESCOM

AEE(Ele.)/EE(Ele.)
O&M -----, MESCOM

Name &
Signature of Consumer

Format-9

	Mangalore Electricity Supply Company Limited <i>(wholly owned Government of Karnataka undertaking)</i>
Telephone : Email ID : Ref No.:	Office of the Date:

To,
(Name & address of the applicant)

.....
.....

Madam/Sir,

Sub: Certificate of synchronization of your..... kWp SRTPV system
Ref: Application Reg. No. dtd:

Synchronization test of Solar Rooftop PV system of kWp, installed on the roof of your installation bearing RR No.: has been conducted and your SRTPV system found satisfactory and successfully synchronized with the MESCOM grid atvoltage level on **dd/mm/yyyy**.

Yours faithfully,

AEE/Executive Engineer(Ele)
O&M sub-div/division,
MESCOM

Copy submitted to:

1. Chief Engineer(Elect), Load Dispatch Centre, KPTCL, Anand Rao Circle, Bengaluru.
2. Superintending Engineer(Ele), Corporate office, MESCOM, MESCOM Bhavan, Bejai, Kavoov Cross, Mangaluru.
3. EE, O & M, Division, MESCOM.
4. Copy for information EE of MT division.
5. MF/OC.

Note:

1. Copy is to be marked to CEE, LDC, SEE(Coml) if the SRTPV capacity is more than 500kWp.
2. The file along with all the documents is to be sent to revenue section for billing purpose.

ANNEXURE-A

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	a. If the Application is Technically feasible (Fully/Partially): The SDO shall issue the Intimation letter to the Applicant for Execution of the Power Purchase Agreement (PPA). b. If the Application is not Technically feasible : The SDO shall cancel the Application and intimate the same to the Applicant.	Format-2	
Step-3	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:	Format-3	3 days from the Date of Intimation letter issued by SDO
	a. Gross Metering 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 submission of the PPA
Step-5	The consumer portion of work has to be completed and work completion reports has to be submitted within 5 months from the date of Approval letter for start of SRTPV work	Format-5	150 days prior to the last date of completion of the project
Step-6	The SDO shall inspect the SRTPV plant within 5 working days from the date of work completion of the project after ensuring that the SRTPV applicant has attended all the	Format-6	180days from the date of approval or deemed approval of PPA

	observation made by SDO/MT staff, if any. Synchronization Certificate shall be issued by SDO		
Step-7	Billing Process		30days from the date of commissioning of SRTPV plant.

NOTE: ONLINE PORTAL

B. For SRTPV plants ranging Above 500kWp to upto 2000 kWp:

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. If the Application is Technically feasible (Fully/Partially): The SDO shall issue the Intimation letter to the Applicant for Execution of the Power Purchase Agreement (PPA). b. If the Application is Not Technically feasible : 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	3 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 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 submission of the PPA
Step-5	The Corporate office(CO), MESCOM shall forward the PPA for KERC Approval.	-	07 days from the Date of submission of the PPA.
Step-6	The, CO, MESCOM 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	Format-5	150 days prior to the last date of completion of the project

	months from the date of Approval of letter of DO.		
Step-10	The SDO shall inspect the SRTPV plant within 5 working days from the date of work completion report fir commissioning of the project after ensuring that the SRTPV applicant has attended all the observation made by SDO/MT staff, if any. Synchronization Certificate shall be issued by SDO	Format-6	180days from the date of approval or deemed approval of PPA
Step-11	Billing Process		30days from the date of commissioning of SRTPV plant.

NOTE: ONLINE PORTAL

Activity	Procedure	Time Line
1. Submission of Application	The consumer shall submit application to the concerned Sub-divisional Office (SDO) (Format-1)	Zero Date
2. Acknowledgment of application by SDO	1) The application details are toin the register to be maintained as per (Format-2). 2) The details are in the applications shall be verified with RR dockets maintained and the arrears if any is to be collected before processing the application	Within 3 days from Zero date
3) Site verification/Technical Feasibility and issuance of Letter of approval rejection of application	1) The application to be sent to the field officer to submit the Technical Feasibility Report in Format-4 2) If the proposed SRTPV is above 50kWp, the application shall be submitted to the divisional office along with Technical Feasibility report for processing of the application. 3) The intimation is to be issued to the applicant by SDO/Divisional Officer(DO) to execute the PPA within 05 days in the Format-5(Approval Letter)	
4) Execution of PPA (Including counter signature by the controlling officer for less than 500 kW SRTPV projects)	The SRTPV consumer shall execute the PPA within the time frame mentioned in the approval letter i.e. (Format-5)	Within 05 days from the date of issuance of letter of approval.

<p>5) Submission approval of the PPA for the Commission (for more than 500KW)</p>	<p>1. After receipt of draft PPA from consumer, the SDO/DO shall submit the draft PPA along with relevant document listed in Annexure-A to SEE(Coml), Corporate Office, MESCOM for approval.</p>	<p>02 days</p>
<p>6) Approval letter to start of SRTPV work</p>	<p>2. The draft PPA to be submitted Hon'ble KERC for approval.</p>	<p>05 days</p>
<p>7) Submission of work completion report by the consumer</p>	<p>3. The approval letter for installation work is to be issued to applicant by SDO/DO in the format-6/6A</p>	<p>02 days from the date of submission of the PPA by applicant</p>
<p>8) Inspection by SDO/DO officials for commissioning of work completion report from the consumer</p>	<p>The Consumer portion work has to be completed and work completion report with necessary documents and approval in the Format-7</p>	<p>150 working days from the date of execution of PPA)</p>
<p>9) Commissioning of Rooftop Solar system</p>	<p>1. The SRTPV system shall be connected to the grid after conducting pre-commissioning test and issue grid connectivity certificate(Format-)</p>	<p>05 working days from the receipt of work completion report.</p>
<p>10) Billing Process</p>		<p>Within Six months from the date of approval or deemed approval of PPA</p>
		<p>30 days from the date of Commissioning of the Solar Plant.</p>