

ಕರ್ನಾಟಕ ವಿದ್ಯುಚ್ಛಕ್ತಿ  
ನಿಯಂತ್ರಣ ಆಯೋಗ



KARNATAKA ELECTRICITY  
REGULATORY COMMISSION

ಸಂಖ್ಯೆ : 16ಸಿ-1, ಮಿಲ್ಲರ್ ಟ್ಯಾಂಕ್ ಬೆಡ್ ವರಿಯ  
ವಸಂತನಗರ, ಬೆಂಗಳೂರು-560 052.

No. 16 C-1, Miller Tank Bed Area  
Vasanthanagara, Bengaluru-560 052.

No. KERC/S/F-61/Vol -21/  
Encl: Approved format of PPA

358

Date: 07.06.2018

The Managing Director,  
KPCL/KREDL/KPTCL/BESCOM/MESCOM/CESC/HESCOM/GESCOM



Sir,

Sub: Approved format of Power Purchase Agreement for the rooftop solar PV plants  
(SRTPV) -reg

Ref:Commission's Order dated 18.05.2018 on determination of tariff of SRTPV plants.

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With reference to the above subject, I am herewith enclosing the approved  
format of the Power Purchase Agreement for the rooftop solar PV plants (SRTPV) to  
be adoptive henceforth. The copy of the same is also available on the KERC  
website; [www.karnataka.gov.in/kerc](http://www.karnataka.gov.in/kerc).

Yours faithfully

Secretary

for Karnataka Electricity Regulatory Commission

DGM(RA-2)  
14/6/2018.

APRO/AGM(RAL)  
14/6

Office Copy/MF

gom(com)





**STANDARD FORMAT OF POWER PURCHASE AGREEMENT FOR ROOFTOP SOLAR PV PLANTS**

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.

c. The Seller intends to sell the energy, generated from the SRTPV system to ESCOM, 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. ESCOM 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 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.

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 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 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.
- 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

4.1 .....ESCOM 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 ...ESCOM 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 ...ESCOM 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 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 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 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 net-energy on the scheduled date of meter reading.

8.2 In case, the exported energy is more than the imported energy, the ESCOM 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 ...ESCOM for the net-energy imported, as per the prevailing retail supply tariff, determined by the Commission from time to time.

8.4 The ESCOM, 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-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 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 ESCOMs.

**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: