

**POWER PURCHASE AGREEMENT FOR ROOFTOP SOLAR PV PLANTS****WITH****NET METERING ARRANGEMENT**

This Power Purchase agreement is entered into at (place)..... on this ..... day of ..... between ..... Electricity Supply Company Limited (...ESCOM), a Government of Karnataka undertaking, a Company formed and incorporated in India under the Companies Act-1956, with its registered office located at ....., Karnataka State, 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 represented by .....

**AND**

....., 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 its successors and permitted assigns) represented as party of the second part.

Whereas,

- a. The Seller intends to connect and operate the Solar Rooftop photovoltaic (SRTPV) system with ESCOM's HT/LT Distribution system for sale of Solar Power to ESCOM and accordingly applied to ESCOM for such interconnection in terms of Karnataka Electricity Regulatory Commission (KERC) Order No. S/03/01 2013 dated: 10.10.2013 or as amended from time to time.
- b. The Seller intends to install/has installed a Solar RTPV system of ..... kWp capacity on the roof top of the premises situated at..... Bearing electricity service connection number (RR.No).....under .....Sub-Division. The Seller is seeking approval for HT/ LT Single Phase/LT Three phase grid connectivity of the said Solar RTPV system.
- c. The Seller hereby agrees to sell net power injected from the Solar RTPV system to ESCOM as recorded in the bi-directional meter installed in the seller's premises, from the date of commissioning of the Solar RTPV system.
- d. ESCOM hereby agrees to purchase net power injected by such Solar RTPV system at the tariff determined by the KEREC.
- e. Whereas, it has been agreed that the Solar RTPV system will be designed, engineered and constructed and operated by or on behalf of the Seller with reasonable diligence subject to all applicable Indian laws, rules, Regulations as amended from time to time and orders having the force of law.

- f. Now therefore, in consideration of the foregoing premises and their mutual covenants herein, and for other valuable consideration, the receipt and sufficiency of which are acknowledged, the parties hereto, intending to be legally bound hereby agree as under:

### **1. Eligibility**

1.1 Seller is aware, in advance, of the standards and conditions his system has to meet for being integrated into grid/distribution system.

1.2 Seller hereby agrees that the connection of Photovoltaic system to ESCOM's distribution system shall be bound by requirements of State Grid Code as amended from time to time.

### **2. Technical and Interconnection Requirements**

Seller hereby agrees that:

2.1 he shall installed or will install, prior to connection of Photovoltaic system to ESCOM's distribution system, an isolation device with automatic and built into the inverter.

2.2 he shall provide external manual isolation mechanism with suitable locking facility so that photovoltaic system will not back-feed into the ESCOMs network in case of a power outage on ESCOM's system, and it shall be accessible for ..... ESCOM to operate if required during maintenance / emergency conditions.

2.3 all the equipment connected to distribution system will be compliant with relevant International (IEEE/IEC) and Indian standards (BIS).

2.4 he shall adhere to the following power quality measures as per International and Indian standards and/or other such measures provided by 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 IEC standards or other equivalent Indian standards, if any.

d. Frequency: When the Distribution system frequency deviates outside the specified conditions (50.05 Hz on upper side and 49.9 Hz on lower side), the Photovoltaic system should 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 should be maintained.

### **3.0 Islanding and Disconnection:**

- a. The Photovoltaic system in the event of voltage or frequency variations must island/disconnect itself within IEC standard on stipulated period.
- b. The inverter should have the facility to automatically switch off in case of overload or overheating and should restart when normal conditions are restored.

## **4. Safety**

4.1 Seller shall comply with the Central Electricity Authority (Measures Relating to Safety and Electricity Supply) Regulations 2010.

4.2 Seller agrees that the design, installation, maintenance and operation of the photovoltaic system are performed in a manner conducive to the safety of the photovoltaic system as well as the ESCOM's distribution system.

4.3 Seller agrees that if it is determined by ESCOM that Seller's photovoltaic system either causes damage to and/or produces adverse effects on the other consumers' or ESCOM's assets, Seller will disconnect photovoltaic system immediately from the distribution system upon direction from the ESCOM and correct any fault at his own expense prior to a reconnection.

## **5. Clearances and Approvals**

5.1 The Seller hereby agrees to obtain all the statutory approvals and clearances as intimated at the time of according approval for installation of SRTPV before connecting the photovoltaic system to the distribution system.

## **6. Access and Disconnection**

6.1 .....ESCOM shall have access to metering equipment and disconnecting means of photovoltaic system, both automatic and manual, at all times.

6.2 In emergency or outage situation, where there is no access to a disconnecting means, both automatic and manual, such as a switch or breaker, ESCOM may disconnect service to the premise.

## **7. Liabilities**

7.1 The Seller and .....ESCOM will indemnify each other for damages or adverse effects from either party's negligence with respect to connectivity and operation of photovoltaic system or ESCOM's distribution system.

7.2 The Seller shall be solely responsible for availing any fiscal or other incentive provided by the State/ Central government.

## 8. Commercial Settlement-

### Tariff:

8.1 The ESCOM shall pay for the net metered energy at Rs. ---per KWh as determined by the Commission from the date of synchronisation of the SRTPV with the distribution network. The tariff is exclusive of all taxes, duties and levies & shall remain same as per the PPA conditions. The Seller shall pay the Electricity tax and statutory levies, if any.

8.2 The seller cannot claim compensation, if his Solar RTPV system is not in a position to inject surplus solar power generation to the --ESCOM grid on account of failure of power supply in the grid for whatsoever reasons, such as line clear, load shedding and line faults etc., and no compensation will be paid for the above reasons from ..ESCOM.

### Metering:

8.3 The existing metering system shall be shifted to generation side of SRTPV to measure solar power generation. Bi-directional meter (whole current/CT operated) shall be installed at interconnection point to the ESCOM grid for recording export and import of energy. The meter shall have the following features:

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

8.4 Both uni-directional and bi-directional meters shall be fixed in separate meter boxes in the same proximity.

### BILLING AND PAYMENT:

8.5 ESCOM shall issue monthly electricity bill for the net metered energy on the scheduled date of meter reading. In case, the exported energy is more than the imported energy, ESCOM shall pay for the net energy exported as per clause 8.1 of this agreement. In case, the exported energy is less than the imported energy, the seller shall be liable to pay ...ESCOM for the net imported energy as per the prevailing retail supply tariff approved by the Commission from time to time.

8.6 The amount payable by the ESCOM to the Seller for the net export of energy injected to the ...ESCOM's grid shall be paid within 30 days of issue of bills duly adjusting the fixed charges and Electricity duty if any.

**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. Termination

9.1 This agreement shall be in force for a period of ... years from the date of this agreement (the term shall be decided by the seller / ESCOM with a maximum period of 25 years).

9.2 The Seller can terminate this agreement at any time by providing ESCOM with 30 days prior notice.

9.3 ESCOM has the right to terminate this Agreement with 30 days prior written notice, if Seller breaches any of the terms of this Agreement and does not remedy the breach within 30 days of receiving written notice from ESCOM of the breach.

9.3 Seller hereby agrees that upon termination of this Agreement, he will disconnect the photovoltaic system from ESCOM's distribution system in a timely manner and to ESCOM's satisfaction.

## 10. Dispute Resolution:

Any dispute arising under/out of this agreement shall be resolved promptly in good faith and in an equitable manner by both the parties. In case of failure to resolve the dispute, either of parties may approach the Commission under section 86 (1) (f) of EA 2003.

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.

<b>For AND ON BEHALF OF ..... Electricity Supply Company Limited</b>	<b>For AND ON BEHALF OF SELLER</b>
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: