

**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 the Governor of Mizoram through the Secretary, Power and Electricity Department, Govt. of Mizoram (PEDM), with its registered office located at New Secretariat Complex, Aizawl, Mizoram, represented by Engineer-in-Chief hereinafter referred to as the "PEDM / Licensee", (which expression shall, unless repugnant to the context or meaning thereof, include its successors and permitted assigns) as party of the **First part**.

AND

Zoram Energy Development Agency (ZEDA) having its registered office at Zuangtui, Aizawl hereinafter referred to as "ZEDA" (which expression shall, unless repugnant to the context or meaning thereof, include its successors and permitted assigns) as party of the **second part**.

AND

.....,(Name) residing at (address), hereinafter referred to as the "Consumer" (which expression shall, unless repugnant to the context or meaning thereof, include its successors and permitted assigns) as party of the **third part**.

Whereas,

- a. The Licensee agrees to provide grid connectivity to the eligible consumer for injection of the electricity generated from his Solar Rooftop capacity _____ kW into the power system of Licensee as per the terms & conditions of this agreement and the Joint Electricity Regulatory Commission for Manipur and Mizoram, JERC (M&M) (Metering for Grid Connected Renewable Energy) Regulations, 2016
- b. The Consumer intends to install a RTSPV system of kWp capacity on the existing roof top of the premises situated at..... and bearing Consumer. No..... in the same premises under Sub-Division of PEDM
- c. The consumer intends to sell the energy generated from the Roof Top Solar Photo Voltaic (RTSPV) system to PEDM on net metering concept, from the date of commissioning of the RTSPV system.
- d. PEDM intends to purchase the energy generated by such RTSPV system, on net metering concept, at the tariff determined by the JERC (M&M) for Rooftop Solar Plants

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

1. Eligibility: Eligibility for net metering has been specified in the relevant regulations of the JERC for Manipur and Mizoram. Eligible consumer has to meet the standards and conditions for being integrated into grid/distribution system.

2. Technical and Interconnection Requirements :

2.1 The eligible consumer agrees that his Rooftop Solar Plant and metering system shall conform to the standards and requirements specified in JERC for Manipur and Mizoram (Metering for Grid Connected Renewable Energy) Regulations, 2016 and in the following Regulations and codes as amended from time to time:

(i) Central Electricity Authority (Technical Standards for Connectivity of the Distributed Generation Resources) Regulations, 2013 as amended from time to time.

(ii) Central Electricity Authority (Installation and Operation of Meters) Regulation 2006, as amended from time to time.

(iii) JERC for Manipur and Mizoram (Electricity Supply Code) Regulations, 2013, as amended from time to time.

2.2 The consumer agrees that he has installed or shall install, prior to connection of Rooftop Solar Plant to Licensee's distribution system, an isolation device (both automatic and inbuilt within inverter and external manual relays) and agrees for the Licensee to have access to and operation of this, if required and for repair & maintenance of the distribution system.

2.3 The consumer agrees that in case of a power outage on Licensee system, Rooftop Solar Plant shall disconnect/isolate automatically and his plant shall not inject power into Licensee's distribution system.

2.4 All the equipment connected to distribution systems shall be compliant with relevant International (IEEE/IEC) or Indian standards (BIS) and installations of electrical equipment must comply with Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010 as amended from time. Any equipment failure in and during the operation shall not come under the purview of PEDM.

2.5 The consumer agrees that licensee shall specify the interface/interconnection point and metering point. The meter should be sealed jointly after due verification of the meter readings.

2.6 The seller and licensee agree to comply with the relevant CEA and JERC for Manipur & Mizoram Regulations in respect of operation and maintenance of the plant, drawing and diagrams, site responsibility schedule, harmonics, synchronization, voltage, frequency, flicker etc.

2.7 Due to Licensee's obligation to maintain a safe and reliable distribution system, Eligible consumer agrees that if it is determined by the Licensee that eligible consumer's Rooftop Solar Plant either causes damage to and/or produces adverse effects affecting other consumers or Licensee's assets, eligible consumer shall have to disconnect Rooftop Solar Plant immediately from the distribution system upon direction from the Licensee and correct the problem at his own expense prior to re-connection.

2.8 The Consumer, in respect of net metering, shall be solely responsible for any accident to human being/animals what so ever (fatal/non-fatal) that may occur due to back feeding from the solar plant when the grid supply is off. The licensee reserves the right to disconnect the Consumer's installation at any time in the event of such exigencies to prevent accident or damage to life and property.

3. Clearances and Approvals: The Consumer shall obtain PEDM's and other statutory approvals from ZEDA and clearances before connecting the RSTPV system to the distribution system.

4. Access and Disconnection :

4.1 PEDM shall have access to metering equipment and disconnecting device of RSTPV 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 PEDM shall have the right to disconnect services to the premise of the seller.

5. Liabilities : The Consumer 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 All the commercial settlement under this agreement shall follow the Joint Electricity Regulatory Commission for Manipur and Mizoram (Metering for Grid Connected Renewable Energy) Regulations, 2016 and subsequent amendments thereof.

6.2 Tariff:

a. The PEDM shall pay for the Net energy at Rs. -----per KWh (this rate is subject to the condition that it shall be as per the latest Tariff Order issued by the JERC(M&M) for the particular year in which the Solar Energy is initially injected into the Grid by the producer)

b. The Consumer shall pay the Electricity tax and other statutory levies, pertaining to RSTPV generation, as may be levied from time to time.

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

7. Metering:

7.1.1 The net-metering arrangement shall be as per the Regulations for installation & operation of meters for renewable energy systems specified in these regulations.

7.1.2 The schematic arrangement for interconnection of Rooftop Solar Power Plant with the Distribution Licensee's grid is as shown at Annexure – V of "Joint Electricity Regulatory Commission for Manipur and Mizoram (Metering for Grid Connected Renewable Energy) Regulations, 2016" which is shown as **ANNEXURE-I** to this Agreement. The metering arrangement shall be as per Annexure–VI of "Joint Electricity Regulatory Commission for Manipur and Mizoram (Metering for Grid Connected Renewable Energy) Regulations, 2016" which is shown as **ANNEXURE-II** to this Agreement.

7.1.3 The bi-directional (net meter) shall be installed at the interconnection point of the eligible Consumer with the network of the distribution licensee:

Provided that for the existing consumers, the consumer meter shall be replaced with the bi-directional/ net meter:

Provided further that consumers having ABT compliant meters shall not be required to install additional net meter.

7.2 Rooftop Solar energy meter shall be installed at the rooftop solar power facility after the inverter to measure the solar energy generation.

7.3 All the meters shall have the facility for downloading meter readings using Meter Reading Instrument (MRI). Check meters shall be mandatory for rooftop solar systems having capacity more than 250 kW. For installations size of less than and equal to 250 kW, the solar check meters would be optional:

Provided that the cost of new/additional meter (s) and necessary accessories shall be borne by the solar power generator and installed & owned by the distribution licensee without bearing rental charge:

Provided, if bills are prepared on the basis of MRI downloads or if meter reading is taken on the basis of remote meter reading and the eligible consumer wishes to have a record of the reading taken, he shall be so allowed by the licensee.

7.4 The meters installed shall be jointly inspected and sealed on behalf of both the parties and shall be interfered / tested or checked only in the presence of the representatives of the eligible consumer or third party owner and distribution licensee or as per the supply code specified by the Commission:

Provided that the eligible consumer or third party owner shall follow the metering specifications and provisions for placement of meter as developed by the distribution

licensee as per the JERC for Manipur and Mizoram (Electricity Supply Code) Regulations, 2013 as amended from time to time:

Provided further that in case the eligible consumer is under the ambit of time of day (TOD) tariff, meters compliant of recording time of day consumption/generation shall be employed.

7.5 The meter readings taken by the distribution licensee in net metering system and joint meter readings in gross metering system shall form the basis of commercial settlement.

7.6 The technical standards for meters shall be as per Annexure–VII of “Joint Electricity Regulatory Commission for Manipur and Mizoram (Metering for Grid Connected Renewable Energy) Regulations, 2016” and shall comply with the standards specified by Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006 as amended from time to time.

7.7 The meters installed for grid connected rooftop solar power plants with capacity above 250 kWp and other Renewable Energy Plant with capacity above 250 kW shall have the communication port for exchanging real time information with Distribution Licensee.

8. Energy Accounting, tariff and Settlement:

8.1 The energy accounting, tariff and settlement of the renewable energy system other than rooftop solar energy system shall be as per the connection agreement or power purchase agreement executed between the developer and the distribution licensee provided that the power purchase agreement shall be vetted by the Joint Electricity Regulatory Commission (Manipur & Mizoram). The accounting of the electricity generated, consumed and injected by the rooftop solar system under these regulations shall become effective from the date of connectivity of such system with the network of distribution licensee.

8.2 The procedure for billing and energy accounting in respect of net metering rooftop solar power plant shall be as under:-

(1) For each billing cycle, the consumer shall receive an energy account statement showing quantum of solar power injected by the eligible consumer in the billing period, electricity supplied by the distribution licensee in the billing period, net billed electricity for payment by the consumer for that billing cycle and net carried over electricity to the next billing period separately.

(2) The applicable tariff for the rooftop solar energy shall be the levelised tariff determined and fixed by the JERC (M&M) from time to time. Terms and conditions of payment of the cost of power purchased by the licensee from the consumer shall be as per mutually agreed and duly incorporated in the power

purchase agreement executed between the eligible consumer or third party owner of the solar energy system and the licensee as the case may be.

(3) In case the solar power injected exceeds the electricity consumed from licensee's supply system during the billing cycle, such excess injected solar power shall be carried forward to the next billing cycle as electricity credit and shown as electricity exported by the consumer for adjustment against the electricity consumed in subsequent billing periods within the settlement period. In such a case, the distribution licensee shall issue an invoice containing all these details.

(4) In case the electricity supplied by the distribution licensee during any billing period exceeds the solar power injected by the eligible consumer, the distribution licensee shall raise a bill for net electricity consumption as per applicable tariff of that category after taking into account any electricity credit balance from previous billing period.

(5) In case the eligible Consumer is under the ambit of TOD tariff, the electricity consumption in anytime block i.e. peak hours, off peak hours etc. shall be first compensated with the solar power injected in the same time block. Any excess injection over and above the consumption in any other time block in a billing cycle shall be accounted as if the excess injection occurred during non-peak hours.

(6) The surplus energy measured in kWh/kVAh shall be utilized to offset the consumption measured in kWh/kVAh and may not be utilized to compensate any other fee and charges imposed by the licensee as per the orders of the Commission. A normative power factor of 0.9 shall be considered for conversion of kWh to kVAh, wherever applicable.

(7) The monthly fixed charge and other fees and charges as per applicable Tariff Order of the Commission shall be leviable on contract demand or contracted load of the consumer for each billing cycle. The monthly fixed charge shall not be leviable on the capacity of grid connected solar energy system of the eligible consumer.

(8) The distribution licensee shall also take the reading of solar meter for recording total solar power generated by solar energy system of eligible consumer.

(9) The distribution licensee, in addition to consumer tariff, shall be eligible to raise invoice/bills for any other charges as allowed by the Commission.

(10) In case of any dispute in billing, the consumer can approach the licensee, who shall deal the complaint under provisions of Regulations 6.24 to 6.27 of the JERC for Manipur and Mizoram (Electricity Supply Code) Regulations, 2013 with subsequent amendments thereof. In case the consumer feels aggrieved by the licensee's disposal of the complaint, the Consumer can approach Consumer Grievances Redressal Forum and Electricity Ombudsman in accordance with JERC for Manipur and Mizoram (Consumer Grievance Redressal) Regulations, 2010, as amended from time to time.

(11) The Consumer shall be paid for net energy credits which remain unadjusted at the end of the settlement period at the levelled tariff (feed-in-tariff) determined and fixed by the Commission from time to time depending on prevailing circumstances. Provided also that at the beginning of each settlement period, cumulative carried over solar electricity injected shall be reset to zero.

(12) All the rules & regulations applicable to the consumers of the distribution licensee for the applicable category shall also be applicable to the eligible consumer who uses the rooftop solar energy system.

8.3 BILLING AND PAYMENT:

(1) PEDM shall issue monthly electricity bill for the net energy on the scheduled date of meter reading.

(2) In case, the exported energy is more than the imported energy, PEDM shall pay for the net energy exported as per Tariff agreed in this agreement within the settlement period of one year duly adjusting the fixed charges and electricity duty if any.

(3) In case, the exported energy is less than the imported energy, the consumer shall pay PEDM for the net energy imported as per the prevailing retail supply tariff determined by the Commission from time to time.

(4) PEDM shall pay interest at the same rates as is being levied on the consumers for late payment charges in case of any delay beyond 30 (thirty) days period from the date of settlement for payment of energy credits.

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

9. Term for 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 RTSPV system unless terminated otherwise as provided hereunder

9.2. If the PEDM commits any breach of the terms of the Agreement, the Consumer shall serve a written notice specifying the breach and calling upon the PEDM 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, consumer may terminate the agreement by delivering the termination notice, if the PEDM fails to remedy/ rectify the same within the specified time.

9.3 If the Consumer commits any breach of the terms of the Agreement, PEDM shall serve a written notice specifying the breach and calling upon the consumer 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, PEDM may terminate the agreement by delivering the termination notice, if the seller fails to remedy/ rectify the same within the specified time.

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

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, it shall be referred to a sole arbitrator as per the Arbitration and Conciliation Act, 1996.

IN WITNESS WHEREOF, the Consumer and PEDM under the witness of ZEDA have entered into this Agreement in three originals executed on the date and year first set forth above.

For AND ON BEHALF OF SELLER :

Name :

Connection No :

Address :

For AND ON BEHALF OF ZEDA :

Name :

DESIGNATION :

Address :

For AND ON BEHALF OF POWER AND ELECTRICITY DEPARTMENT (PEDM)

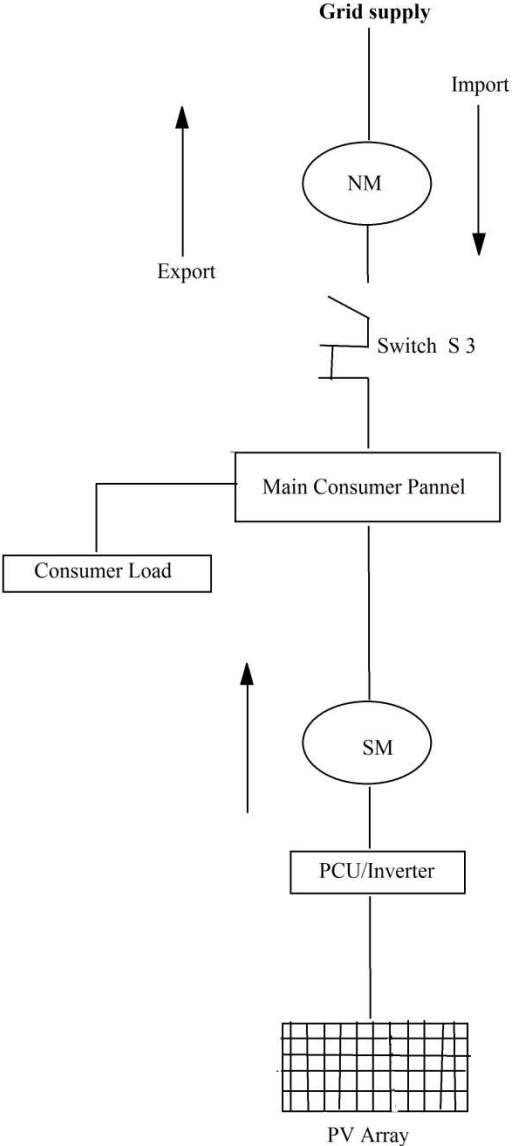
Name :

DESIGNATION : SECRETARY

Address :

ANNEXURE-I

Schematic Arrangement for Interconnection of Rooftop & Small PV Solar Plant with the Distribution licensee's/Grid

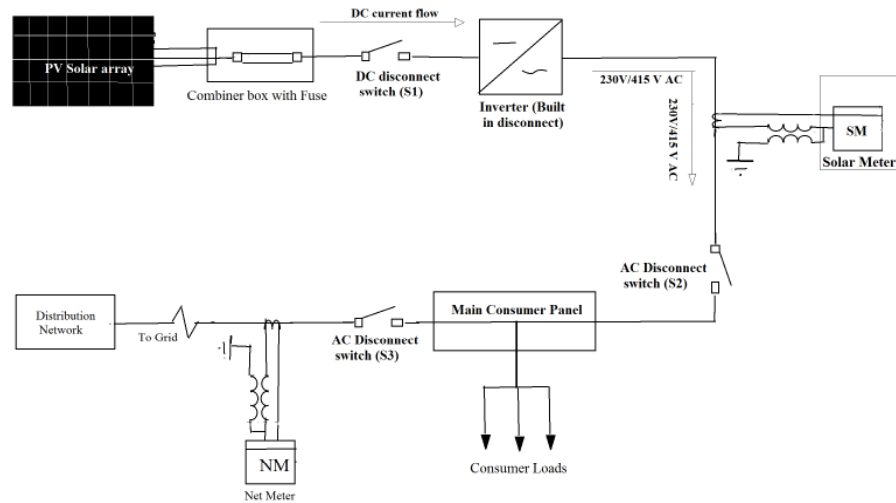


Normal Solar Generation shall be connected with Grid. When Grid fails, Inverter controlled Switch S3 opens, on restoration of Grid S3 closes.

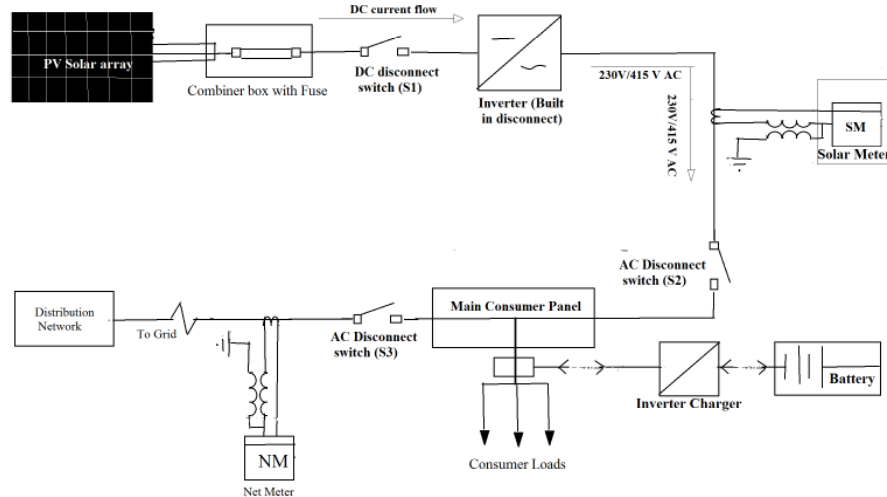
Abbreviations:-
NM = Net Meter, SM = Solar Meter, PCU = Power Conditioning Unit.

Net Metering configuration options

(1) Two metering configuration without storage



(2) Two meter configuration with storage



Key observations:-

- a) Two meter configuration is most optimal configuration –allows discrete & separate measurement of both solar and utility power.
- b) The presence of the solar meter allows use of generation based incentives like REC / GBI etc.
- c) Key issues- 1) Acceptability of solar meter as a commercial meter; 2) Placement of of the solar meter - should it be next to the main utility meter or next to the solar inverter; 3) Need for solar check meter 4) Need for an easily accessible external AC disconnect switch.