

Rooftop Solar Power Generation Net Metering Policy



Punjab Energy Development Agency

Solar Passive Complex, Sector 33D, Chandigarh

Phone : 0172-2663328 Fax : 0172-2662865 Email : peda_spa@yahoo.co.in

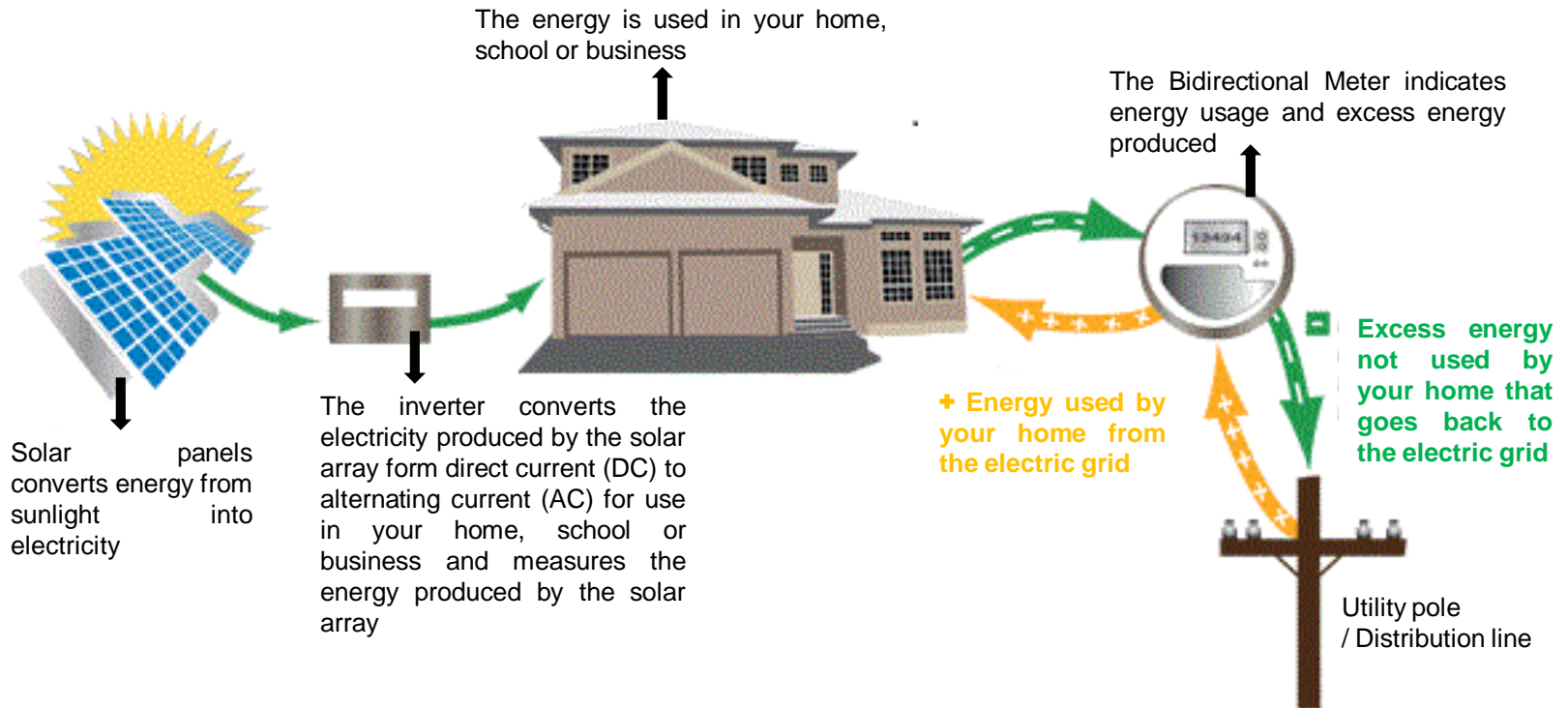
Introduction

- NRSE Policy 2012 provides to achieve a solar power capacity of 1000 MW by 2022.
- 250 MW Solar PV IPP projects have been awarded which are likely to be commissioned by March 2015.
- To further enhance the solar capacity in the State, thrust is being laid on development of Rooftop Solar PV Systems.
- Net Metering Mechanism to be deployed for Rooftop Solar PV Systems.

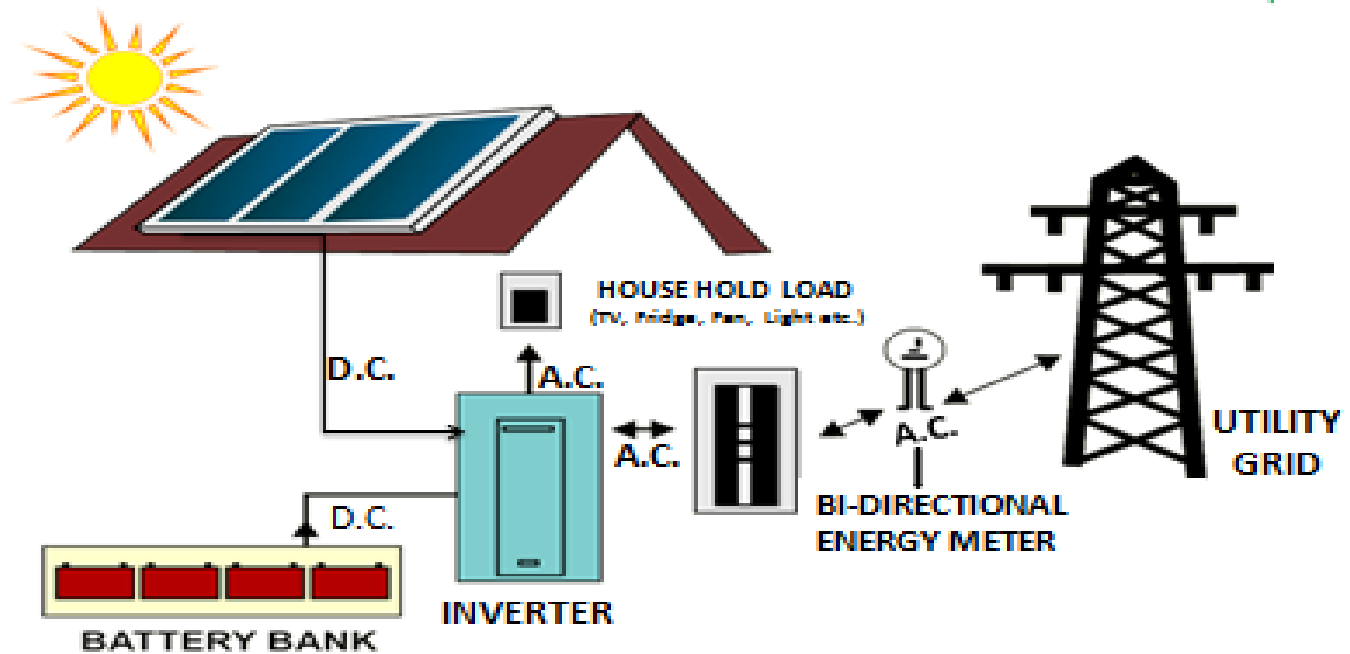
Net Metering

- Net metering is the process through which Solar PV Generator consumes and sets-off his surplus energy/power back to the utility company and in this process the consumer energy bill will get reduced.
- Net metering arrangements, thus, combine elements of captive consumption and exchange of power with the utility.
- In the absence of grid power, the Rooftop Solar PV System will continue to supply the power.

Net metering Solar Power System



Domestic grid connected net metering system (with battery bank)



Net-metering

- **Net Import / Export of Power Over Billing Month**

If your home/facility consumes more power than being produced by SPV system during a billing month, you only have to pay for the net amount of power you draw from the grid and in case your consumption is less than power produced by SPV system, the excess power generated will be credited to your account and carried over to the next month.

For example, if your Solar Plant produces 700 units over a billing month, but you use 1000 units in your facility/home, you will have to pay energy charges on the net 300 units only.

SALIENT FEATURES

- Project capacity ranging from minimum 1 KWp upto 1MWp (AC side) with/ without battery back-up support will be eligible.
- The solar power generated in excess of the owner's electricity consumption is fed into the grid through a bi-directional energy meter capable of registering both import and export of electricity.
- Surplus power exported by the SPV Generator to PSPCL will be banked & set-off in the Settlement Period October to September.
- A popular model for residential home owners, where turnkey installers lease the solar rooftop systems to individual owners who, in turn, pay them a monthly lease rental.
- PSPCL will take energy meter readings for import/drawl and export/injection of power and generate the bill.

Contd....

- The consumer will be issued Energy Account Statement along with the bill for charges other than sale of power i.e. meter rentals, service charges etc., and banked energy will be carried forward for accounting in the next billing cycle.
- Electricity duty shall be levied on the billed amount after adjustment of units under net metering.
- The rooftop solar system under net metering arrangement, whether self-owned or third party owned, shall be exempted from banking charges and losses, cross subsidy and additional surcharge etc. Open Access Regulations will not be applicable on such plants.

Net-metering system (5KWp)

(3 Bedroom House)

- Cost of 5KWp Rooftop Solar PV System - Rs. 5 Lakh
- Shadow free rooftop area required - 600 Sq.Ft.
- Subsidy from MNRE, GOI - Rs. 1.50 Lakh
- Net cost to consumer - Rs. 3.50 Lakh
- Daily generation - 18-20 units
- Annual generation - 7000 Kwh
- Domestic load serviced :
 - 1 Air conditioner - 4 hours/day - 8 units
 - 6 Ceiling Fans - 10 hours/day- 6 units
 - 10 CFL Lights - 10 hours/day- 2 units
 - 1 Computer & Printer - 2 hours/day - 0.8 units
 - 2 LED TVs - 6 hours/day - 1.2units
- TOTAL - 18 units**

Net Metering Illustration (Monthly Bill)

- Plant Capacity - 5Kw
- Daily generation - 20 units
- Monthly generation - 600 units
- Average monthly electricity consumption of a 3 bedroom house - 800 units (approx.)
- In Punjab domestic tariff slab :
 - 0 – 100 units - Rs. 4.78/unit
 - 101 – 300 units - Rs. 6.24/unit
 - 301 and above - Rs. 6.66/unit

So after adjusting the net consumption and net generated units of power the average electricity bill during the month shall be calculated as under :

- 0 – 100 units = 100×4.78 - Rs. 478/-
- 101 – 300 units = 200×6.24 - Rs. 1,248/-
- 301 -800 units = 500×6.66 - Rs. 3,330/-
- Total - Rs. 5,056/-

Generation of Solar PV Plant shall be accounted for as under :

- First 500 units = 500×6.66 - Rs. 3,330/-
- Next 100 units = 100×6.24 - Rs. 624/-
- Average monthly saving on energy bill- Rs. 3,954/- (say Rs. 4000/- approx.)

Hence, Net Bill will be Rs. 1102/- and saving will be Rs. 3954/-

Project Viability Calculation

- Plant Capacity - 5Kw
- Plant Cost - Rs. 5,00,000/-
- Subsidy @ 30% - Rs. 1,50,000/-
- Beneficiary share - Rs. 3,50,000/-
- On the basis of current power tariff slab average - Rs. 4,000/- (approx.)
monthly saving on energy bill of 3 bedroom house

Payback period of beneficiary share :

FY 2014-15 annual saving	-	Rs. 4,000x12 =	Rs. 48,000/-
FY 2015-16 annual saving	-	Rs. 4,320x12 =	Rs. 51,840/-
FY 2016-17 annual saving	-	Rs. 4,665x12 =	Rs. 55,980/-
FY 2017-18 annual saving	-	Rs. 5,038x12 =	Rs. 60,456/-
FY 2018-19 annual saving	-	Rs. 5,441x12 =	Rs. 65,292/-
FY 2019-20 annual saving	-	Rs. 5,876x12 =	Rs. 70,515/-
		TOTAL =	Rs. 3,53,083/-

Payback period of beneficiary share = 6 years

Note : Calculation based on 8% average yearly escalation in power tariff

Advantages of Roof top Solar PV System to Consumer

- Consumer net energy bill reduces.
- Generation of environmentally clean energy.
- Consumer becomes generator for his own electricity requirements.
- Reduction in electricity consumption from the grid.
- Reduction in diesel consumption wherever DG backup is provided.
- Generation is during day time when demand is more.
- Utilizes idle roof top / open spaces / walls etc.
- Reduces the grid losses of Licensee as generation is at consumption point itself.
- As long as the consumer consumes power from PSPCL and/or generated from solar plant or banked solar energy up to or more than the MMC level in any billing period, Monthly Minimum Charges (MMC) will not be leviable.

Facilitation

1. The consumers interested in setting up of solar rooftop PV project can approach PEDDA for grant of applicable MNRE, Govt. of India grants as per prevailing instructions/policy.
2. The Solar PV System under net metering arrangement will also be eligible for the fiscal and other incentives as per NRSE Policy 2012.
3. Public sector banks are being motivated for developing product finance schemes for domestic Rooftop Solar PV Systems.
4. Details of EPC Companies / Suppliers / System Integrators / Manufacturer with annual rate contracts will be finalized with quality specifications and the list will be displayed on the website of PEDDA along with rates for the information of the consumers interested in setting-up Rooftop PV System.

Procedure

- Download Application-cum-Agreement form from the website of the PSPCL/PEDA and submit the same online.
- After checking the feasibility, the applicant shall be issued Letter of Approval by PSPCL/PEDA within 30 days of receipt of application.
- The consumer shall set up the plant and submit the work completion report online along with Single Line Diagram of the synchronizing and protection arrangement within 180 days to PSPCL.
- PSPCL shall install the Bi-directional energy meter(s) within 10 days of the submission of report and the plant will be treated as commissioned.
- After commissioning the subsidy shall be released to the generator within 7 days from the date of receipt of the same from Govt. of India

SOLAR ROOF TOPS -

PUNJAB LEADS THE WAY



Rooftop Solar PV Power Plant
Location: Dera Beas, Amritsar
Capacity 7.52 MW
Date of Commissioning: April 2014
(Worlds Largest Single Rooftop Project)



Solar Power Plant
Location: Parliament House, New Delhi
Capacity: 80 KWp
Date of Commissioning: March 2011



Rooftop Solar Photovoltaic Power Plant
Location: Punjab Mini- Secretariat
Capacity: 50 KWp
Date of Commissioning: March 1999



Rooftop Solar Photovoltaic Power Plant
Location: Golden Temple, Sri Amritsar Sahib
Capacity: 25 KWp
Date of Commissioning: August 2011

Thank You