



P I N N A C L E

To serve - Knowledge Power ~ Power Knowledge.



Proposes end-to-end solar power solutions to its esteemed clients to help them in cutting power procurement expenses and meet RPO compliances



P I N N A C L E E N G I N E E R I N G SOLUTIONS (India) Pvt. Ltd. is basically result oriented engineering company based in India. The main focus of its operation is Open Access & Power Trading wherein we provide comprehensive services ranging from CONSULTANCY to COMMISSIONING along with AMC. Integrated energy player and expertise to create products for its esteemed customers to cater their energy needs as well as adding value to its existing renewable energy portfolio.

PINNACLE has been encouraging and developing renewable sector for quite long. At times when conventional energy tariffs are increasing @ 4% annually and solar energy tariffs have fallen well below DISCOM Tariffs. PINNACLE, in its endeavor to provide power solutions to its esteemed clients, presents multiple solar power solutions to esteemed clients. These solar power solutions will not only reduce client's power procurement expense but also help in their meeting Renewable Purchase Obligation (RPO).



P I N N A C L E proposes following solar power solution to cut your power bills and comply with RPO:

- ✚ Ground mounted captive and Group captive solar power plants.
- ✚ Rooftop Solar Power Plants (Both CAPEX and OPEX Models)

Depending on the requirements of the Consumer, **PINNACLE** proposes these options which have multiple benefits.

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Ground Mounted Captive Solar Plants:-

The projects wherein consumer wants to develop solar PV projects over its land for captive consumption, PTC will act as Project Management consultant for the project and provide end-to-end services, right from concept to commissioning of the project. Roles and responsibility are detailed as below.

Consumer's Role

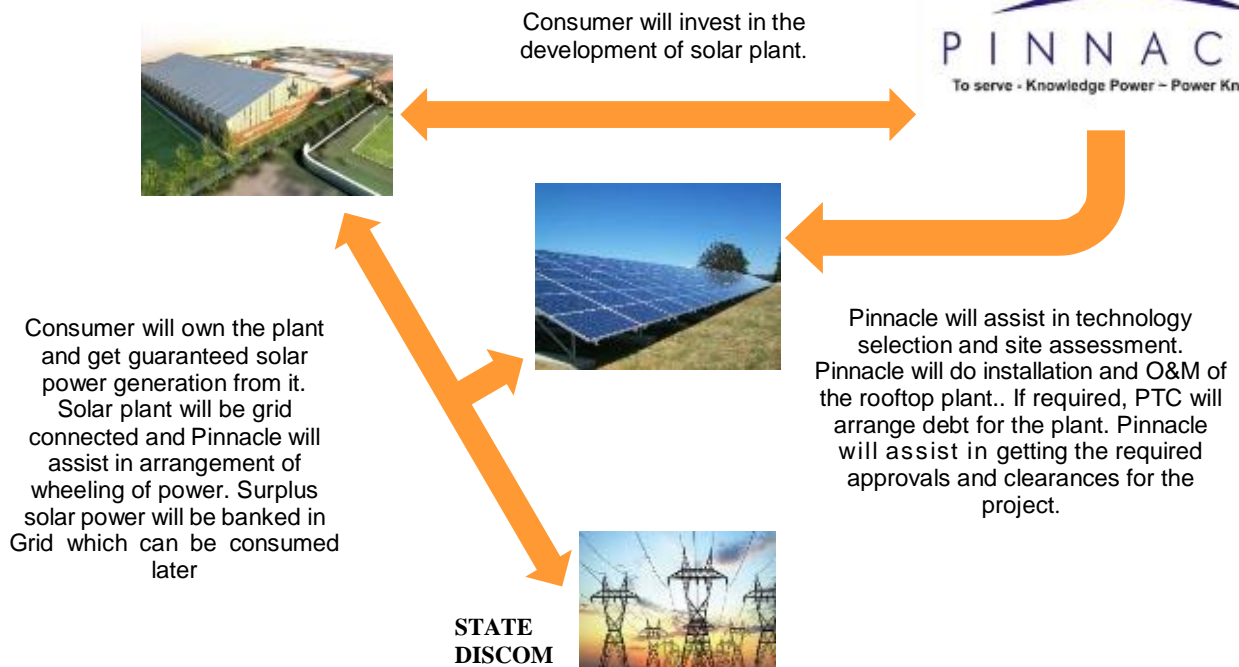
- Provide land & capital for plant development
- Owns the plant

Pinnacle Role

- End-to-End Service for technology selection, EPC, O&M.
- Assistance in Regulatory affairs and getting required clearances.

Benefits to Customer

- Accelerated Depreciation (80% in first year).
- Shorter payback period (5-8 years).
- Savings in electricity bills.
- Guaranteed long term reliable and sustainable power.
- Solar power can be banked in the grid



Ground Mounted Group Captive Solar Plants:-

Such solar plants are very similar to captive power plants; however, in this case consumer provides land but may or may not provide equity to SPV. In these cases, Pinnacle or its subsidiary may put equity in the solar plant SPV and signs PPA with the consumer at a mutually agreed tariff. (Lower than DISCOM tariff).

Consumer's Role

- Provides land for the project and signs PPA with SPV

Pinnacle Role

- Provide equity in the SPV
- Site survey to finalize the capacity of solar plant.
- Selection of suitable technology / configuration for solar plant.
- Arranging all approvals/clearances for the project.
- Arranging finances/providing financial support for project.
- Installation, commissioning and Operation & Maintenance of the plant.

SPV's Role

- Develops, Owns and operates the project.
- Signs PPA with Consumer.

Benefits to Customer

- Tariff cheaper than DISCOM tariff
- Hassle free, warranted, reliable, cheap and green power from the plant with no investment/expense.
- No need to keep manpower for plant.

Rooftop Solar Power Plants:-

Installation of Solar Rooftop plant is the model by which consumers can get reliable supply of power at competitive prices while utilizing unused rooftops and can also bank power in the grid.



There are no charges/ levies like wheeling, banking and electricity duty etc. on power generated from rooftop solar plants in most of the states. Following are the two rooftop solar plant models.



Rooftop Solar Power Plants in CAPEX mode:-



Consumer will invest in the development of rooftop solar plant



Rooftop Solar Power Plants in O&M

Consumer will own the plant and get guaranteed solar power generation from it. Rooftop plant will be grid connected and Pinnacle will assist in net metering arrangement. Surplus solar power will be banked in Grid which can be consumed later



Pinnacle will assist in technology selection and site assessment. Pinnacle will do installation and O&M of the rooftop plant. If required, PTC will arrange debt for the plant. Pinnacle will assist in getting the required approvals and clearances for the project.



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Consumer's Role

- Provides rooftop and signs PPA with PTC

Pinnacle Role

- Site survey to finalize the capacity of solar plant.
- Selection of suitable technology / configuration for solar plant.
- Arranging all approvals/clearances for Net-Metering arrangement with local Discom.
- Arranging finances/providing financial support for project
- Installation, commissioning and Operation & Maintenance of the plant.

Benefits to Customer

- Tariff cheaper than DISCOM tariff
- Hassle free, warranted, reliable, cheap and green power from the plant with no investment/expense.
- No need to keep manpower for plant.

Consumer will lease rooftop for 25 yrs. Trader and Consumer will sign PPA for solar power at mutually agreed tariff. Plant will be transferred to Consumer at the end of 25yrs period



Consumer will get guaranteed solar power generation from the plant owned and managed by PTC. Rooftop solar plant will be grid connected and PTC will assist in net metering arrangement. Surplus solar power will be banked in Grid which can be consumed later.

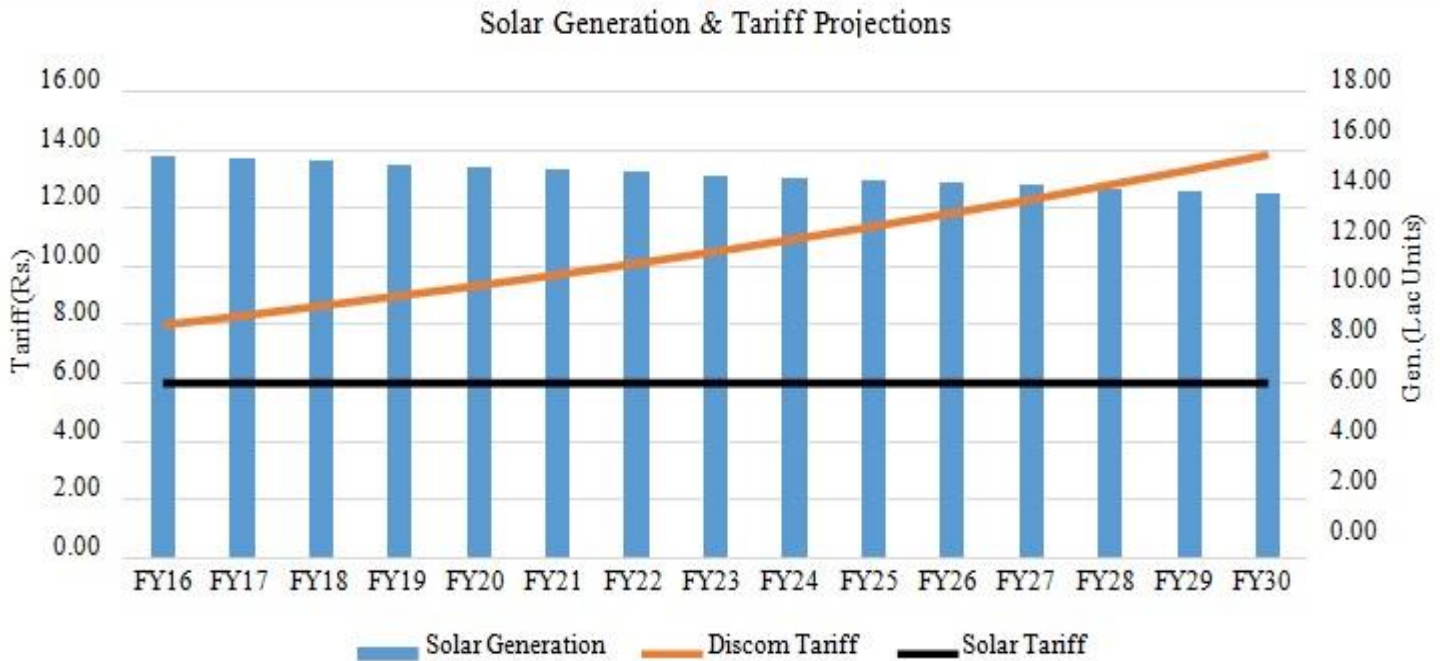


Pinnacle will arrange all the required finances to develop solar rooftop. Pinnacle will develop, own and operate the plant and do its O&M

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OPEX Model: Savings*

- ✚ Assuming DISCOM Tariff at Rs. 8.0/kwh, escalating @ 4% and Solar tariff at Rs. 6.0/kwh; @ no escalation.
- ✚ The present value of Savings (discounted @10%) from a 1MW in 25 Years comes out be over Rs. 6.6 Crores /MW. (or Rs. 1.9/kWh)
- ✚ This saving comes with no investment/expense from consumer



**Saving model is indicative for understanding; assumption may vary depending on state regulations, project site, technology, etc.*

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Typical BOM:-

Following is typical Bill of Material for 200kWp solar rooftop:

Description of Major Supply Items	Total Qty.	Make	UoM
Solar PV module: 265/302/315 Wp, multi-crystalline Silicon (TC Series)	-	Reputed vendors	no
Module mounting structure (Trapezoidal Sheet Roof, fixed tilt)	1	Reputed vendors	set
Array Junction Box (10in-10out, with MOV & Fuses)	4	Reputed vendors	no
Grid Connect Solar Inverter (1 x 50KW, 415V AC, 50Hz, MPPT), DC:AC = 1.2 max	4	Reputed vendors	no
Monitoring: Data Logger-1No, Si Rad. Sensor-1No & 2Yr Remote Monitoring on TPS Portal	1	Reputed vendors	set
AC Distribution Board with Breakers & Energy Meter (1 no) - ACDB- input MCB/ 1 o/p MCCB	1	Reputed vendors	set
1C X 4 Sq.mm. EB XLPE Cu. cable (Array Interconnection & to Inverter)	5760	Reputed vendors	m
4C X 25 Sq.mm. EB XLPE Cu. cable (Inverter to ACDB)	240	Reputed vendors	m
3.5 X 240 Sq.mm. XLPE Al. cable (ACDB to LT Panel), 1.1 kV grade	200	Reputed vendors	m
Earthing Kit, Earthing Wire & GI Earth Strip (25mm x 5mm)	1	Reputed vendors	set
Lightning Arrestor	1	Reputed vendors	set
MC-4 Cable Couplers (Male & Female Pairs)	1	Reputed vendors	set
Installation kit (Comm. Cable, Inverter Canopy etc.)	1	Reputed vendors	Set

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WE HUMBLLY SERVED

FIAT INDIA AUTOMOBILES – RANJANGAON – 220KV	OWENS CORNING INDIA PVT. LTD. – TALOJA – 220KV
SUPREME INDUSTRIES LTD. – JALGAON – 132KV	THYSSENKRUPP ELECTRICAL STEEL INDIA PVT. LTD – NASHIK – 220KV
RELIANCE INFO-COMM. INFRASTRUCTURE LIMITED – 220KV	GOODYEAR SOUTH ASIA TIRES PVT. LTD. WALUJ, AURANGABAD 132KV
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SKF INDIA LTD. – CHINCHWAD – 22KV	TATA COMMUNICATIONS LTD. – PUNE – 22KV
SUN-N-SAND (WESTIN HOTEL) – PUNE 22KV	CEAT LTD. – BHANDUP – 22KV
PEPSICO HOLDINGS INDIA PVT. LTD. – RANJANGAON 22KV	MAHINDRA STEEL – KANHE – 22KV

CLIENTS FROM PUBLIC SECTOR

POWER TRADING CORPORATION India Ltd. (PTC) - Government of India initiated Public-Private Partnership.	EMPLOYEE'S STATE INSURANCE CORPORATION, Ministry of Labor & Employment, Government of India.
AUTOMOTIVE RESEARCH ASSOCIATION OF INDIA (ARAI) Ministry of Industries, Government Of India	MAHARASHTRA STATE ELECTRICITY DISTRIBUTION COMPANY LIMITED (Mahavitaran or MSEDCL) - Maharashtra, India
MAHARASHTRA STATE ELECTRICITY TRANSMISSION COMPANY LIMITED (Mahapareshan or Mahatransco MSETCL) - Maharashtra, India.	MAHARASHTRA INDUSTRIAL DEVELOPMENT CORPORATION (MIDC) - Maharashtra, India.

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