



**PHOTON ENERGY SYSTEMS LIMITED**  
Solar Energy for today & tomorrow

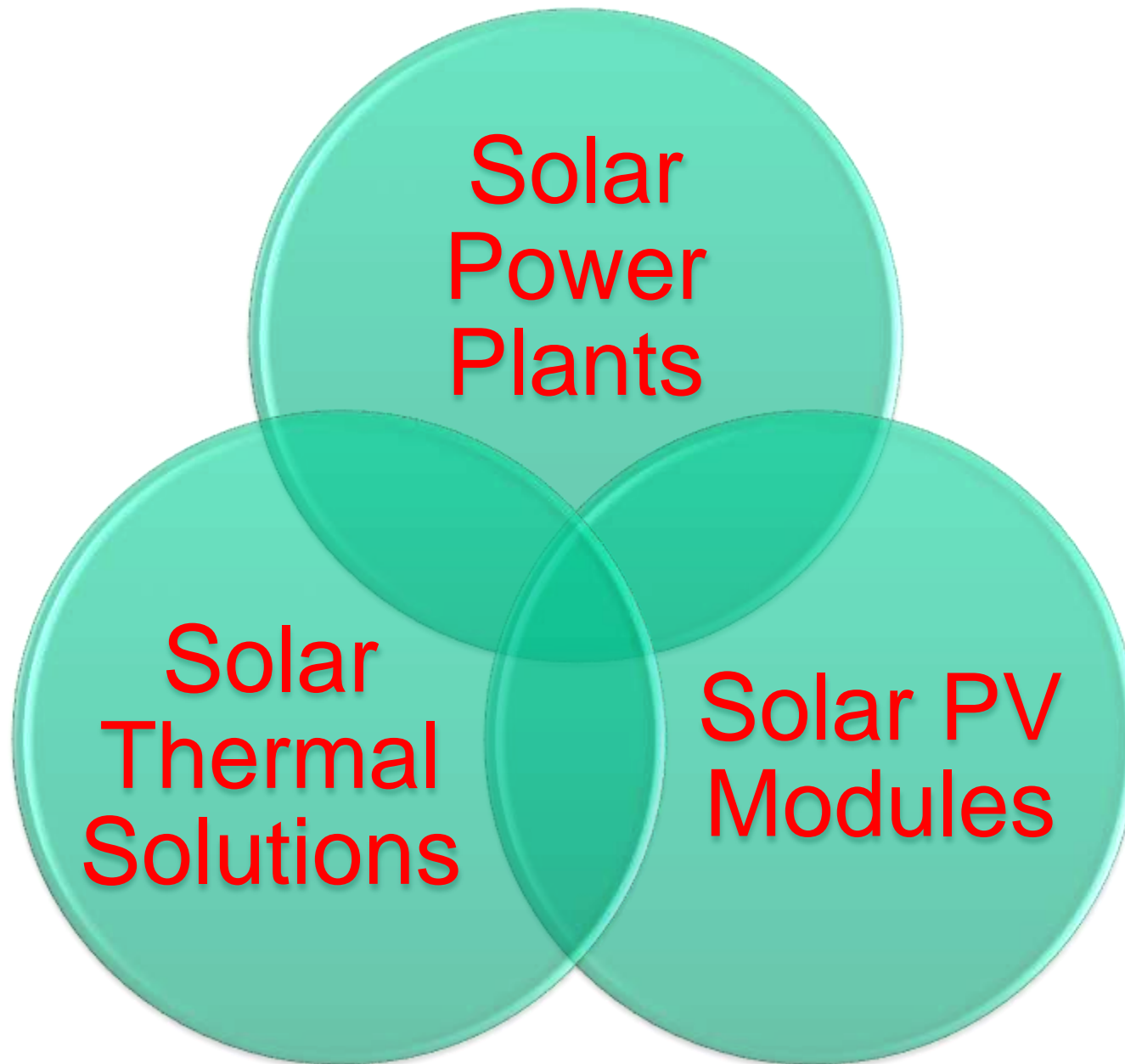
# COMPANY VISION



to be an innovative and competitive global enterprise providing end-to-end solar energy solutions to customers



# COMPANY DIVISIONS



# COMPANY PROFILE



- Photon Energy Systems Limited since 1995 is India's leading solar company, providing a wide range of Solar Solutions – Solar PV Modules, Solar Power plants (Megawatt & Off-grid) and Solar Thermal (Water Heating) Solutions.
- The module manufacturing unit located at Hyderabad is ISO9001:2008 & ISO14001:2004 certified by TUV and equipped with state-of-the-art facilities. This division presently has a production capacity of 40 MW producing crystalline modules in the range of 3Wp to 305Wp
- Thermal Division is the first Indian company to have a manufacturing facility for ETC based Solar heating systems with state-of-the-art machinery for manufacturing tanks & flat plate collectors
- System Integration & EPC Division is among India's leading EPC company have installed over 60MW capacity



# ACHIEVEMENTS



One of India's oldest Solar PV & SWHS Brand since 1995

65 MW Utility Scale Solar Power Plants Installed & commissioned

25 MW Solar power plants under implementation

Over 140 million units of Solar Power generated

First Utility Scale 3MWp Solar Power installed in India

First Solar Power Plant with single-axis tracking in India

Largest Solar PV Plant (10MW) with trackers in India

Marquee Customer base – Tata Power, NTPC, GMR, APGenco, Karnataka Power, Eenadu Group, Dr. Reddy Labs, E.I Dupont



Experienced in Crystalline, Thin Film & CdTe module plants

Proficiency in various tracking, seasonal & fixed structures

Highly qualified, multi-disciplinary (CEM) design team

Dedicated project execution division

# PHOTON PV MODULES



- Photon multi-crystalline (PM Series) & mono-crystalline modules (PMM Series) are IEC 61215 and IEC 61730 certified by TUV & UL up-to 305Wp
- Modules manufactured in ISO9001:2008 & ISO14001:2004 TUV certified plant
- Customer base across five continents in various countries including Germany, Spain, Italy, France, East African countries and Southern Africa

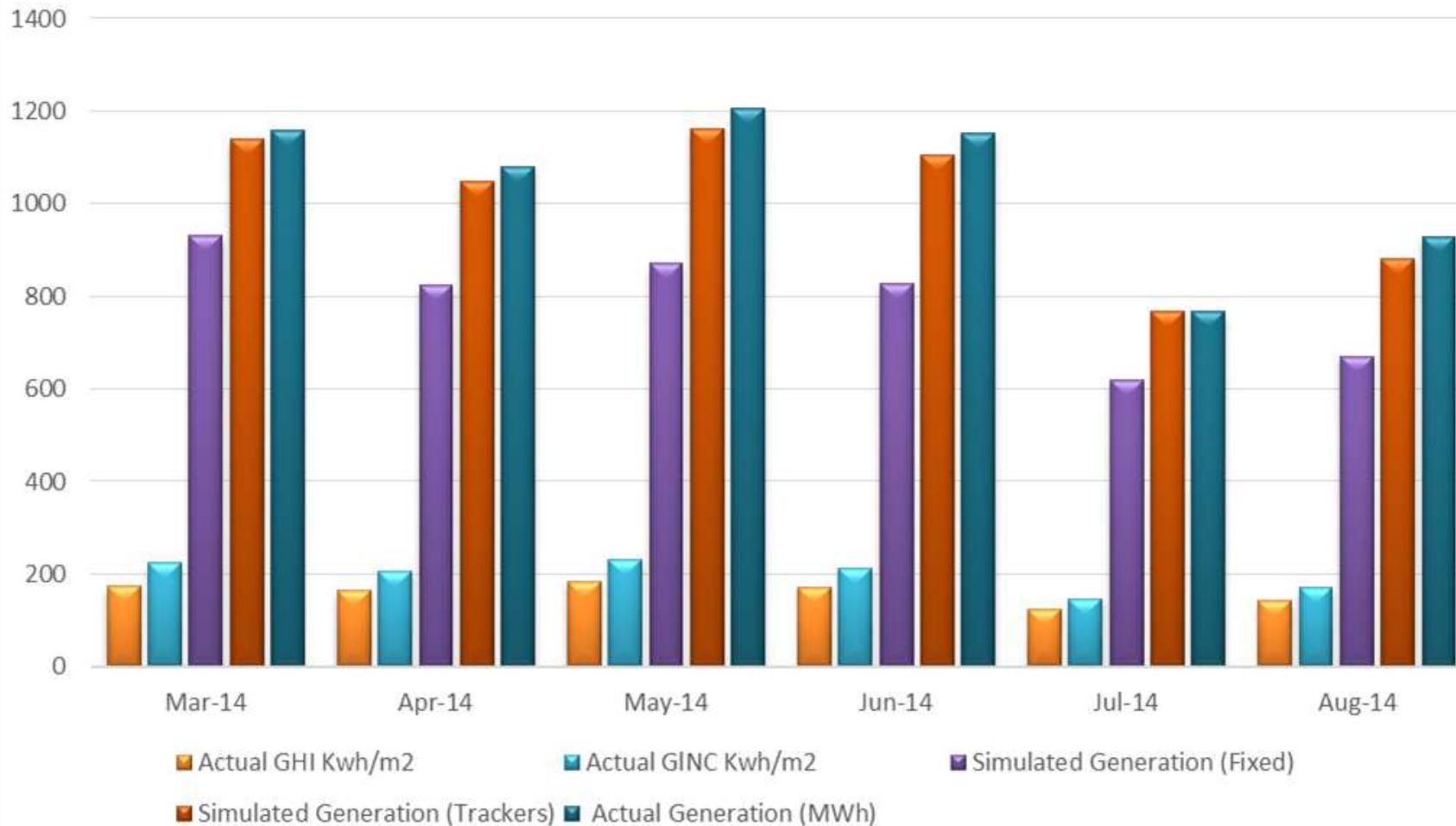


# THE PHOTON EDGE



Proven Photon Edge: Our solar plant generation is higher than the simulated generation based on the actual radiation at site !!!  
Better Engineering = Higher Generation > Other solar plants

### Radiation vs Fixed vs Trackers Generation





# THE PHOTON EDGE



Photon has 6 plants in the top 13 among all the 69 solar power plants (RPSSGP) all over India !!!

Generation-Wise Solar Power Plants in 2012-13 (RPSSGP)						
Rank	Name of the Project Proponent	State	Capacity (MW)	Generation FY 2012-13 (B)	Per Mwp	EPC
1	Gajanan Financial Services Pvt. Ltd.	Andhra Pradesh	1	1748430	1748430	
2	Basant Enterprises	Rajasthan	1	1711935.82	1711936	
3	Nav Bharat Buildcon Pvt. Ltd.	Rajasthan	1	1702878.84	1702879	
4	AEW Infratech Pvt. Ltd.	Rajasthan	1	1636381.8	1636382	Photon
5	Photon Energy Systems Limited	Andhra Pradesh	1	1597710.55	1597711	Photon
6	Andhra Pradesh Power Generation	Andhra Pradesh	1	1582330	1582330	Photon
7	Asian Aero Edu Aviation Pvt. Ltd.	Rajasthan	1	1562671.2	1562671	
8	Bhavani Engineering	Andhra Pradesh	1	1548075	1548075	Photon
9	RL Clean Power Pvt. Ltd.	Tamil Nadu	1	1543450.38	1543450	
10	Amrit Jal Ventures Ltd.	Andhra Pradesh	1	1526003.06	1526003	
11	Ramakrishna Industries	Andhra Pradesh	1	1511619.83	1511620	
12	Andhra Pradesh Industrial Infrastructure	Andhra Pradesh	1	1471830	1471830	Photon
13	SDS Energy Pvt. Ltd.	Haryana	1	1456899	1456899	Photon
14	C & S Electric Limited	Haryana	1	1431670	1431670	
15	B & G Solar Private Limited	Tamil Nadu	1	1428480	1428480	

# PHOTON TRACKERS



- Single Axis Horizontal Tracking System
- Installed and commissioned 10 MW plant with crystalline modules
- Installed largest solar pv plant with trackers in India
- Generate 15% more energy for any given site
- Additional energy production reduces system's levelized cost of electricity (LCOE)
- Return on Investment (ROI) far superior to any alternate fixed structure modules (thin film or CdTe)
- Completely indigenized and domestic components ensure lower costs, faster delivery and higher IRR
- Fewer moving parts and motors means lower operating and maintenance costs



# 10MW SOLAR PV POWER PLANT

## LARGEST SINGLE AXIS TRACKER PLANT IN INDIA



Highest  
PLF of  
30%  
achieved

Capacity : 10MW Location: Mahbubnagar  
Modules : REC 250 & 255Wp Crystalline  
Structure : Single Axis Trackers  
Inverter : Toshiba 630KW Indoor

# 5MW SOLAR PV POWER PLANT

## FIRST NTPC SOLAR MW PLANT



Capacity : 5MW Location: Andaman & Nicobar  
Modules : Photon 235Wp Crystalline  
Structure : Seasonal Tilt  
Inverter : SMA 800Kw Outdoor

# 3MW SOLAR PV POWER PLANT

## FIRST MW PLANT IN INDIA



Capacity : 3MW Location: Belgaum, Karnataka  
Modules : Photon 230wp Crystalline  
Structure : Fixed Tilt  
Inverter : Optimal 250Kw Indoor

# 1MW SOLAR PV POWER PLANT HISSAR, HARYANA



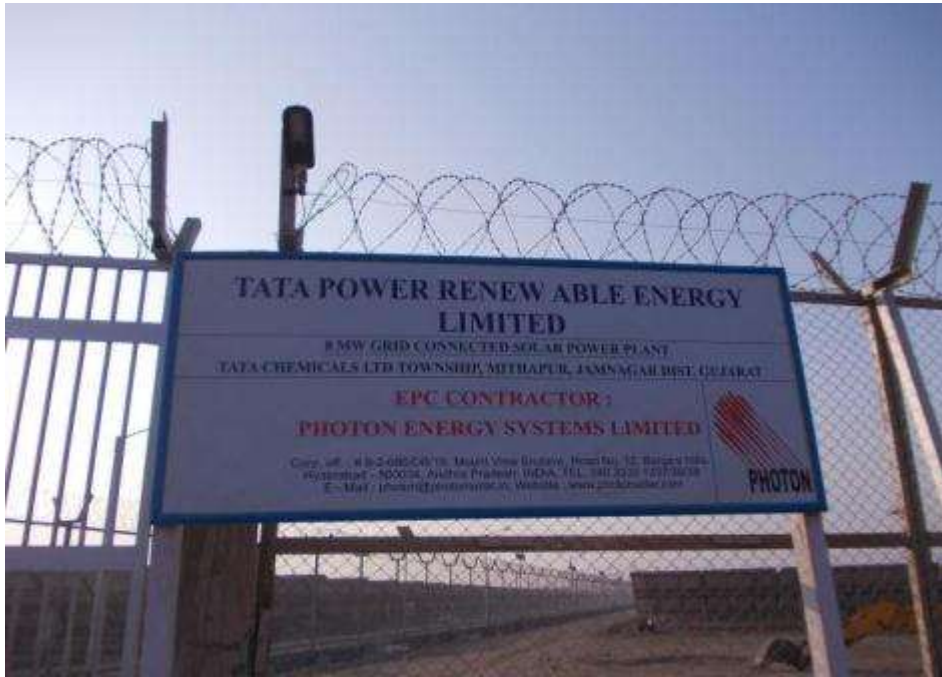
Capacity : 1Mw Location: Hissar, Haryana  
Modules : Nexpower 145wp Micromorph  
Structure : Fixed Tilt  
Inverter : Eltek 250Kw Indoor

# 8 MW SOLAR PV POWER PLANT MITHAPUR, GUJARAT



Capacity : 8Mw Location: Mithapur, Gujarat  
Modules : Canadian Solar 235wp & 240wp Crystalline  
Structure : Fixed Seasonal Tilt  
Inverter : SMA 800CP Outdoor

# 8 MW SOLAR PV POWER PLANT MITHAPUR, GUJARAT





# 5 MW SOLAR PV POWER PLANT SOLAR PARK, GUJARAT



Capacity : 5Mw Location: Solar Park, Gujarat  
Modules : Canadian Solar 235wp & 240wp Crystalline  
Structure : Fixed Seasonal Tilt  
Inverter : SMA 500CP Outdoor

# 5MW SOLAR PV POWER PLANT BACHAU, GUJARAT



Capacity : 5Mw Location: Bachau, Gujarat  
Modules : SolarWorld 230wp Crystalline  
Structure : Fixed Seasonal Tilt  
Inverter : SMA 800CP Outdoor

# 1MW SOLAR PV POWER PLANT ANDHRA PRADESH



Capacity : 1Mw Location: Hyderabad, AP  
Modules : Photon 240wp Crystalline  
Structure : Single Axis Horizontal Mounting  
Inverter : SMA 17kw String Inverter

# TURNKEY SOLUTIONS



**Site survey  
& Proposal**

**Design &  
Engineering**

**Installation &  
Construction**

**System  
Integration**

**Operation  
And  
Maintenance**

- Consultation
- Site identification, radiation study & generation simulation
- System design, installation & Procurement
- Utility and Building permits, MNRE paperwork
- Service and Maintenance
- Complete turnkey solutions for mega watt size & off-grid power plants

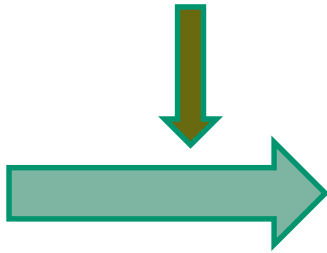
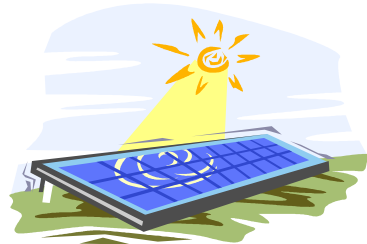
# SOLAR ROOFTOPS



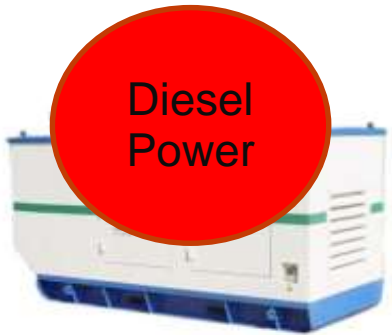
# SOLAR ROOFTOPS



Utility Power



Diesel Power



Solar Power is connected to the same bus as Utility Power & DG Power

Will reduce the utility & diesel power consumption throughout the day

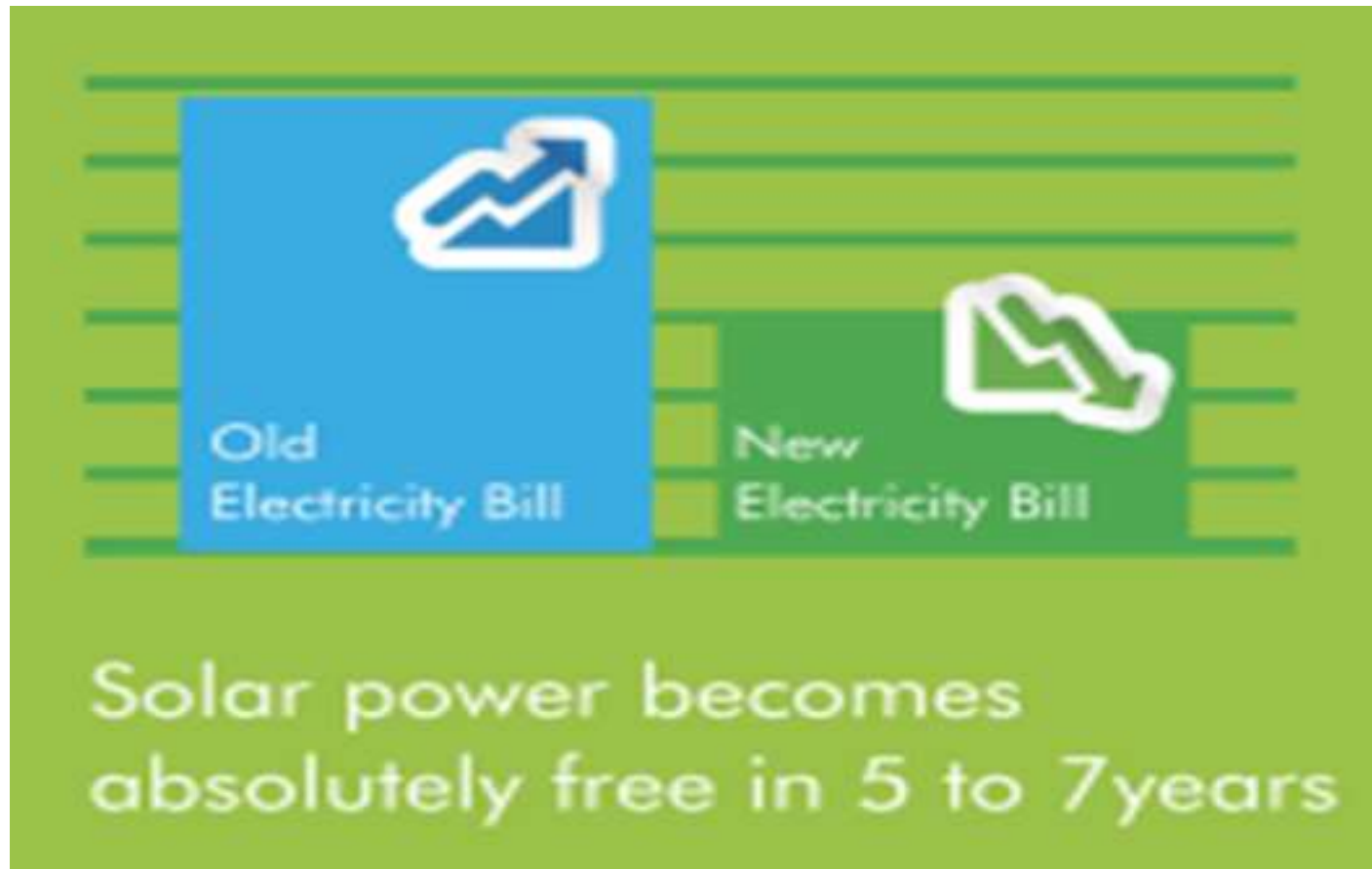
No batteries or high maintenance complicated equipment

25 years plant life

# Solar Rooftop Financial Savings



- ✿ Accelerated Depreciation & Tax Benefits
- ✿ Government Subsidies
- ✿ Power Plant payback in 5 years time, cost of power is reduced to zero as there is no fuel costs in Solar power





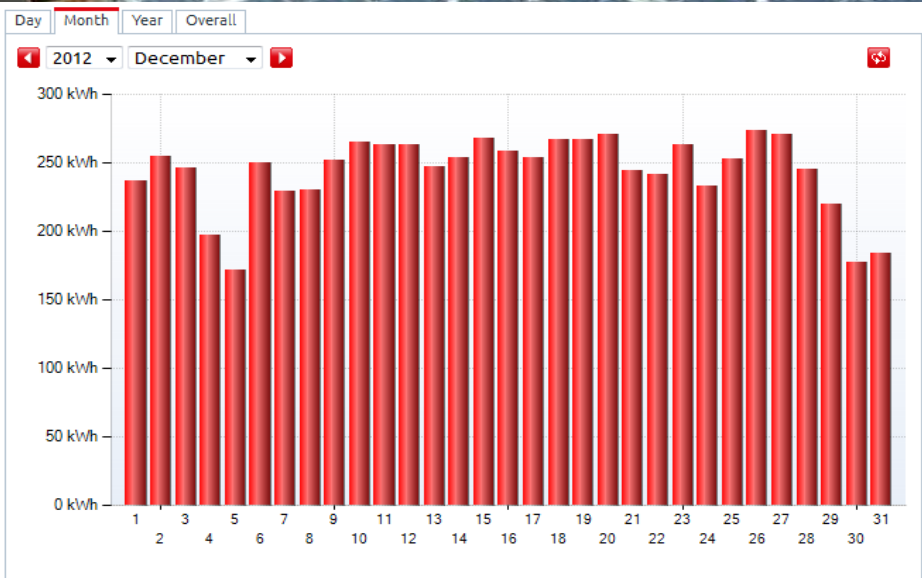
## SAGAR CEMENTS LTD

### Hyderabad

#### 60KW Solar PV Power Plant

#### Specifications

- Module: 250Wp - 300pcs
- Inverter: 20KW Sting Inverter – 3 Nos.







## United States Pharmacopeia India Private Limited

Hyderabad

### 4KW Solar PV Power Plant

#### Specifications

- Module: 125Wp - 32pcs
- Battery: 96V / 600Ah Tubular Lead Acid Battery Bank & Accessories 2V @ C/10 – 48 Nos
- Power Conditioning Unit: 5KVA I/P - 96V, O/P - 230V,1Ph IGBT based, MPPT Charger – 1 No.

# CHHATISGARH STATE RENEWABLE ENERGY

## DEVELOPMENT AGENCY

### 85 KW Solar PV Power Plant



Location: Gandhi Udyan Bhavan,  
Raipur, CG





**Vidyaranya High School**  
**Hyderabad**  
**20KW Solar PV Power Plant**

**Specifications**

- **Module:** 125Wp - 160pcs
- **Battery:** 2V-500Ah (Tubular) - 120 Nos
- **Power Conditioning Unit:** 20KVA, 3 Phase - 01 No



**Premier Explosives Limited**  
**Hyderabad**  
**20KW Solar PV Power Plant**

**Specifications**

- **Module:** 125Wp - 160pcs
- **Battery:** 240V / 250Ah Tubular Lead Acid Battery Bank & Accessories 2V @ C/10 - 120 Nos
- **Power Conditioning Unit:** (GSC) 30KVA I/P - 240V, O/P -415V-3Ph IGBT based, MPPT Charger – 1 No.

# SOLAR ROOFTOP POWER PLANTS



# Car & Bike Parking Lots



# SOLAR THERMAL SOLUTIONS



- One of India's oldest & leading SWHS brand
- Manufactures both ETC and FPC technologies
- Installed over 10 million liters of solar heating last year
- Installed and commissioned India's first Solar Seawater Desalination Plant for BARC at Kalpakkam
- CRISIL-MNRE approved channel partner for systems integration
- Solar effluent treatment plants
- Boiler feed water & process heating plants



# SOLAR DESALINATION



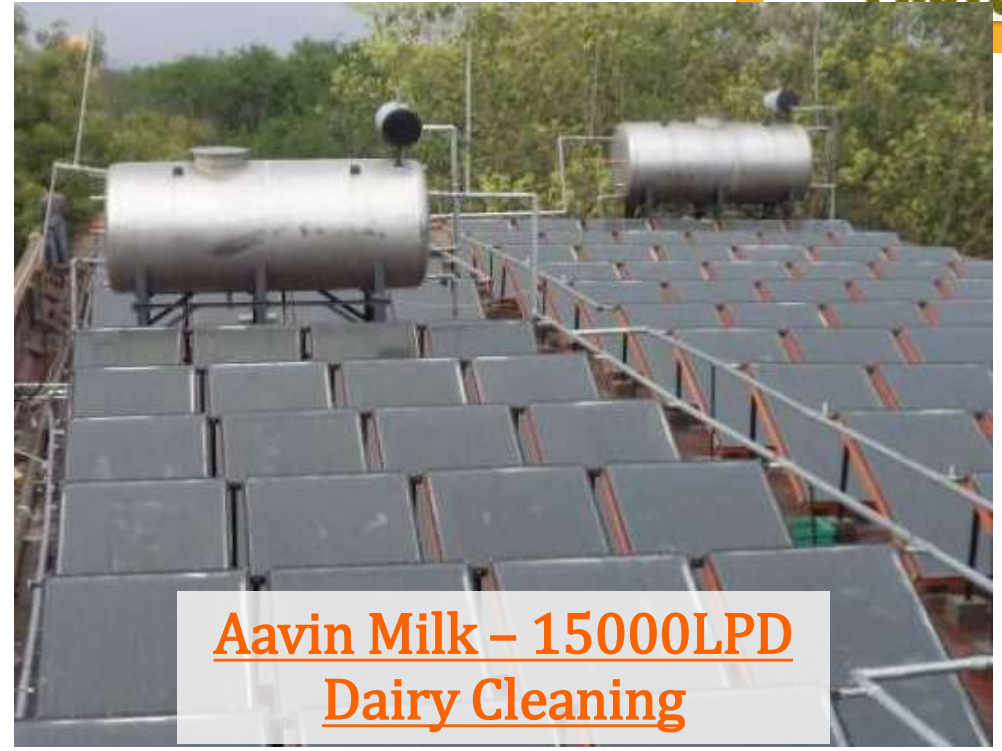
BARC Kalpakkam – 1000LPD

India's first Solar Sea Water Desalination Plant

# SOLAR PROCESS HEAT



Parle Factory – 7000LPD  
Process Heating



Aavin Milk – 15000LPD  
Dairy Cleaning



TTD – 30000LPD  
Water heating



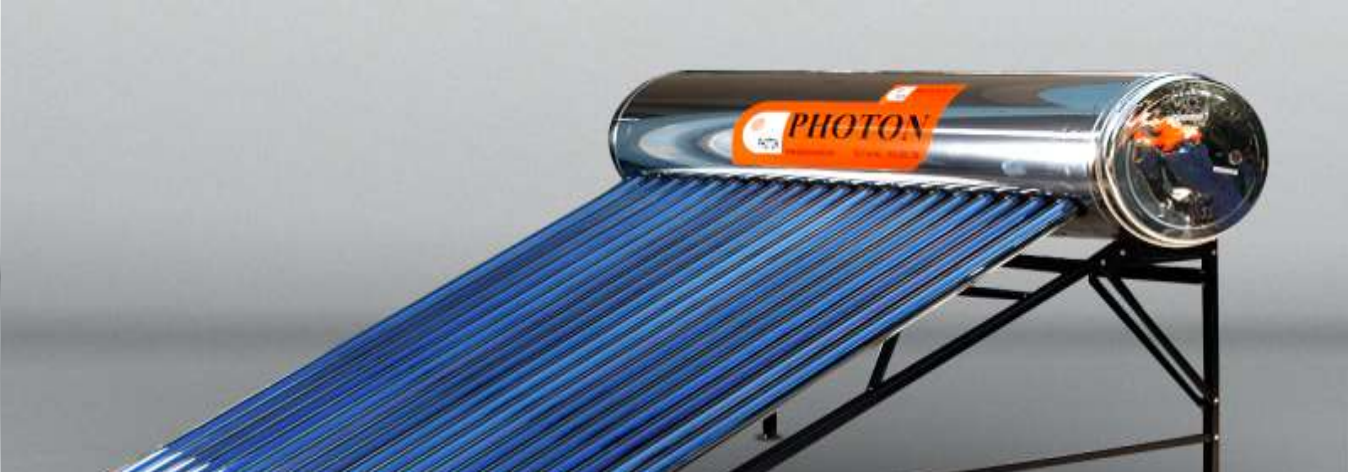
Shangrila Hotel – 5000LPD  
Pressurized Water Heating



# SOLAR EFFLUENT EVAPORATION



# SOLAR WATER HEATING PRODUCTS





*Solar Energy for today...  
& tomorrow  
Thank you!*