



# **Solar Power**

## **Turnkey Solution Provider**

## Who we are?

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UNIK Power is a Research and Development (R&D) based company, anchored with strong team of engineers from the multi-disciplinary fields like *Mechanical and Production Engineering, Electrical and Electronics Engineering*. We evolved with different sorts of innovation in the field of renewable energy, aiming at developing and delivering world class renewable energy technology all over the world.

## What we do?

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“**A Team for Technology**”, is core strength of the organization, which always focuses on giving **Techno-Commercial Viability** solutions for our customer. We don't just deliver a product; instead we act as an end to end green energy solution provider, which involves

- Understanding Energy Requirement
- Recommending Energy Efficient Products
- Optimized System and Engineering Design
- Procurement and Commissioning
- Service and Annual Maintenance

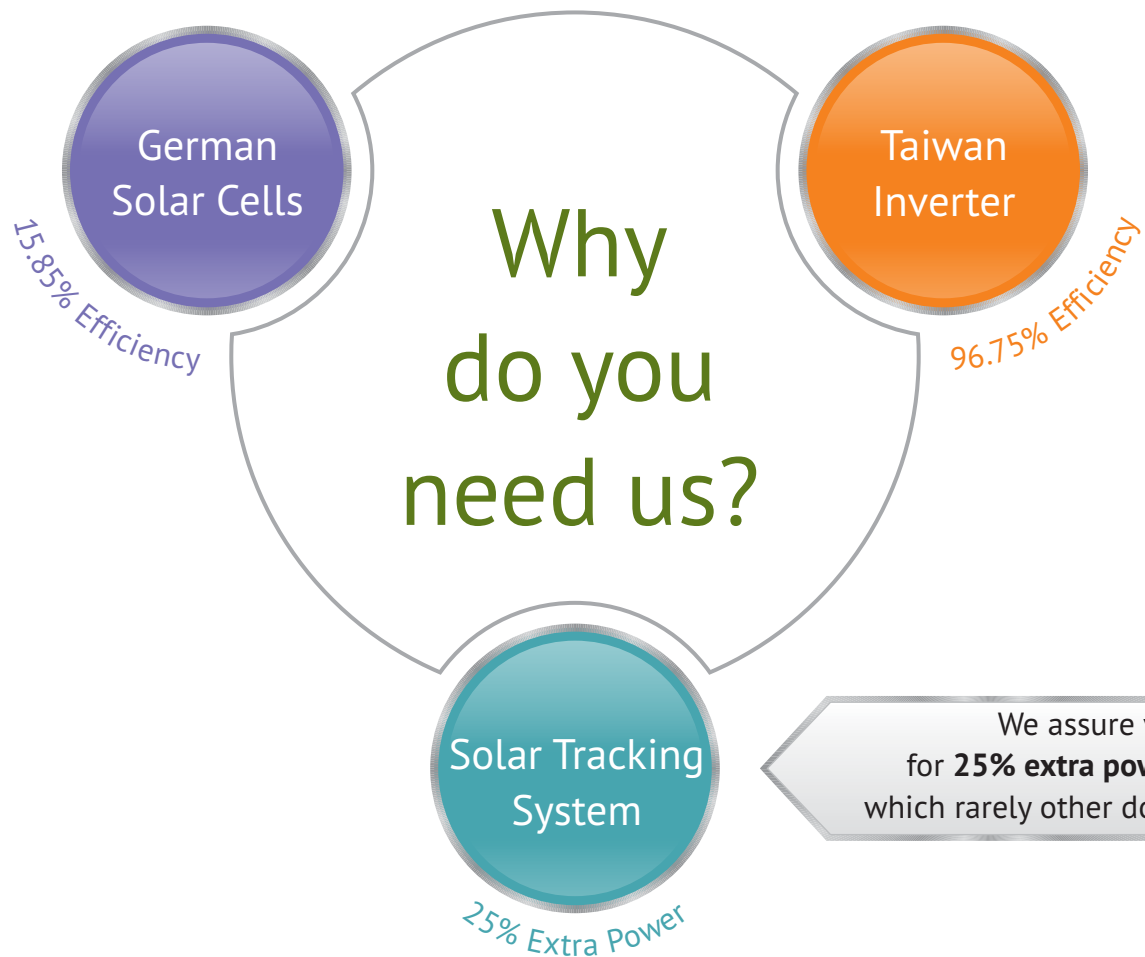
## Our Success Story

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Our first product development started at 2007 for developing a **3rd Generation** solar technology – **Concentrated Photo Voltaic (CPV) System**.

To enhance CPV cells, we need a dual axis tracking system, which we developed indigenously and succeeded hardly in 2009. We did a vigorous and continuous field test for more than a couple of years, and optimized both technically and commercially, aiming to make it as a “**Techno-Commercial**” product. As a substrate, we also come up with Single Axis Tracking system as per industrial needs and standards.

We aim in delivering a quality Solar Tracking System which runs with long durability by providing faster service and annual maintenance facility.



## Our Recent Achievement



UNIK Power succeeded in enhancing **HCPV (High Concentrated Photo Voltaic)** modules, achieving its highest performance with Dual Axis Solar Tracking System. We have achieved:

- **99.89%** Tracking Accuracy
- **41.3%** Cell Efficiency
- **32.95%** Module Efficiency

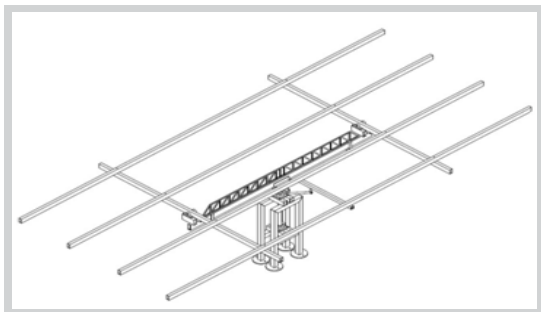
India's First Indigenous Technology  
for HCPV Development

Most economical and high efficient  
Solar Tracking System

# Solar Tracking System

## Product Overview

- Maximum Irradiance Point (MIP) track records
- Designed with lesser shadowing effect
- Remotely monitored and controlled
- Built in Artificial Intelligence (AI)
- Engineered, at its best
- Patented technology

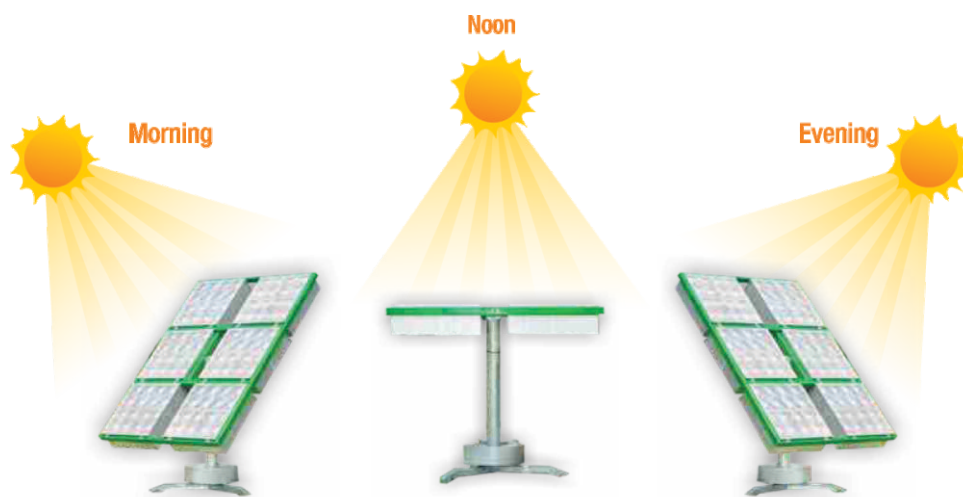


Structural View

## Cost Advantage

- Reduces the payback period
- Very less maintenance technology
- Very lesser additional cost of investment
- **25% - 40%** increase in net power generation

## Working Principle



# Comparison of Fixed PV System & Solar Tracking System

Fixed PV System				Solar Tracking System		
Time	Voltage	Ampere	Watts	Voltage	Ampere	Watts
07:30	0.00	0.00	0.0000	3.46	1.24	4.2904
08:30	3.94	1.24	4.8856	8.15	1.34	10.9210
09:00	6.15	1.29	7.9335	8.85	1.35	11.9475
09:30	7.40	1.32	9.7680	9.31	1.36	12.6616
10:00	8.31	1.34	11.1354	10.54	1.40	14.7560
11:00	8.83	1.34	11.8322	9.73	1.41	13.7193
11:30	10.55	1.39	14.6645	10.61	1.42	15.0662
12:00	9.93	1.38	13.7034	10.09	1.41	14.2269
12:30	10.21	1.39	14.1919	10.23	1.39	14.2197
13:00	10.97	1.41	15.4677	10.98	1.40	15.3720
13:30	10.55	1.39	14.6645	10.67	1.39	14.8313
14:00	10.28	1.37	14.0836	10.22	1.36	13.8992
14:30	9.30	1.36	12.6480	10.45	1.39	14.5255
15:30	7.33	1.31	9.6023	10.46	1.38	14.4348
16:00	6.31	1.29	8.1399	10.35	1.38	14.2830
16:30	4.87	1.25	6.0875	9.34	1.35	12.6090
17:00	3.11	1.21	3.7631	7.66	1.31	10.0346
18:00	0.00	0.00	0.0000	4.69	1.25	5.8625
<b>Total Watts Generated</b>			<b>172.5711</b>	<b>Total Watts Generated</b>		<b>227.6605</b>

## Results

Fixed PV Power Generation

- **172.5 W**

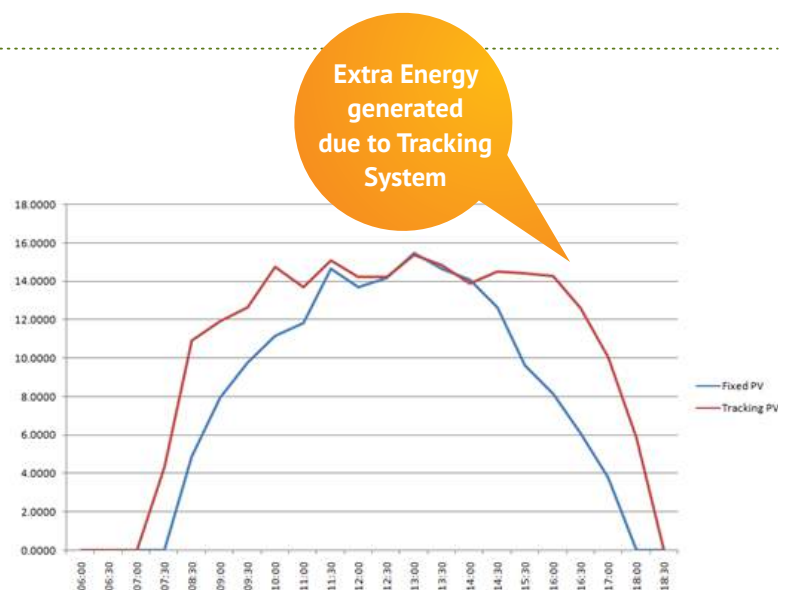
Tracking PV Power Generation

- **227.6 W**

Net Increase in Tracking System

- **55.0 W**

Net increase in Power Generation by Solar Tracking System is **31.92%**, with 30% cloud cover data observed.



Comparison of Fixed PV and Tracking PV System



# Solar Cells and Modules

## Crystalline Silicon Solar Cells

- Highly Improved Efficiency of **13.5% to 17%**
- Good power-to-size ratio: **135 – 170** watts per meter square
- Better performance in hotter climatic conditions too
- Excellent life span (almost **20 to 25** years warranty)
- Very good yield on Solar Tracking System



Specifications	
Cell Type	Mono / Poly Crystalline
Front Glass	Toughened Textured Glass
Glass Thickness	3.2 mm
Cell Encapsulation	EVA (Ethylene Vinyl Acetate)

Specifications	
Backsheet	Poly Vinyl Fluoride
Frame	Extruded Aluminium Frame
Junction Box	4 rail junction box



- High quality, low iron, high transmissivity, tempered and toughened glass to ensure high light absorption
- Tin copper interconnects increases solderability and gives maximum output efficiency
- Cells are encapsulated with EVA and PVF back sheets imported from Europe
- Bypass diodes are used to minimize power drop during partial shading
- Product quality confirms to **IEC 61215** standards
- Anodized Aluminium frame act as a corrosion free and strong structural support
- Produced in an **ISO 9001:2008 & 14001:2004** certified production facilities



**MNRE Certified & Approved Panels**

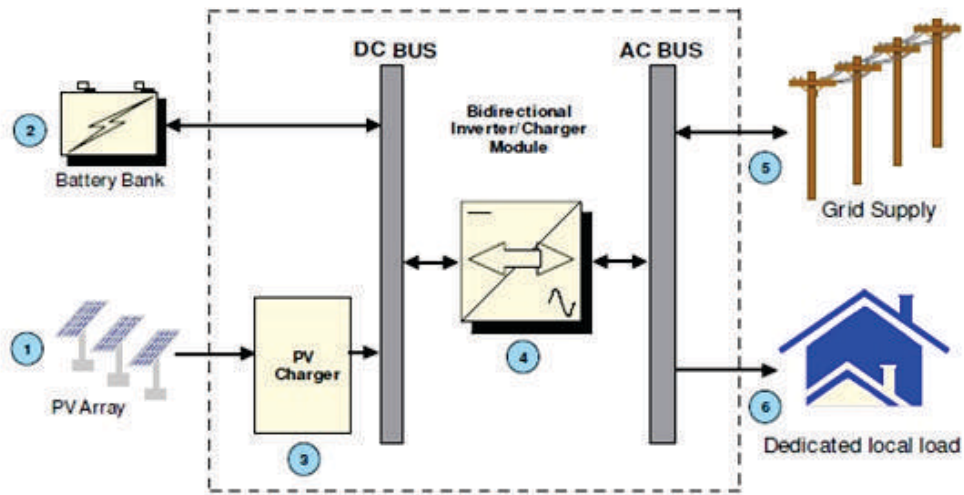
# Solar Inverter (MPPT & Grid Sharing PCU)

## Features

- Pure Sine Wave Output
- Digital Signal Processor (DSP) Based
- Elegant Digital Display
- Short Circuit Protection
- Battery Deep Discharge Protection
- Intelligent Battery Charger
- Selectable Battery Charging Current
- Selectable UPS / INV Mode
- Auto Re-start Facility



Standard Ranges	600 VA	800 VA	1000 VA	1400 VA	2 KVA	3 KVA	5 KVA	10 KVA
Special Ranges	15 KVA		25 KVA		50 KVA		100 KVA	



## Intelligent Conversion Program (ICP)

**MPPT** and **DSP** based program plays a vital role in converting Solar DC power into AC. It has been programmed for both Single phase and Three phase current separately with conversion efficiency of almost **85%** to **95%**. It also comes with **Grid Support Conditioner (GSC)** and intelligent power management system which balances the Solar Power, Grid and Load.



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