

# Dual Axis Fully Automated Solar Tracking System



**SUPERNOVA TECHNOLOGIES PVT. LTD.**

## **DETAIL & OPERATION OF SUPERNOVA'S DUAL AXIS AUTO SOLAR TRACKING SYSTEM**

Today all around the world, renewable energy power plants are being promoted to resolve the power crises. Renewable power is a green power and is available all around the world in various forms. India is blessed with ample solar radiation and most of the country receives between 300 to 330 sunny days a year. Harnessing solar radiation through photovoltaic panels is an economical and convenient way to fulfill the demand of electrical power.

**We have designed and developed a solar power plant with dual axis auto tracking system. To improve the power generation capacity (up to 45%), an indigenously designed and developed dual axis tracking system is attached with the plant. This is the first of its kind indigenously designed auto dual axis solar tracker system in the country.**

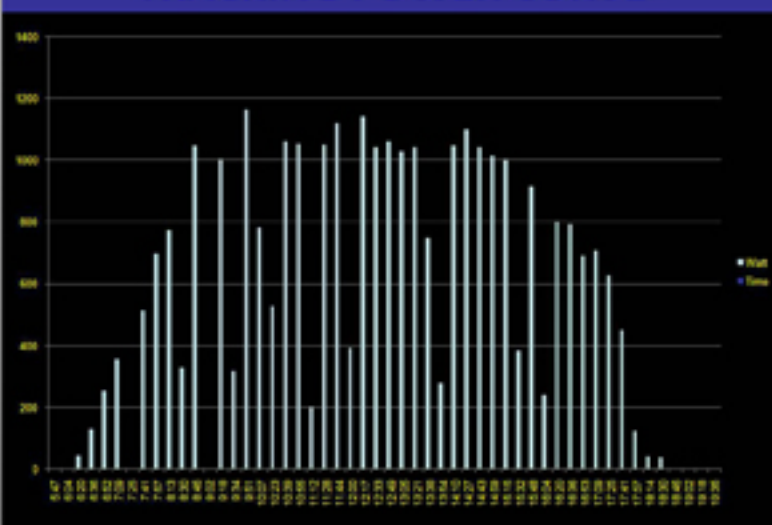
The dual axis tracking system is uniquely designed on sensor based technology avoiding the need for manual programming time to time. The tracking system is capable for  $340^{\circ}$  horizontal rotation and  $70^{\circ}$  vertical rotation movements. These rotation angles are set as per the rotation path of sun for the whole year for various regions of the country ([www.](http://www.)). The whole mechanical structure is designed to survive the wind speed of 60m/s maximum during the cyclones conditions.

The harnessed power from the solar panels is controlled and fed to the inverter along with the batteries in parallel. The inverter converts the DC voltage in to 230V AC, which is fed to load lines of various sections of the department. The batteries connected in circuit stores the excess power which can be utilized during non-solar conditions like early in the morning, late in the evening or at nights. This stored power will also be helpful in monsoon seasons when solar radiation is uneven or not available. We have designed unique auto grid change over device in the system which will take care of uninterrupted power of 230V AC load.

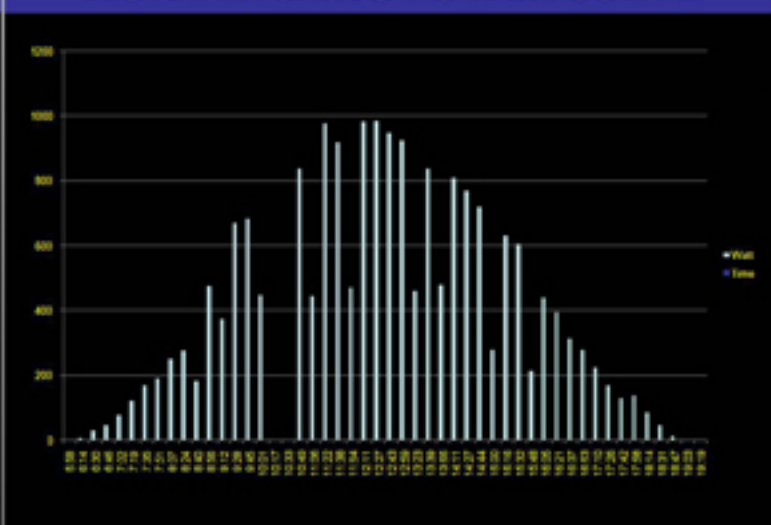
This device has a special feature to direct the solar power at given time to the load, using programmable timer. During crises of solar power the load will automatically switch over to grid power, and as soon as the solar power is available, it will switch over the load again to solar power after 45 minutes. Thus the entire solar power plant is fully automated to achieve the best possible utilization of renewable power to save the conventional power and providing the green power solution.

## Actual Power curve :- Month of June (Cloudy season)

### TRACKING POWER CURVE



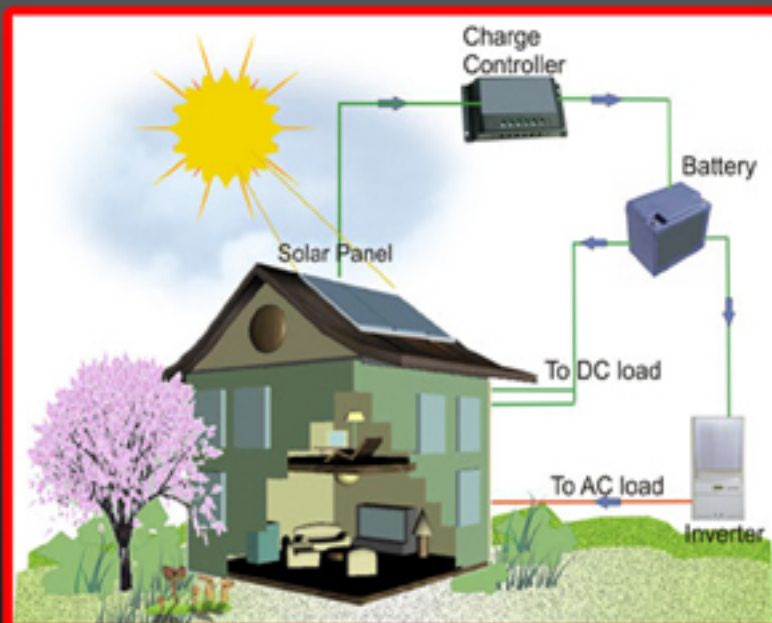
### NON TRACKING POWER CURVE



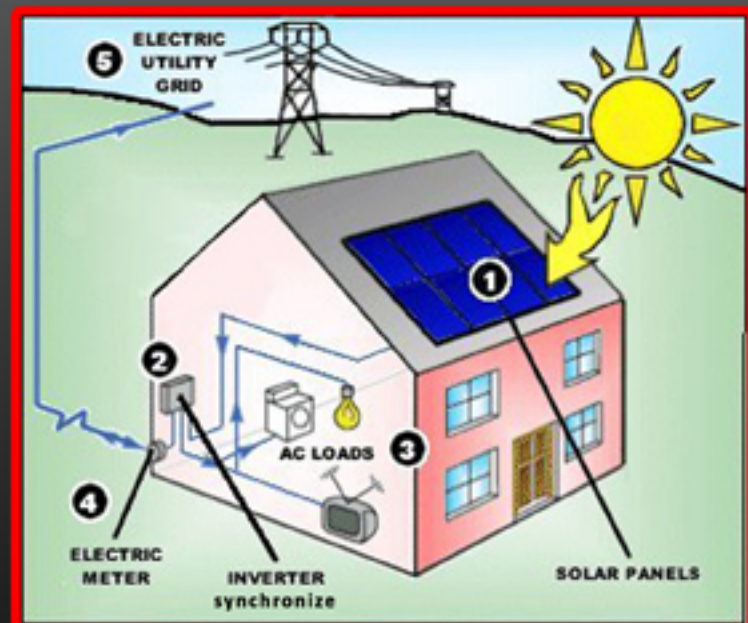
## Application

Dual Axis Auto Solar Tracking system can be apply in Solar OFF grid and ON grid power plants. You can generate more power and store more power two run the load for more hours. (40 to 45% more)

### OFF GRID SOLAR POWER PLANT



### ON GRID SOLAR POWER PLANT

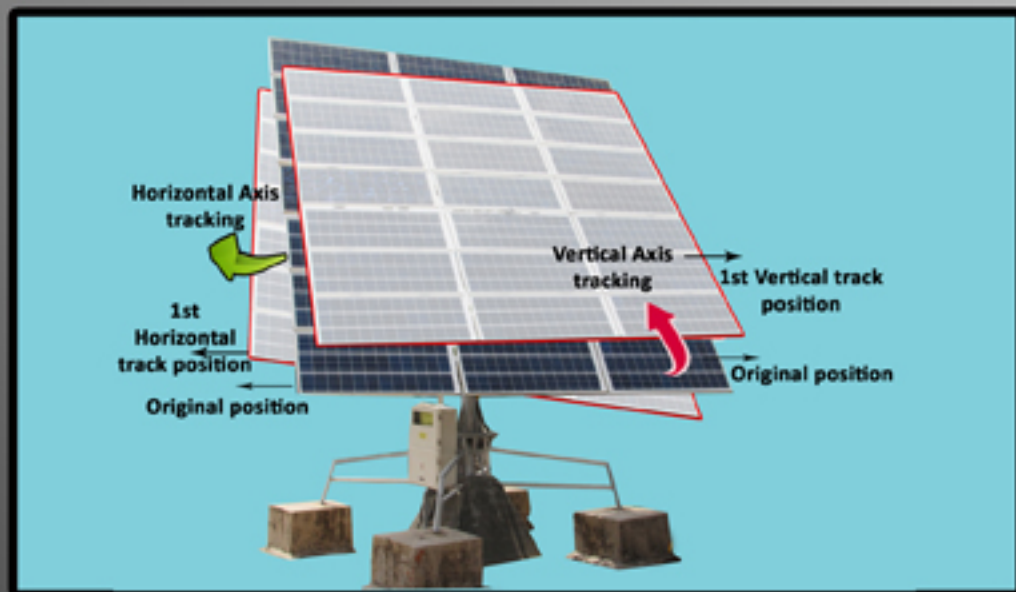


# Supernova's Dual Axis Auto Solar Tracker



## Dual Axis Auto Solar Tracker Features

- (1) Excess power generation of a day due to dual axis solar tracker 40 to 45% maximum
- (2) Horizontal rotation of tracker 340° maximum
- (3) Vertical tilting of tracker 70° maximum
- (4) Tracker system power consumption per day < 5 watt
- (5) Solar panel chasses is expandable
- (6) Tracker base structure capacity is for max 3 KW systems
- (7) Data logger system for continuous data collection of solar panel voltage, Current, temp. and solar radiation
- (8) For Power Monitoring DC energy meter of 4 channel voltage, current 3 channel system
- (9) Auto grid change over system with timer
- (10) Inverter capacity as per design
- (11) Battery back-up



An ISO 9001:2008 certified company



## SUPERNOVA TECHNOLOGIES PVT. LTD.

BUREAU VERITAS  
Certification



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