



# SHREE SHAKTHI SHAMBHAVI™ RENEWABLE ENERGY (P) LTD.

## EXCELLENT AFTER-SALES SERVICE

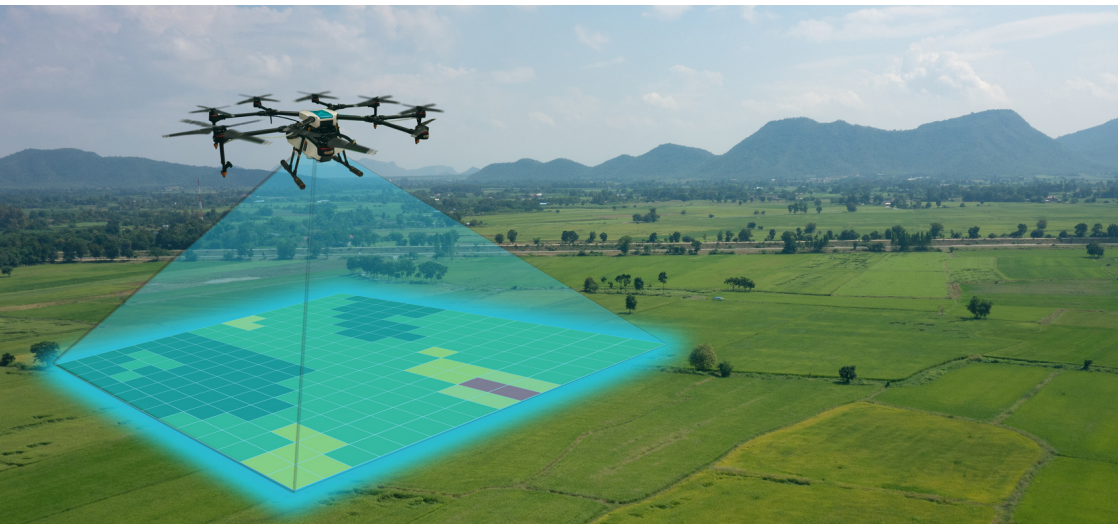
Provide High Quality, Affordable Solar  
and Micro Wind Energy Systems and  
Solutions for Energy Saving Technique.

# REAL-TIME SOLAR PERFORMANCE MONITORING THROUGH IoT AND DRONES

The drone is mounted with both RGB (Red, Green, Blue) and thermal cameras. The proposed system can automatically detect and estimate the exact location of faulty PV modules among hundreds or thousands of PV modules in the power station. In addition, we propose an automatic drone flight path planning algorithm which eliminates the requirement of manual drone control. The system also utilizes an image processing algorithm to process RGB and thermal images for fault detection. Experimental results demonstrate the effectiveness of our solution.

### Features:

- Infra red camera enabled drones.
- High technological solutions for solar system performance.
- Useful where human access is difficult like elevated locations, rooftop, large area captive plants, shopping malls, etc...
- Periodical maintenance of solar panels and its performance monitoring via remote access method.
- Identifying hot spots in PV panels, dirt and black spots, heat and thermal affected areas, thunder and lightning affected spots, etc...
- Color-based segmentation
- Automatic Detection System of Deteriorated PV Modules Using Drone with Thermal Camera
- Dual Camera Setup (Thermal and RGB Camera)
- Abnormal PV Module Detection



# On Grid (Grid Tie) Rooftop Solar System

Exports the excess electricity produced from PV panels to the Grid. The same can be utilized when our demand increases or after sunset from Grid back. Net meter or Gross meter provided by Utility department will be used to calculate Export, Import Power and Net balance available or net balance to pay.

There is no battery in this type.

We are Empanelled Vendor for TANGEDCO and MNRE New Subsidiray Scheme.

Q

So shall we get electricity during power cuts?

A

No, it is for reducing the electricity bill and not a 24 hours power supply – Anti-islanding Protection (IEEE Safety Norms) enabled.

Q

What about rainy and winter season?

A

Although the daily generation of solar system depends on the climate, at the end of the year total i.e generates electricity norms – min 4 units per kW can be achieved



# Off Grid Solar System

Electricity produced from PV Panels will be stored in Batteries (Lead Acid or LiFePo4 Battery packs), the same can be utilized after sunset or in power cut durations.



Power independency?



Yes, 100% power independency possible, 24 x 7, 365 days power will be available.



Recurring investment?



Yes, once in 5 - 8 years for Lead Acid batteries and 8 - 10 years for LiFePo4 Batteries need to replace the poorly performing battery packs. Total production cost for the 15 years between Rs. 2.5 - 3 per kWh.



# Hybrid Rooftop Solar System

Electricity produced from PV Panels will export and at the same time stored in Batteries (Lead Acid or LiFePo4 Battery packs), the same can be utilized after sunset or in power cut durations. But in some of the state governments not permitted this system and off Grid Hybrid only permitted (without export).

The grid tie inverter has following features:

- Solar grid sharing
- Online monitoring
- All data records
- Communication with battery
- Solar battery sharing
- Online firmware update
- Real time power monitoring
- Battery grid sharing
- Online parameter control
- Total generation records
- Without battery can work (some models)
- Power export / no power export / self use – yes on selection



So shall we get electricity during power cuts?



Yes, Produced solar electricity stored in batteries and supports the requirement when solar electricity not available. Excess electricity can be exported to Grid.



# Solar Street Lights Semi Integrated 20W with 24AH LiFePo4 Batteries

Panel Capacity	125 Wp / 165 Wp
Battery ratings	24 Ah, 12.8 V
LED Type	Pure White, 12 V
Light Body	Aluminium Die Casting
Total LED Power	20 W
Pole Height	< 3.5 m
Battery Charging Current	2.0 A to 5.0 A
Battery Type	Lithium Ferrous Phosphate Cylindrical Cells
Effective Lux Power	20 W at 4 m Height as per MNRE Model 1
Panel Warranty	10+15 Years
LED Warranty	3 Years
Battery Warranty	3 Years
IP Rating	65



# Solar Street Lights 30W with 36AH LiFePo4 Batteries

Panel Capacity	125 Wp / 165 Wp
Battery ratings	36 Ah, 12.8 V
LED Type	Pure White, 12 V
Light Body	Aluminium Die Casting
Total LED Power	36 W
Pole Height	< 4.0 m
Battery Charging Current	2.0 A to 5.0 A
Battery Type	Lithium Ferrous Phosphate Cylindrical Cells
Effective Lux Power	20 W at 5 m Height as per MNRE Model 1
Panel Warranty	10+15 Years
LED Warranty	3 Years
Battery Warranty	3 Years
IP Rating	65



# Solar Street Lights 40W with 42AH LiFePo4 Batteries

Panel Capacity	165 Wp / 200 Wp
Battery ratings	42 Ah, 12.8 V
LED Type	Pure White, 12 V
Light Body	Aluminium Die Casting
Total LED Power	40 W
Pole Height	< 4.5 m
Battery Charging Current	2.0 A to 5.0 A
Battery Type	Lithium Ferrous Phosphate Cylindrical Cells
Effective Lux Power	20 W at 5 m Height as per MNRE Model 1
Panel Warranty	10+15 Years
LED Warranty	3 Years
Battery Warranty	3 Years
IP Rating	65





## Solar Street Light – Model: All In One

Panel Capacity	60 Wp / 75 Wp
Battery ratings	24 Ah / 36 Ah, 12.8 V
LED Type	Pure White, 12 V
Light Body	Aluminium Die Casting
Total LED Power	12 W, 24 W, 30 W
Pole Height	< 4.0 m
Battery Charging Current	2.0 A to 5.0 A
Battery Type	Lithium Ferrous Phosphate Cylindrical Cells
Effective Lux Power	120 lm/W
Panel Warranty	10+15 Years
LED Warranty	3 Years
Battery Warranty	3 Years
IP Rating	65



## Solar Powered Container Offices

Mobile work stations with solar power up to 5 to 6 kWp and with 15 to 25 kWh Energy Storage for various multipurpose like – Offices, grain storage stations, rest rooms, dining space, chilling stations, etc



# LiFePo4 Battery Pack

Lithium ion batteries are rechargeable batteries that are characterized by very high power densities. Such batteries have become very common place, for example from everyday electronic products such as cell phones to electric vehicles. What is not commonly appreciated is that voids play a very important role in such batteries. There are four components in a lithium ion cell: anode, cathode, separator, and the nonaqueous electrolyte. Different chemistries are used; the anode is graphite, the cathode is an oxide (LiCoO<sub>2</sub>), and the alternating layers of anode and cathode are separated by a porous polymer separator, which is generally made of polypropylene (PP), polyethylene (PE), or a laminate of PP and PE. In all cases a critical feature of the separator is a controlled amount and uniform size of porosity in the separator.

### Advantages of Lithium-Ion Batteries

- High Energy Density
- Low Self Discharge
- No Requirement for Priming
- Low Maintenance

## Development of Battery Pack of Lithium Phosphate LiFePo<sub>4</sub> Life-2000 Cycles 72 V



# Mobile Solar Generator

Mobile unit on wheel with solar system – AC / DC sources with energy storage up to 15 kWh and more.

Most useful for emergency supply to the location where shutdowns planned and grid is not available or at celebration, party locations, meetings, pumping stations, etc.



# Solar Tree

## Description:

Solar Tree Powered with Customized Photovoltaic Panels and EV Charging Stations for 2 Wheelers, Car.

Hybrid Solar System enabled with integrated PV Power Panels and with LiFePo4 batteries works both with Grid and Solar as Option.

## Product Features:

- Customized Solar Panels
- Chrome Steel structure with fabricated leaf arrangement and LED glow lights. IP 65 Compliance.
- Total Capacity of System: 5 kW / 8 kW / 10 kW / 15 kW.
- Continuous load: 500 W / 1100 W / 2200 W / 3000 W
- LiFePo4 Batteries
- AC Systems / 110 V AC Systems Option



# Solar Powered EV Charging Stations

## Description:

Solar Powered EV Charging Stations with in-built LiFePo4 Batteries and with Hybrid Solar Inverter. It is facilitated with Hi Speed EV charger for multiple cars at a time.

The Chrome Steel / Stainless Steel structure long lasting up to 25 years without much maintenance. Side shutters will keep the car against sunlight and heat.

## Product Features:

- Half cut Solar Panels 6 x 535 or 650 Wp / 10 x 535 or 650 Wp / 12 x 535 or 650 Wp
- Chrome Steel structure with fabricated leaf arrangement and LED glow lights. IP 65 Compliance.
- Total Capacity of System: 5 kW / 8 kW / 10 kW / 15 kW.
- Continuous load: 2200 W / 3000 W
- Energy Storing Device with LiFePo4 Batteries.
- AC Systems / 110 V AC Systems Option.



# Mobile Solar Light Mast

## Description:

The Mobile solar LED Light Tower is a tailored photovoltaic solar powered battery system with an extendable and retractable mast, atop with LED lights.

With no noise from gas or diesel generators and no scheduled maintenance or fuel cost, this system can provide a quick return on Investment.

The solar system, mast and LED lights are portable. They are built on a wheeled trailer with battery system and LED lighting system directly connected together. The mast is constructed from aluminum extendable up to 7.5m by a mechanical hand crank.

## Product Features:

- 3 x 400 Wp / 6 x 400 Wp Solar Panels DC 24 V System / 36 V DC System / 230 V
- Total Capacity of Solar System: 1200 W / 2400 W AC Systems / 110 V AC Systems
- Continuous load: 500 W / 1200 W / 1600 W
- 3 x 200 Ah / 6 x 150 Ah / 6 x 200 Ah GEL
- Batteries (option LiFePo4 Batteries)
- 4 x 60 W / 4x 100 W LED Lights
- 6 to 9 m manual / Hydraulic Mast.
- Single Axis Solar Light tower

## Tech Specs:

### Tower Dimensions

- Length: 4040 mm
- Width: 1750 mm
- Weight 1280 kg



### Trailer Details

- Trailer Type: Single Axis
- Mast Raise : Manual / Electric / Tyre
- Rim size: 18" / 16" Hydraulic
- Width: 1750 mm
- Weight 1280 kg
- Stabilizer Support: 4 x manual
- Drawbar: A frame
- Tow Hitch: 50 mm Ball / 70 mm ring
- Working Temp: (-) 15 to 60 deg C

### Lighting Fixtures

- Type of Lights: LED Focus
- Lamp Wattage: 100 x 4
- Working life Time: 5000 hrs



# Solar System for Labour Camp

## Description:

5 kVA Solar Labour camp system designed for a backup time of 14-15 hours with charging time of 12 hours for average connected load of 1 kW.

## System Includes:

- 330 watt solar PV modules: 08 no's
- 200 Ah solar deep cycle batteries: 10 no's
- 5 kVA Solar hybrid inverter with inbuilt charge controller: 01 no's
- AC Energy meter: 01 no's
- Mounting structure interconnecting

## Advantages:

- This system would save fuel of cost 5,20,000 INR for a period of 36 month(Project Time Frame) in a single camp
- Life Time of this system will be around 20 years which helps you to use the same system at 5-6 sites consecutively one after another with negligible maintenance cost.
- Incase of sever cloudy climate there is provision to charge the batteries through external power supply
- Where there is no possible for EB connection this can be served the purpose

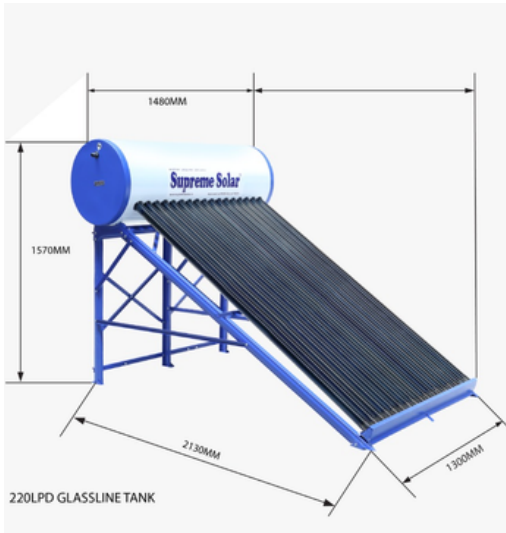




# Solar Water Heater

Glass Lined ETC Type Solar Water Heaters:

- Better performance on winter and cloudy days.
- No Scale formation & No Pipe blockage even in salty and hard water.
- High density compressed PUF insulated storage tank to retain the hot water upto 72 hours.
- Inner tank made of high grade materials used in marine applications.
- Estimated life over 10 years
- 2 kW back up heater with thermostat option.
- Tank volume 100 to 500 LPD



# Containerised energy storage device - ESS



## Solar Work Stations & Park



## Solar Power Bank – Ananda Bhairavi

Capacity: 1100 VA to 3500 VA



# SSS Solar - 12W-LED AC / DC Inverter LED

## Electrical Specification

1. Battery Rating 3.7 V DC 2600 Ah
2. Battery Input Current Less Than 0.8 A @ 14.8 V DC Input
3. Low Bat. Cut Off Between 12.2 To 12.5 V DC
4. Battery Reverse Protection Yes
5. Led Driver Rating 35 V DC @ 0.4 A Max
6. Back Up 1-2 Hours

## Optical Specifications

1. Led Power 12 W Cool White
2. Total Light Output 1100-1400 Lumens
3. Luminaire Efficiency 110 Lumens Per Watt
4. Effective Lux Output >10 lx @ 10 Feet
5. Led Life 35,000 Hours As Per Manufacturer Test Data
6. Light Source Philips/Lumiled 3535 Series 1 W LED
7. Color Temperature Warm White: 5000 k – 7000 k



# SSS Solar - 12W-LED AC

## Electrical Specification

1. Input Voltage 230-245 AC
2. Led Driver Rating 35 V DC @ 0.4 A Max

## Optical Specifications

1. Led Power 12 W Cool White
2. Total Light Output 1100-1400 Lumens
3. Luminaire Efficiency 110 Lumens Per Watt
4. Effective Lux Output >10 lx @ 10 Feet
5. Led Life 35,000 Hours As Per Manufacturer Test Data
6. Light Source Philips/Lumiled 3535 Series 1 W LED
7. Color Temperature Warm White: 6400 k



The background of the image is a nighttime scene. A bright street lamp is visible in the center, casting a glow. In the foreground, there is a white fence with a brick-like pattern. The sky is dark, and there are some trees and foliage visible on the right side. The overall atmosphere is dark and moody.

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