

# Solar Hybrid Power Plants

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GreenSol's Solar PV Solutions are ideal for powering remote areas where there are limited or no grid access. The power plant is comprised of solar PV modules, a battery bank and a power conditioning unit. The solar modules convert sunlight into energy and supply the dedicated load through a power conditioning unit. This unit in turn converts DC to pure 230V/415AC which is used to charge the battery bank.

The PCU is bidirectional and has a grid import/export function. The battery will support the dedicated loads during night time. Instances where the battery is low and energy is also not available, the PCU will work as a charger to charge the battery directly from grid power by feeding the loads simultaneously. The unit is capable of operating in standalone mode without any disruption in power flow when sunlight is not available for the number of days as stated in the design.

## Salient Features

- 24/7 power reliability
- Allows monitoring and management via GSM/GPRS/Internet connection
- Features intelligent logic for optimum control of battery self-consumption, feed-in and storage of solar energy
- Secure supply in case of grid power outage
- Short-term payback period
- Capability and Low maintenance

## Benifits

- Energy-saving
- Reduces fossil fuel consumption
- Carbon footprint size reduction
- Emission-less power production
- One-time investment

## Application

- Banks and ATMs
- Petrol pump stations
- Hospitals and Hotels
- NGOs
- Village Electrification
- Government Buildings and educational institutions

## Model

## GSSPP1 - GSSPP100 (1 to 100kWp)

Solar Capacity	Please ask for System Configuration Details
Solar Module	Highly Efficient Modules with IEC and UL Certification
Array Junction Box	With IP65 Dust, Water and Vermin proof and reverse blocking diode in each strings and MOV at the outputs for Lightning and Surge Protection
Module Mounting Structure	Galvanized steel structures with optimum tilt angle for the given site
Wind Speed	As per site requirement
PCU Output Voltage and Frequency	230/415V $\pm$ 3%, 50Hz $\pm$ 1% Hz
Out Wave form and Distortion THD	Pure sine wave and THD <3% on linear load
Line and Load Regulation	< 3%
Self Consumption	Automatic load shutdown under no load condition with sleep mode function
OverLoad Capability	150% for 30 seconds
Protections	Overload, Short Circuit, Battery Low/High and Over Current & Surge
Battery Type	Tubular Lead Acid/VRLA GEL Type
Self discharge	< 3% per month at 27°C
Battery Racks and Container	Battery stands and containers shall be provided as required
DC Distribution Panel	Suitable rating MCB/MCCB shall be provided in the Battery path for Isolation
AC Distribution Panel	Multiple feeders through MCB's and energy meter to measure the electrical consumption of the loads & automatic overload limit switch
Load Limiter	0-2000 Watts programmable
Plant Monitoring (Optional)	Monitoring and management via GSM/GPRS/Internet connection and data analysis
Cables	Copper conductor with UV resistant for outdoor cables
Installation Materials	Shall be of high quality and sufficient to complete the installation at site
Earthing Protection	All the array structure and equipment in the system shall be grounded using super earthing kit in order to get very low resistance path
Lightning Protection	Adequate lightning protection shall be provided
Operating Temperature	-10° to +55° C
Humidity	Up to 90% RH

### Note:

- 1) The above mentioned models are of standard systems and other ratings are available on request
- 2) The above system configuration is designed considering annual average sunshine/day of 5.0kWh/mm/day (it may vary depending on the locations as the temperature varies the system performance may vary slightly)
- 3) The battery bank is designed for C10 Capacity and 80% DOD cycle
- 4) Backup time and autonomy may change based on actual usage
- 5) All measurements and warranty/guarantee applicability under Standard Test Conditions based on OEM guarantee/warranty