

Self-Consumption System

Sirsi, Karnataka, India



The Challenge

India is the third largest electricity producer & consumer in the world, after USA & China. Even so, over hundreds of millions of people are not connected to the electrical grid. The Indian national grids are experiencing difficulties with frequent power outages and perhaps as much as 1/4 of the generated energy lost during transmission or stolen.



Popular solar

The state Karnataka, situated in the south of India, is actively trying to change this situation by encouraging individuals, societies, institutions and companies to install grid-connected rooftop solar units; in first hand to make people self-sufficient in electrical power and in second hand to inject any surplus into the local grid paid by net-metering. With 300 sunny days a year, Karnataka has 10 gigawatts of solar energy potential. If all goes according to plan, rooftops alone will contribute with 400 megawatts by 2018.

System components

Solar modules:	Tata Power Solar, 5 kWp
Batteries:	Okaya Power, 4x 12V 150 Ah/48V
Inverter/Chargers:	Studer, 3 Xtender, XTM 2600-48, 230 Vac/50Hz
Solar charge controller:	Studer, 1 VarioTrack, VT-80
Racking:	Roof mounted
Other:	20 kW grid-tied inverter 15 kWp PV panels connected to the grid-tied inverter Tata Power Solar, 15 kWp PV panels connected to the grid-tied

The Solution

This car show room and service centre initially had an on-grid system, which was completely unsuccessful due to regular power cuts during the daytime. During power outages, they had to rely on a diesel generator for backup. The energy was mainly used to power pneumatic jacks, compressors and other basic utilities.

By taking 5 kWp of the existing PV panels and adding 3 inverter/chargers, one MPPT solar charge controller and 150 Ah batteries , they now have converted their pure on-grid

system into an AC-coupled self-consumption system with grid-feeding.

With the new PV system they are not only self-sufficient but they can also inject electricity into the grid making money. This solution gives them access to uninterrupted power and good surge handling when using big loads such as a pneumatic jack

Why Studer

Studer products were chosen for this system as they are reliable and have a good surge handling capacity. They are also capable of sending the excess electrical power back to the grid and credits are given from main power supply unit for excess power generated.

Project outcome

With the new system, there is less need to run a diesel generator. The owner of the car show room has been able to inject approximately 30% of the generated energy back into the grid, especially energy generated during lunch hours and holidays. Furthermore, he is no longer exposed to the frequent power outages as he has his own independent energy system.

The Company

Arundati Motors, Car showroom system was installed by Popular solar, cell no +91-9448142815, popularsolargh@gmail.com

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