

1000 KW Solar PV-Diesel Hybrid Power Plant for SRG Apparels, Tirupur

Project Description

The Rs 13,000-crore knitwear industry at Tirupur in Tamil Nadu is faced with a peculiar problem. The export-based industry has been witnessing an uptick in enquiries and orders, but it is unable to accept all orders. Reason: unprecedented power cuts lasting eight to 10 hours a day.

With the industry reeling under frequent power cuts, mostly unscheduled, almost all units have been forced to run on gen-sets. This is a costly proposition for companies, because gen-set power costs Rs 18-19 for a unit, compared with the grid's Rs 6.50, industry sources said. Some units that could not afford to hire or buy gen-sets have downed shutters, they added.

WAAREE Energies Ltd. has provided a novel solution to the power deficit issue by setting up a 1.1 MWp DC Solar Photovoltaic (PV) – Diesel Hybrid Power Plant, for M/s. SRG Apparels, project site at Tirupur, Tamil Nadu. The Roof Top Solar Photovoltaic Power (SPV) Plant commissioned in December 2013 would generate approx. 1.55 million units of energy annually. 3870 PV modules of WAAREE Make WS-290WP capacity were installed on the rooftop of the solar project developer's existing textile plant.

46 string SMA string inverters of 20KW capacity were installed to convert DC power, from the PV source, to AC power. The stepped-up AC power was then connected to the incoming 22KV grid of TANGEDCO. The PV source were combined with the existing 3 diesel generator (DG) Sets of 500KVA each, using SMA's Fuel Save Controller, to meet the textile plant's connected load requirements during the day time. The system was installed under the REC mechanism with captive use.

Project Benefits

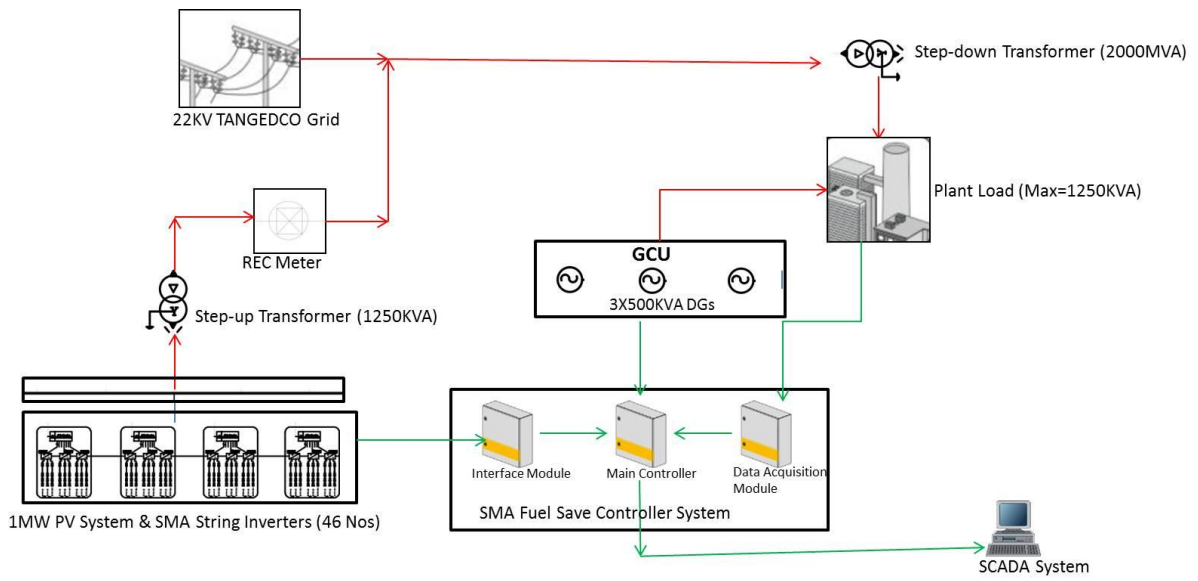
A Solar PV-Diesel Hybrid System combines the power output of PV arrays and the diesel generators. The control system draws power in such a way that it maximizes the load on PV and minimizes on Diesel Generators. If there are multiple generators and there is sufficient power from PV, it shuts off some of the generators completely to minimize fuel consumption. The fuel save controller houses an intelligent energy management system.

Fuel Save Controller (FSC) is a key component of the proposed SPV plant. As the link between the DG sets, the PV system and the plant load, FSC will take on all the demand-based control of PV Feed-in, depending on the load and generation profiles. FSC meets comprehensive grid management functions within the integrated system. Notably, hybrid systems can be expanded on a modular basis at any time and provide reliable system control through remote monitoring.

A 1MW hybrid system not only delivers maximum reliability but also saves more than 450,000 Litres of diesel being burnt every year and cuts CO2 emission by 1,500 tonnes/year. Further it saves the entire planet from 1.5 e -6 °C rise in temperature.

Based on the projected revenue from REC credits, savings on fuel purchase for the DG Sets and savings on electricity purchase from the grid, estimated payback period for this project is 2.6years and estimated ROI is 34%.

System Architecture



WAAREE®