Drives and motors

ABB solar inverters cut installation costs for fashion house

David Nieper Ltd, is a manufacturer of high quality women's clothing, based in Derbyshire, UK. The company wanted to meet more of its own energy demand by using a solar power installation to generate electricity.

To carry out the project, the company approached Greenheart Energy, one of the UK's leading system integrators for renewable energy projects.

First installation for ABB string inverter

Greenheart Energy designed a system that uses 50 kW peak, roof mounted solar panels. These are the highest powers that qualify for the government's feed-in tariff scheme. The installation uses six, 8 kW ABB PVS300 string inverters. Four were mounted on one roof with another two mounted on a nearby roof. The six inverters each have three strings of solar panels, with 15 panels per string.

The project is the first in the UK to use the ABB PVS300 string inverter. ABB supplied all the components required for the installation, including the AC distribution board, the mains isolator, meter and distribution miniature circuit breakers (MCBs).

Integrated components cut costs

David Eyre, a director of Greenheart Energy, says: "We chose the ABB PVS300 string inverters as a cost-effective device that offers far more integrated components, such as isolator and surge protection, than other competing inverters. This makes the string inverters easier and quicker to install as there are no separate, external components to wire up. We estimate they can reduce installation time by as much as 15 percent compared to a similar sized solar power system. Using ABB means that all the peripherals are in one neat package, so we do not have to deal with multiple suppliers."

One of the major advantages of the ABB PVS300 is its high 900 V input compared to comparable inverters which are limited to 600 V input. The high maximum DC voltage allows more photovoltaic modules to be connected in series, which results in higher string power for the same current. This helps to reduce cabling power losses and also cabling size and cost.

Complete solution for solar power

The use of internal components for protection and isolation makes the ABB PVS300 a complete solution for solar power installations. Surge protection for lightning strikes is not offered by competitors' units and although not mandatory at present, may become so in the future. One important feature is the interlock mechanism, which means that the DC isolator switch must be open before the inverter's cover can be removed.

The fuse monitoring function of the inverter proved itself useful when the installation was switched on for the first time. One of the fuses in the strings had failed. Alerted by the inverter, the installation team quickly identified the fuse and replaced it within minutes.

Says Eyre: "The ABB PVS300 inverters offer excellent reliability and high efficiency as they have no need for a

transformer. We are also committed to using market leading components in our installations. ABB is a strong brand and is a long standing supplier of switchgear and drives. Partnering with ABB ticks all our boxes."

Challenge

- Install roof mounted solar power system to provide electricity for fashion house.

Solution

- Six, 8 kW ABB PVS300 string inverters are used. The six inverters each have three strings of solar panels, with 15 panels per string.
- ABB supplied all the components required for the installation, including the AC distribution board, the mains isolator, meter and distribution miniature circuit breakers (MCBs).

Benefits

- Integrated protection components make the ABB inverters quick and easy to install
- Cuts 15 percent off installation time compared to a similar sized solar power system
- High DC input voltage allows more photovoltaic modules to be connected in series, which results in higher string power for the same current. Helps reduce cabling power losses and also cabling size and cost.
- High reliability and high efficiency as they have no need for a transformer.

For more information please contact:

ABB Limited
Daresbury Park
Daresbury
Warrington
Cheshire
WA4 4BT
Tel: +44 (0) 1925 741 111
Fax: +44 (0) 1925 741 212

www.abb.co.uk/energy

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