

ISLE OF EIGG SCOTLAND



4 KS 25P

212kWh off-grid PV system



Rolls
BATTERY ENGINEERING

In February 2018, residents of the Isle of Eigg will celebrate 10 years with reliable, 24 hour a day electricity, completely powered by renewable energy. The second largest of the small isles off the Western Coast of Scotland, Eigg boasts a wide variety of coastal scenery, ranging from beaches and spectacular cliffs, to historic caves. With no connection to the country's main electric grid, the island's inhabitants had relied solely on diesel generators to supply essential power. Now they boast one of the greenest and most advanced micogrid systems.

On 1st February 2008, the tiny Scottish island was connected to it's own main electricity supply for the first time. The £1.5m power station combines wind, solar & hydro-generated power, dubbed "Eiggtricity", ensuring reliable electricity. Power is generated via a 9.9kWp solar PV system, three hydro generation systems (6 kW, 6 kW & 100 kW) and a 24 kW wind farm consisting of four 6kW wind turbines. The battery bank and standby diesel generator guarantee continuous availability of power for the island's 87 residents.

Once completed, the entire system was handed over to Eigg's own electricity company 'Eigg Electric', a group formed of local residents responsible for operation and maintenance.

Various renewable energy sources have been installed around the island in locations best-suited to their application. Wind turbines at the southern end of the island take advantage of the best wind exposure and hydro stations are located at the base of the island's mountain range.

Solar panels supply DC power to twelve **SMA Sunny Island SI-5048 5kW inverters** connected in four three phase clusters to give a total output rating of 60kW. Each of the four clusters is connected to a 48V battery bank **[2700 Ah (C20)]** consisting of 24 **Rolls 4 volt 4 KS 25P** batteries, totaling **10,800 AH (C20)** storage capacity (approx. 212kWh to 50% DOD.) Grid electricity connects every property on the island. Households are limited to 5kW usage and businesses are limited to 10kW. Electricity is purchased using pre-payment cards and each property has a wireless energy monitoring system to gauge usage.

To meet the growing population and demand, an additional 22 kWp solar PV array was added in April 2011 to increase power generation over the summer months.

