CONTROL TECHNIQUES™

GREEN DRIVES CRUCIAL TO GREEN PROJECT

CUSTOMER PROFILE

Beacon Energy is a non-profit-making organisation that promotes public awareness of global warming and encourages the reduction of CO2 emissions.

THE CHALLENGE

By successfully controlling and linking several interlinked renewable energy sources at West Beacon Farm, Beacon Energy is able to be virtually independent from the national grid. When the company was developing the integrated system, it searched the market for high-performing drives.

THE SOLUTION

Nidec supplied 14 drives fitted with a programmable application module to give on-board programming and CT-Net high-speed networking for data collection and diagnostics. Data is fed into a PC running LabView, which interfaces with CT-Net and monitors every aspect of the system to analyse the effectiveness of each technology.

One 37kW Unidrive works in four-quadrant mode and is the only link to the mains electricity supply. It has two main functions: to maintain DC voltage in the grid and export excess generated power back to the grid. Two wind turbines drive 25 kW / 415 V three-phase induction generators that feed power to the DC bus via 30 kW Unidrive AC drives. Four solar arrays contribute 6 kW at 120 volts and the Totem combined heat and power rig adds another 15 kW via a Unidrive SP, as well as providing 38 kW of heating for the farm house.

A reverse osmosis (RO) rig filters rainwater for the house and electrolyser, and is supplied by a pump driven by a 1.5 kW Unidrive SP. A 5 kW Unidrive SP controls the compressor pump that increases the hydrogen pressure from 25 to 137 Bar for storage. Two 12 kW Unidrive SPs supply both the single-phase supply to the farm house and the three-phase supply to the farm machinery. Unidrives also control pumps for the water supplies, the hanger and the fire prevention system, and further drives provide power for the winch and the heat pump.

THE BENEFITS

Control Techniques drives were able to provide everything required by the client, as Matthew Little, Loughborough University PHD research student who was involved in the project, said, “We needed drives with a particular mix of features – on-board programming, high speed communications, four-quadrant control – and a supplier who would provide us with exceptional support”.

KEY BENEFITS

- ON-BOARD PROGRAMMING
- HIGH SPEED COMMUNICATIONS
- FOUR-QUADRANT CONTROL
- EXCEPTIONAL SUPPORT

Nidec
All for dreams

Connect with us at:

www.controltechniques.com

Nidec All for dreams | CONTROL TECHNIQUES™

Nidec Control Techniques Limited. Registered Office: The Gro, Newtown, Powys SY16 3BE. Registered in England and Wales. Company Reg. No. 01236886.