



A NEW REVENUE STREAM FOR LISTER HOSPITAL

The National Grid is willing to pay organisations to use less electricity at times when it is struggling to meet peak demand. Larger organisations can earn up to £100,000 per year by participating in the Grid's 'demand response' programme, whereby they switch to their on-site generators at peak times, and cut back on non-essential power. From an environmental point of view, demand response means that the UK doesn't have to use expensive and 'dirty' part-loaded coal-fired power stations as often as it would otherwise.

One organisation now benefiting from demand response is East and North Hertfordshire NHS Trust. The facilities managers at Lister Hospital, a large acute hospital in its local area, recently set about upgrading their high voltage electricity network. To ensure that the hospital would have a completely reliable standby power solution in the event of a power failure, they wanted to install new on-site generators and a duplicate electricity feed into the hospital's ring main. The generators would also enable the hospital to take part in demand response programmes, which it understood would help it to save on utility bills and create a new revenue stream.

ENTER THE AGGREGATOR

As the network upgrade project neared completion, an external consultant for the NHS Trust evaluated several 'aggregators' and selected KiWi Power to provide a full turnkey demand response solution at the hospital.

To begin with, KiWi Power's engineers visited the site to meet with the facilities and operations staff and to assess existing systems. Following an initial kick-off meeting, they created a full project management plan, installation risk management and method statement for the installation phase.

KiWi Power installed four new 2MVA, LV diesel generators, which provide full backup for the new 5MVA, duplicate 11kV feed from UK Power Networks. It also implemented a system for controlling these generators remotely from its control centre in London, and integrated this with the hospital's SCADA (supervisory control and data acquisition) and programmable logic controller systems. KiWi Power can now monitor the status of all four generators at all times and inform the hospital's facilities managers as soon as any problems arise.

KiWi Power integrated smart meters into the hospital's existing control systems. These tell the National Grid how much electricity the hospital uses every minute, which is a requirement for organisations taking part in demand response programmes. KiWi Power can use past data collected by the meters to predict when the next periods of maximum demand for electricity will fall, and automatically switches the hospital to standby generator power at these times, exporting the electrical load onto the local UK Power Networks distribution network. In using less power during peak times, the hospital can achieve even greater savings on its utility bills.

The generators will also create a revenue stream for the hospital: they will supply a surplus amount of electricity that the hospital can export back to the grid.

CUTTING COSTS, INCREASING REVENUE

By investing in its electrical systems upgrade, which also includes a new combined heat and power plant, Lister Hospital now has new and efficient electricity services. The site is expected to generate more than £100,000 a year in revenue from taking part in the demand response programme and avoiding peak tariffs. The hospital takes no financial risks in achieving this: it has incurred no upfront costs in taking part in the demand response programme, and will not have to pay any out of pocket penalties if it ever fails to switch to its generators at peak times.



Now that KiWi Power manages the process of resilience-testing the generators, Lister Hospital can operate within the demand response programme and ensure that all the systems it uses are fully functional and fit for the scheme.

Lister Hospital's export capacity is now 4.5MW, which it can deliver via four Perkins, 2MVA, LV diesel generators and via surplus power from the 1.4MVA combined heat and power plant.

Dean Goodrum, East and North Hertfordshire NHS Trust's head of estates and facilities, said, "I have worked with KiWi Power over a three-month period and during that time they have progressed well with both the work required and in accordance with the milestones agreed at the start of this project. I have been very impressed with their technical ability and attention to detail. All in all this has been a prime example of partnership working."

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