



Project Location:
Rugby, Warwickshire

Project Timescale:
2017 – 2019

Project Contract Value:
£702,654

Type of work:
Building a Smart Grid on
Stepnell Park (Solar panels
and HV/LV Infrastructure)

Summary

In late 2019, EvoEnergy completed the full installation of a Smart Grid for Stepnell Park at their new £8 million business park site in Rugby.

The site which comprises of the construction of ten new small scale commercial warehouse or trade counter style buildings ranging from approximately 5,000 to 26,000 sq ft footprints. EvoEnergy has played a significant part in phase one by designing the Smart Grid power supply for the site as well as installing microgeneration. Will also be working with Stepnell for the next two phases. Two of the ten units from this phase have had a total of 220kWp of solar PV installed on the roof.

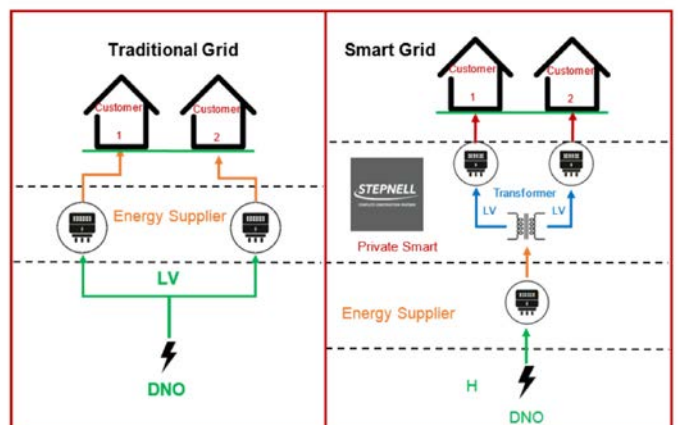
The innovative Smart Grid works by supplying electricity to each unit’s landlord distribution board from the close coupled distribution board. The landlord’s distribution board then feeds the tenants distribution board, and ultimately this is where the tenant gets billed. It allows Stepnell Park to retain more control over the electricity grid, whilst providing a reliable source of income.

Best Practice

At Stepnell Park this Smart Grid will significantly change the way in which electricity is distributed within the development. Traditionally, the developer would pay the electricity company a significant sum of money to install the electrical infrastructure, which would then allow the electrical company to operate and to benefit from the charges that it could levy the users within the development. However, at Stepnell Park the private wire network sees Stepnell retain this investment and allows them to operate and benefit in a similar manner to the electrical company.

The Smart Grid ensures a consistent supply of power is delivered to the site and the tenants. With the addition of batteries in the future, power outages and power disruptions can be mitigated against. This will contribute towards the achievement of a carbon neutral status, exceeding government targets.

A great deal of time and expertise was taken to model energy flows, generation profiles, future energy prices and equipment maintenance schedules, modelled using a Monte Carlo scenario situational analysis tool. The project itself was difficult to configure as it facilitates the transfer of lots of energy flows to various locations within the site which needed to be monitored and captured to provide billing. The Smart Grid was designed with potential extension capability in mind and so, the landlord’s distribution board was designed with capacity for the future installation of more Solar PV, Electrical Vehicle charging points and Battery Energy Storage.



Added Value

The Smart Grid uses a bespoke software to collect energy data from the different buildings located on the site, including the energy generated from each of the buildings, the usage and the carbon which is offset. This is displayed on a user-friendly dashboard for operators to monitor on a day to day basis, allowing for more transparency and closer monitoring of the Smart Grid and its tenants. This knowledge and extra flexibility, enhances the possibilities of installing further green energy sources and storage technologies with a greater range of uses on the network.

The Smart Grid also has the capacity for EV charging points and large batteries to be installed at a later date. This provides an opportunity for more providers to get involved with the

development of this project in the future, which could therefore create additional contract and employment opportunities for people in the industry.

The benefit of the Smart Grid is shared by many stakeholders associated with the project. As shown by the diagram below, the sustainable energy centre created by EvoEnergy not only helps Stepnell to develop a reliable source of income and retain more control from the grid but also allows them and their tenants to reduce their impact on the environment. The energy stored in the battery allows for the demand to be shifted from peak to off-peak periods. This puts less strain on the grid during peak times as the energy demand is fulfilled from multiple different sources.

EvoEnergy's Sustainable Energy Centre

