



Public sector's transition to a low carbon economy

Robert Hughes, business development director for the Virtue energy storage solution, explains how integrating energy storage into a smart, flexible energy system can benefit public sector organisations, driving the transition to a low carbon economy...

Rapid advances in technology are driving the transition from a progressively outdated traditional model of energy transmission, that is powered by fossil fuels and large thermal power stations, to an up-to-date energy landscape, capable of providing secure and reliable electricity. This future grid outlook presents opportunities to harness the potential of renewable energy sources on a domestic, local and national level.

The pitfalls associated with the current energy network are inflexibility that fails to meet demand, insecure supplies and pollution, all of which could be

negated through the correct implementation of a smart energy system.

The successful evolution into a smart energy system and, ultimately, a Smart City infrastructure, will be driven by energy storage, Demand Side Response (DSR) and increasing the renewable proportion of the energy mix.

Energy storage in particular is currently gaining traction towards a greater uptake throughout the world. As its name suggests, the technology works by storing the energy provided by the National Grid, or directly from

renewable sources, for use at a time when demand is highest, in addition to offering responsive power generation with clean, secure and reliable electricity.

The adoption of energy storage will be determined by a clear education surrounding the benefits that energy storage can deliver as a long-term solution to a problem, opposed to simply being another clean energy technology, implemented to achieve a short-term goal.

Benefits of energy storage for the public sector

There are currently significant charges placed on public buildings

which consume a significant amount of National Grid electricity at high demand periods.

Unfortunately, these tariffs are unavoidable, as each Distribution Network Operator has a local monopoly on the supply of electricity and the charges can account for as much as 15% of a local council's energy costs.

However, by controlling supply through an energy storage solution, all public buildings that are charged for consuming National Grid energy at periods of high tariffs can be supplied with electricity from an energy storage system to negate additional costs.

There is also the opportunity for storage solutions to generate revenue for the public sector by supporting National Grid capacity through DSR schemes, which are provided for any method of assisting reserve, response, avoidance or capacity on the electricity network. Supporting grid capacity through DSR using energy storage can be significantly cheaper than maintaining electricity use through periods of high demand hours.

What's more, unlike diesel generators and CHP units, energy storage systems have the ability to be connected to the National Grid, allowing instant electricity discharge. As a result, the technology will ensure all businesses successfully respond to at least 95% of all DSR demands.

In addition to the direct benefits that energy storage solutions offer the public sector, the Smart City idea conceptualises how cities of the future will incorporate technological developments into smart social infrastructure.

Smart living allows greater connectivity and local energy management to create environmentally sustainable urban development, a key initiative for the public sector.

Future developments for energy storage

While the spotlight remains on the storing of energy, it is important to acknowledge the other applications that can further the uptake and benefits of storage solutions. One example of this is the ability to deliver sustainable, feasible and economical rapid/fast Electric Vehicle (EV) charging to the public sector.

Through the integration of energy storage, renewable generation and rapid EV charging, there is an opportunity for a hybrid development that can deliver carbon reductions and a solution to the range anxiety posed by EV, while maintaining the UPS and revenue benefits of a standalone energy storage system.

Energy storage based electric vehicle chargers also increase the green credentials of cities and users throughout, an important factor as the Government aims to reduce carbon emissions by at least 80% from 1990 levels by 2050.

Chancellor Phillip Hammond recently announced the Government's support for the use of electric vehicles in the Autumn Statement, setting aside £390m to aid the electric vehicle infrastructure network across towns and cities.

It is evident that, with Government backing and private investment, there will be a larger electric vehicle network within the UK in the years to come.