

# London pioneers first 'virtual power station'

- Ground-breaking battery trial which pays households to store energy to power the grid during peak demand to be rolled out further
- smart battery trial in capital is already reducing bills – and cutting carbon emissions from electricity by around 20% for average households
- home batteries help electricity network companies avoid digging up the streets of the capital to replace electricity cables

A revolutionary trial to use household batteries to help support the electricity grid in London is being rolled out further to help deal with peaks in winter demand and reduce carbon emissions in the capital.

An initial trial by UK Power Networks (UKPN) paid 45 households to store energy in batteries in their homes, which the network operator drew on in times of need. It was so successful that it reduced household evening peak electricity demand by 60% and helped cut carbon emissions from electricity by 20% for average households.

The home batteries allow consumers to buy electricity when it's cheapest and store it for use when grid prices are more expensive, helping lower household electricity bills.

Now the government-backed company behind the battery system, Powervault, is rolling the scheme out as part of a second commercial contract in south London. The scheme in St Helier will help further improve flexibility in the electricity network.

Energy and Clean Growth Minister Kwasi Kwarteng said:

The UK has already cut emissions by almost 45% since 1990, while growing our economy by more than 3 quarters. This cutting-edge battery technology, being made right here in London, will help create a smarter, cleaner energy system for the UK.

These smart batteries are part of the UK's green revolution, with the government investing more than £3 billion in low carbon innovation, as we aim to end our contribution to climate change entirely by 2050.

Powervault is working with energy suppliers and electricity network operators to reduce dependency on fossil fuels by shifting energy demand away from peak times. This flexibility helps enable the roll-out of electric vehicles and accelerates the UK's transition to a decentralised low-carbon energy network.

The batteries use Artificial Intelligence to optimise home electricity use,

meaning they could help reduce or avoid digging up and replacing cables entirely. They can store self-generated clean energy from solar panels, which households can sell back to energy companies using new export tariffs. On top of this, they allow owners to get paid for storing renewable energy from the grid when there's an excess of generation.

An Imperial College study estimates that greater electricity system flexibility, for example through using batteries, could save the UK between £17 billion and £40 billion by 2050. Powervault has already sold its batteries into hundreds of UK homes and is in discussions with Renault about rolling out the system across Europe.

Chief Executive of Powervault, Joe Warren, said:

Home energy storage is essential if we are to reduce our net carbon emissions to zero. Our vision is that Powervault will become as commonplace as a washing machine or dishwasher, allowing clean, zero carbon energy to be stored in the home for when it is needed most and allowing home energy use to be optimised.

In this way we can make the grid more resilient, allowing more electric vehicles and heating systems to be installed, and reducing carbon emissions and energy costs.

Smart energy technologies are an area of export potential for the UK with global investment in smart networks standing at more than \$303 billion.

The UK is the first major economy in the world to legislate for net zero emissions by 2050 to end the UK's contribution to climate change entirely. There are now 850,000 homes with solar panels in the UK and over half of our electricity is now generated by low carbon sources.

London-based Powervault designs and manufactures smart energy storage systems that help customers lower their electricity bills, increase their energy security and reduce their carbon footprint. They focus on changing consumers' energy consumption behaviours by encouraging energy efficiency and the adoption of renewable energy technologies.

The pilot is being part-funded by Energy Entrepreneurs Fund (EEF) which funds state of the art technologies, products and processes in the areas of energy efficiency, power generation and heat and electricity storage. It has supported over 130 projects that have gone on to leverage over £100 million in private sector funding.