Isles of Scilly – Smart Islands

Five inhabited islands supporting a permanent population of just over 2,200, attract over 100,000 visitors each year. It's no surprise considering they are one of the most beautiful, protected landscapes and environments in England – but this also makes them a fragile environment.

With the highest home energy use in the UK (6,610 KWh per house (2014)) and imported fossil fuels being 40-50% more expensive than on the mainland, the Isles of Scilly rank 8th highest in England for fuel poverty. And, despite having 280 more hours of sunshine on average than London, local renewable energy has historically generated less than 2% of the annual demand for energy.

But the Isles of Scilly have bold energy goals. In 2015, an island-wide partnership was established to implement a set of interconnected projects, with the aim to cut electricity bills by 40%, meet 40% of energy demand through renewables and see 40% of vehicles be low carbon or electric by 2025.

The partnership brought together the Council of the Isles of Scilly, the Duchy of Cornwall, Tresco and the Islands' Partnership – all collaborating to help residents and businesses move to a lower-carbon economy. The partnership demonstrates that social innovation can be driven from even the smallest communities and can go beyond tackling conventional rural infrastructure, such as faster broadband connections, to build solutions for their unique challenges.

Hitachi Europe has led the Smart Energy Islands project – the first stage of the Smart Islands programme - for the partnership, installing a technology platform to balance electricity demand and supply and working with two of the UK's leading smart home companies, PassivSystems and Moixa. The £10.8million project, part-funded by the European Regional Development Fund will be completed in late 2019.

Around 450kW of solar panels have already been installed on the roofs of about 70 council homes, the fire station, a recycling facility and desalination plant, and in a solar garden by the airport. About 10% of the islands' homes are involved in the project. Homes are also piloting a variety of energy technologies, including batteries and air source heat pumps. The cloud-based Internet of Things platform will manage energy use: learning consumption patterns, optimising how power is collected and used throughout the house, and linking it to the wider electricity grid.

The next stage is to introduce electric vehicles to the islands' new energy system - and electric vehicles can also be used as batteries, charging them up when renewable power is in high supply and drawing energy from them during peak demand. Known as vehicle-to grid (or V2G), electric cars can help the community switch to cleaner energy at their homes and businesses, as well as reduce transport air pollution. It is hoped that further renewable energy generation and innovative ways to manage water and waste will follow in 2020.

The islands have also seen the establishment of a not-for-profit community interest company in 2018. The Isles of Scilly Community Venture sells energy generated by the solar panels and recycles the income to reduce electricity bills for all islanders through a special Isles of Scilly energy tariff, in a partnership with not-for-profit licenced energy provider, Our Power.

Delivering a truly community-based approach, the Smart Energy Islands project uses technology to meet the needs of Scilly's island communities and develop solutions that can be applied everywhere. Size and location are no barrier to innovation – what is important is the foresight to see the positive impacts that will follow; for the environment, for the community and the desire to make a difference.

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