

## New Projects



Our new Network Innovation Competition bid for 2018, **REVISE**, is focussed on delivering technical solutions that facilitate quicker and more sustainable connections to the network for generators and low carbon loads. The project is looking to develop its three solutions on the 33kV network, which is where we and other DNOs have seen the greatest level of generator connections, in West Midlands and will cost £12.5M delivering a benefit of over £190m a carbon saving of 1.3MtonnesCO<sub>2</sub> and releasing in excess of 11GW of connection capacity if rolled out across the country.

REVISE is looking to solve two significant issues; the first is that the standard connection to the existing 33kV network for new generators is an inflexible but relatively cheap t-connection. A t-connection is a single, solid connection, to the network which for any fault or issue on the wider network is likely to be disconnected. This is an issue as we and other DNOs now have to regularly change how we configure our network to enable maintenance activities and to pro-actively respond to faults. REVISE will investigate a new technology to enable customers to connect to the network, both faster and more flexibly, meaning that when these maintenance activities and faults effect the network the generator will be able to stay connected; this will also have a wider societal benefit of increasing the amount of low carbon generation providing power to all customers.

The second is the availability of the existing network to accept additional generation and low carbon loads. When looking to connect new customers to the network often new network construction is required, this can be expensive and take a long time to deliver, often several years. REVISE will investigate and trial how we can maximise the availability of the existing network, rather than having to replace or build new parts, by constantly monitoring the state of the network and rather than leaving it in one fixed condition, as is currently how networks are operated, we will reconfigure the system releasing capacity as required. To do this lots more information about the network is required and how we protect the network will have to dramatically change. This is similar to smart motorways, where if its seen that more cars need to use a certain part of the motor how it operated and is configured, such as making use of the hard shoulder, and additional protection is employed by reducing the speed limit. REVISE will demonstrate that it is possible, with the use of new technologies and solution, on the electricity network enabling considerable reinforcement work to be avoided.

## Customers

### Final EV smart charger is installed for the fully-recruited Electric Nation project

- Smart chargers are now installed for the EVs of all participants and Electric Nation moves into final phase of learning from the trial
- Smart charging can be a key solution to the impact of increasing numbers of EVs on the electricity network

The Electric Nation project has installed its final smart charger as part of its trial with electric vehicle (EV) owners. The project will now be assessing the smart charging technology and feedback from trial participants.

Electric Nation is specifically mentioned in the governments 'Road to Zero' report, which sets out a roadmap for increased EV adoption between now and the year when conventional petrol and diesel cars will no longer be on sale in the UK. Plans for higher and faster levels of EV uptake are likely to lead to challenges with local electricity networks capacity at peak electricity demand times – smart charging can provide a solution to this problem.

Smart charging is also due to be mandated in the government's 'Automated and Electric Vehicles Bill'. This could enable a wide range of services that could reduce the overall cost of charging for EV drivers who predominantly charge at home and also enable local network protection at the same time.



## Assets

We recently carried out a bidding process to secure a sale of the 300kW battery used on the **Solar Storage** Project. The project will soon be drawing to a close and the sale of this asset will reduce the overall project cost and provide best value to customers.

The sale has progressed with final bids received and a winning bidder selected. The process to finalise the sale and remove the battery is progressing.

## Open Networks

Energy Networks Association's **Open Networks Project** has this month launched a major new consultation on electricity networks' plans to deliver a smarter, more flexible and more decentralised energy system, a change which could save consumers as much as £40bn by 2050.

Ofgem, BEIS, and all 10 of UK and Ireland's electricity network operators are part of the industry-wide project, which is laying the foundations of the smart grid in Great Britain by redefining the way electricity networks work. The project will also inform similar developments in the Single Electricity Market in Ireland.

The consultation published today seeks industry views on five models – the 'Future Worlds'. In all five worlds, traditional forms of infrastructure such as pylons and substations will have to work alongside smart energy flexibility services to manage the electricity grid, that use new consumer technologies such as electric vehicles, smart meters, battery storage and solar panels.

Following feedback from the consultation, each of the models will be submitted to an Impact Assessment that will inform the project's work.

The consultation documents can be found online at the ENA website [here](#). Respondents can submit feedback electronically to [opennetworks@energynetworks.org](mailto:opennetworks@energynetworks.org) until 6pm on the 25<sup>th</sup> September 2018.

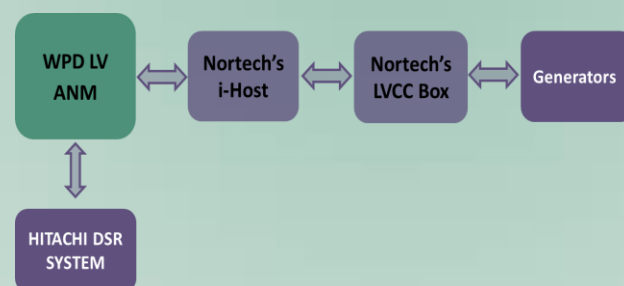
## DSOF

We have updated our **Distribution System Operability Framework (DSOF)**, in which we publish insights on a variety of topics to raise the profile of technical issues on our networks. These eight topics explain how changes in the way customers use energy are directly impacting distribution networks. [www.westernpower.co.uk/DSOF](http://www.westernpower.co.uk/DSOF)

## Operations

As part of the **Smart Energy Isles (SEI)** NIA project, a new Active Network Management (ANM) methodology is being designed and implemented to allow the connection of Low Voltage renewable technologies at the Isles of Scilly. These renewable technologies include solar gardens, heat pumps and rooftop solar panels and they are being connected as part of the European Regional Development Fund (ERDF) project "Smart Energy Islands", which aims to contribute towards achieving the island's target of 40% renewable energy, 40% electric vehicles penetration and 40% reduction in electricity bills by 2025. As these targets are very important for the island, the Smart Energy Islands project is gaining a lot of interest. In fact, in July, His Royal Highness the Prince of Wales attended an Isles of Scilly Smart Islands' meeting in order to learn more about the work of the partnership. WPD's DSO Manager Graham Halladay attended the meeting on behalf of WPD.

The new ANM methodology that is developed as part of the SEI NIA project, plays a critical role in the success of the overall Smart Energy Islands programme, as it will allow the connection of renewable generation that would otherwise be curtailed in that area. It will do that by trialling how demand side response can be used in order to reduce the curtailment. The functional design specification of the system is now being finalised and the overall system architecture is shown in the Figure below.



As shown, WPD's LV ANM system interfaces with Hitachi's DSR (developed as part of the Smart Energy Islands Project) in order to revise the generator curtailment based on the available DSR. The WPD LV ANM system then communicates with the generators through Nortech's i-Host and Low Voltage Connection Controller (LVCC) technologies. In the following weeks, the plan for the Factory Acceptance Testing (FAT) will be agreed and finalised, with the aim to complete the FAT in September.

Find out  
more

Website: [www.westernpowerinnovation.co.uk](http://www.westernpowerinnovation.co.uk)  
Email: [wpdinnovation@westernpower.co.uk](mailto:wpdinnovation@westernpower.co.uk)  
Telephone: 01332 827446

