

DC Share

As part of the 2019 Network Innovation Competition (NIC) process we have been awarded funding for the [DC Share](#) project.

Western Power Distribution and fellow electricity network distributor Electricity North West have joined forces with global strategic engineering and environmental consultancy Ricardo to find a new way of delivering rapid electric vehicle charging hubs.

The three-year, £5.6million trial aims to interconnect substations via AC/DC converters and DC cable so latent electricity can be used to power rapid electric vehicle (EV) chargers. To date there has been significant investment on facilitating EV charging solutions for off-street charging; this project focuses on the 40 per cent of car users with no access to off-street parking, further enabling the take up of EVs to support the Government's net-zero targets.

Rapid chargers use a lot of power and to install them often requires reinforcing the network to allow for the extra load, which can be costly. Load profiles are different for each substation: those with domestic loads don't, typically, have much demand during the day while those with a commercial profile have less demand in the evenings. This trial aims to see whether connecting them on a DC network rather than our usual AC infrastructure will enable us to power a rapid charging hub by sharing its demand between the substations.



New Projects

[Future Flex](#)

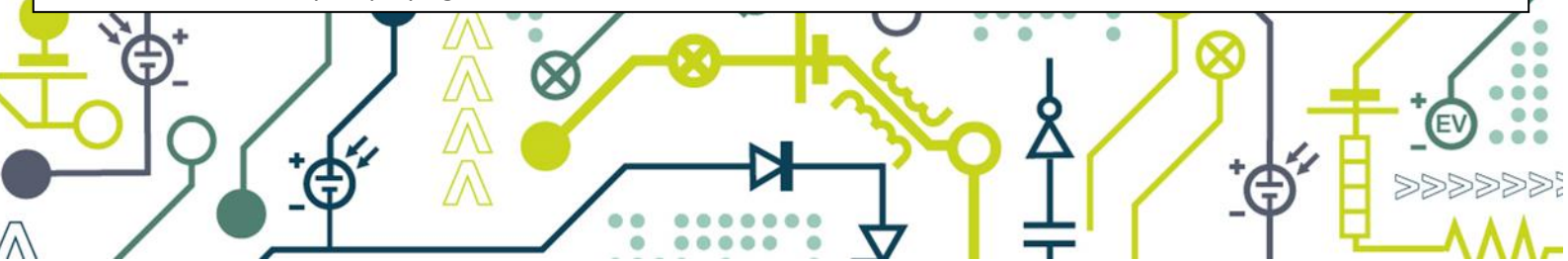
Our Future Flex project has now kicked off. Current processes for the procurement of flexibility were designed with larger participants in mind and so the project is aiming to help us develop flexibility services that are more tailored to domestic providers. Project partners, Everoze, will lead some participant-led workshops in early 2020 to help us better understand the factors limiting domestic participation as well as potential solutions. These will then be incorporated into a trial plan.

[IntraFlex](#)

The IntraFlex project started in November and is looking to better understand the impact of DNO flexibility service procurement on the energy market. This will be done by testing the NODES market platform and two services. The first will inform suppliers of DNO calls so they can rebalance their positions, whilst the second will automatically rebalance their position via a link to the intraday market. The project has developed an [Initial Market Design](#), which has been run by industry stakeholder.

[Presumed Open Data](#)

There is a large amount of useful data which is published about DNOs through mandatory reports, innovation trials and consumer tools, however, datasets are often published on standalone webpages with limited descriptions. This makes it very difficult for both incumbents and innovators to discover, search and understand datasets. This project will use WPD's data as a worked example of how DNOs can maximise the visibility and value of data by making it discoverable, searchable, and understandable by employing common structures and interfaces.



Project Updates

PCB Sniffer

Willow and NPL are currently carrying out their literature review and are working independently of each other to get the best possible results; a report on this review is due early 2020. The findings of this report could feed into a further project which will look to create and develop these tests and be used on high risk assets throughout all distribution areas.

Visibility Plugs & Sockets

The Visibility Plugs and Sockets, a trial of purchasing flexibility services in Cornwall using a platform developed by Centrica, has reached the end of the second trials phase. This phase tested concurrent purchasing by both WPD and National Grid via a spot market rather than the "quote and tender" method used in the first trial. The algorithm that matches bids and offers for the spot market was enhanced to manage conflicts between the services being purchased. Using a simplified model of the network, the algorithm would prevent purchases of services which would overload transformers, or work in opposition to each other. Now that the trial is complete analysis of the results has already resulted in an improvement to the baselining calculation which is used to assess the performance of flexibility service providers. Dissemination and project closedown will take place in the first quarter of 2020.



Projects Continued...



MADE

All equipment has now been installed in the five domestic properties and we are now monitoring the customer usage of the low carbon technologies (electric vehicles, photovoltaics, home batteries and hybrid heat pumps). A number of interventions have been planned starting with baseline usage with no controls (currently being tested) and progressing to time of use tariffs (both static and dynamic) for which the various combinations of the low carbon technologies will be optimised. These will be overlaid with DSO flexibility calls to understand the potential flexibility on offer.

Overhead Line Power Pointer

The project has installed smart navigators at fifty different sites across the west midlands licence area on the 11kV network, they are actively monitoring the network and reporting back to WPD conductor temperature, current and voltage, directional power flow and in some cases have detected directional fault current, the objective is for these devices to give WPD better visibility of the OH network, by having real time temperature readings of conductors and directional power flow it may be possible to re-evaluate conductor ratings and unlock spare capacity on the overhead network which can facilitate new connections or reduce constraints. The next phase will be to install on the 33kV and 132kV networks which is due to be completed early 2020.

NIA Call

Our NIA Call is now open; this call focuses on maximising the value of our existing data, specifically looking to inform faults and failure prediction. If you have a project proposal that fits this brief please complete the [online form](#) by noon on Friday 14 February.

If you have an Innovation project idea outside of the calls brief, please visit our [Future Projects and Ideas](#) page.

