# INNOVATION NEWSLETTER

## SPRING 2019

WESTERN POWER DISTRIBUTION
*Serving the Midlands, South West and Wales*

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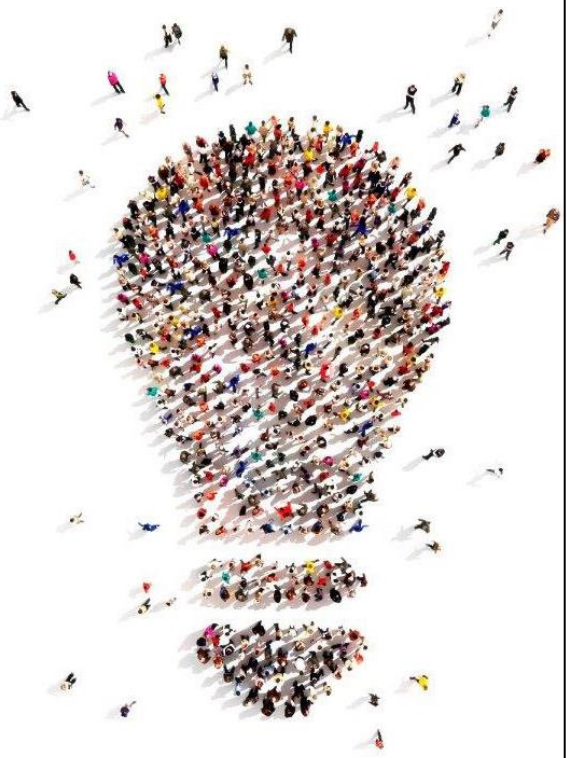
## New Projects



WPD's Innovation team has registered two new projects recently:

**OHL (Overhead Line) Power Pointer**

This project aims to give WPD enhanced visibility of our overhead line network. This will be done via a monitoring device which clamps directly onto the conductor and sends operational data of the conductor in real time to a control and monitoring platform. The devices function in several ways, which will allow WPD to unlock a number of business benefits: (i) A temperature sensor allows WPD to gain a better understanding of the thermal operation of the conductor; (ii) Directional power flow sensing allows WPD to detect bi-directional power flows and back-feeds; and (iii) Voltage presence and fault passage indication will allow WPD to narrow the location of faults on the overhead HV and EHV network.

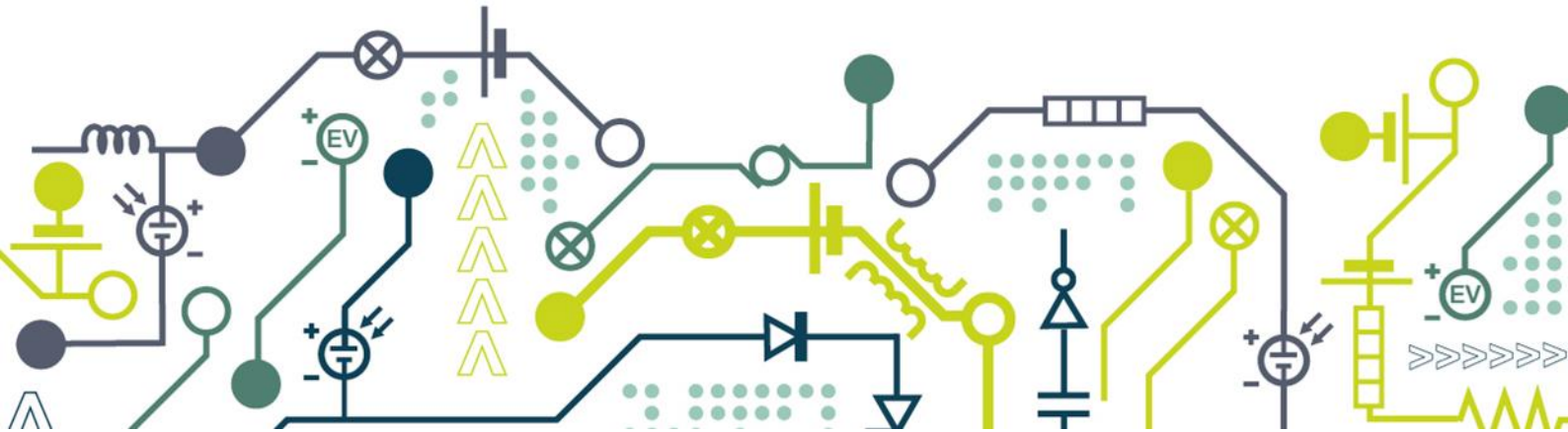
**Network Islanding Investigation**

In the Virtual Statcom project we are investigating whether we can release network capacity by coordinating the reactive power output of existing generators in 33kV and 11kV networks. This involves power system studies which simulate the operation of this coordinated control. We are currently at the end of the first Work Package of the project, as part of which we created the specification and design of the Virtual Statcom algorithm that will be used in the simulations and the methodology that will evaluate the network capacity. We are looking forward to our next Work Package which will involve the implementation of the algorithms in Python and the first results of the studies.

## NIA Call 2019

Following the success of our Network Innovation Allowance (NIA) call last year, which led to the registration of eight third party projects, we put out another call in January this year. We were looking for project proposals based on the following four challenges; Robot Trades, On-street EV Charing, Advanced Fault Level Monitor and Public Charging Infrastructure, these have been taken from our latest Innovation Strategy.

We had 54 submissions this year and following a review process and face to face meetings are taking forwards two projects.



## Upcoming Events

We currently have a couple of events in the pipe line for the upcoming quarter, here's a quick snapshot:

**Balancing Act Summer 2019**
This is our Bi-Annual conference taking place on 20th June at One Great George Street, Westminster, London, SW1P 3AA. The agenda can be viewed on our website and we will be taking more of a technical theme for the event this year.

**Electric Nation Dissemination Event 2019**
Taking place on the 16th July we will be disseminating on our Electric Nation project, which started in April 2016, and aimed to look at equipping GB's DNO's with the tools and solutions to enable them to manage PIV market growth.

There are several events our Innovation Team will also be speaking at this year, for more details on these and our webinars please visit the Innovation Events Page.

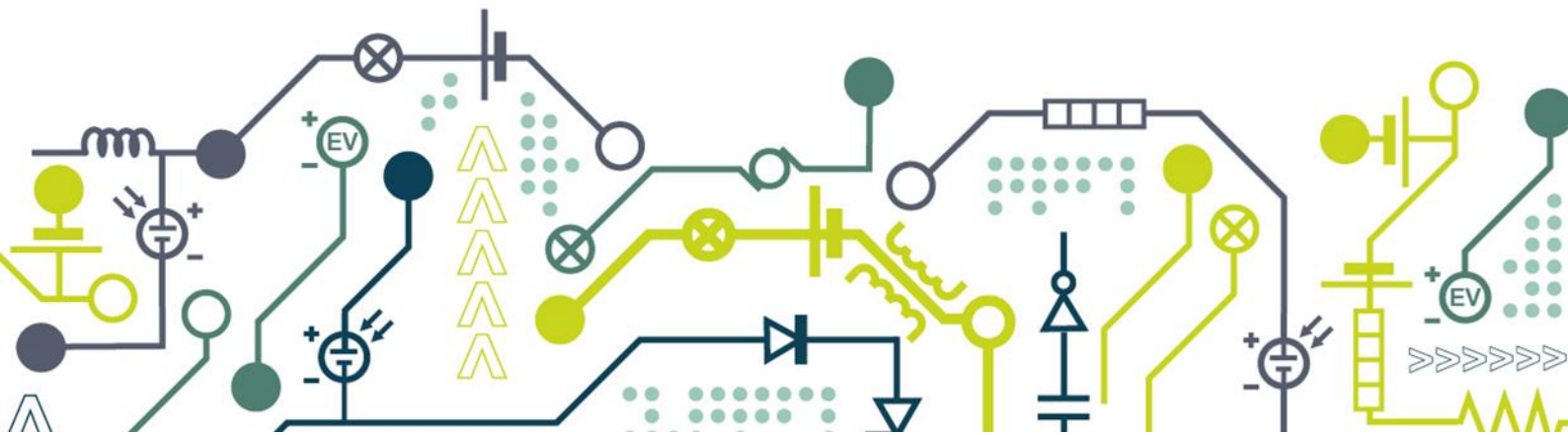
## Project Updates

**Electric Nation** - The Electric Nation project team are currently busy doing all of the analysis on the 1 million hours of charging data that we collected from our live trials, to draw out charging patterns and conclusions around customer acceptability. Alongside this we are currently in the process of installing a small number of V2G chargers on the network to test the technology and electrical impacts on our electricity network.

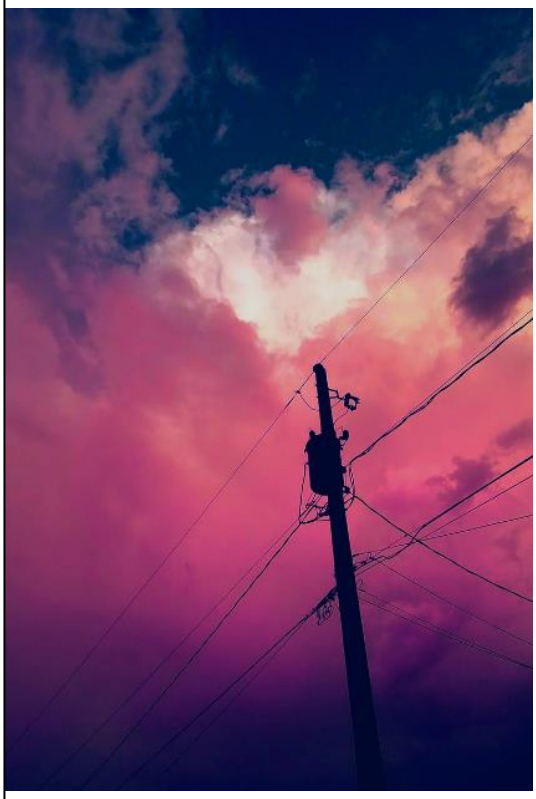
**LV Connect & Manage**– We are in the final closedown stages. The Innovation Team are working with staff across WPD's business to transition the LCVM solution into normal operations.

**PNPQA** – Deliveries of power quality monitors for the main trial of communicating power quality monitors are complete. Development of remote communications for the power quality monitors and software to process the power quality data continues.

**EFFS** – The first phase of EFFS involves determining the functions that it needs to perform. We've held a number of workshops looking at how EFFS will determine the location and capacity of flexibility services that need to be procured or dispatched optimise the selection of services and communicate with market platforms. We have now started to define how we will spot and resolve conflicts between flexibility services that are procured and dispatched by different parties.



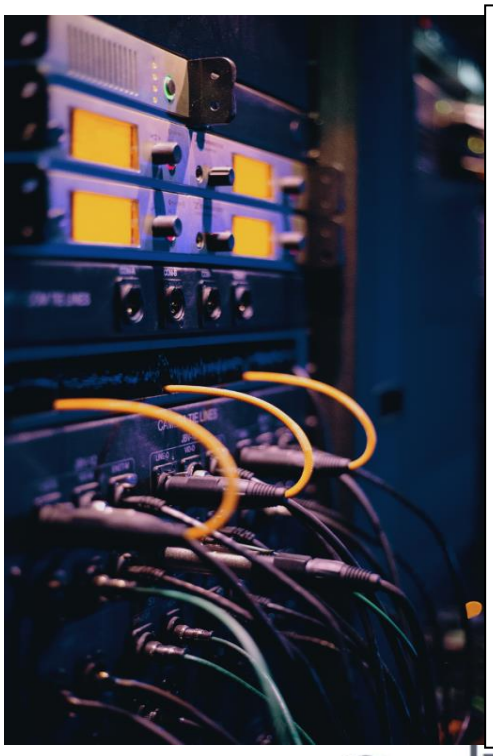
## Projects Continued…



**Losses Investigation**- Over the last three years WPD has been running a major NIA project investigating technical losses on HV and LV feeders that will shortly end. Key achievements are that methods of accurately assessing technical losses on HV and LV feeders have been developed, which have been demonstrated on over 75% of the East Midlands network. This has led to significant insights on how our losses vary between feeders, identified some HV feeders where it may be possible to economically reducing losses, and confirmed the recent policy changes on LV feeder design are moving us in the right direction, giving lower losses for minimal increase in cost.

**Smart Energy Isles** - The Smart Energy Isles project system curtails five LV-connected generators depending on sub-sea cable utilisation, when curtailed it then signals a DSR system to execute a trading cycle that procures demand to alleviate the curtailment. The system has now passed Site Acceptance Testing and entered live trials.

**OpenLV** – OpenLV's 'Capacity Uplift' mechanism whereby automated meshing shares load between LV substations is now operational at two substation pairs. Community and industry project participants continue to develop their own applications using substation data provided by the LV-CAP project system.



**LV Connect & Manage**- If a customer's import (for example, charging of an electric vehicle) and export (for example generation from a PV array) are monitored and controlled by the distribution system operator (DSO) via a Domestic Load Controller (DLC), the customers import and export can be reduced during times of peak network loading. This allows more customers to connect their low carbon technologies onto the network without the immediate need to reinforce the network.

**NGWTA** – JRC is collaborating with Western Power Distribution to develop the capability to design and deploy advanced, higher bandwidth radio networks to facilitate Active Network Management functionality and enhanced visibility and control over distributed generation. The work is taking place in the WPD's West Midlands and South West license areas and will be designed to deliver a dedicated network owned and operated by WPD to serve its specific operational telecommunications requirements.

For further updates please visit the Innovation project page.