

## Drive to Net Zero Carbon

Through engagement with our key stakeholders, listening to their views and the obligation to share the innovations and work we are doing to drive Scotland, Wales and England towards its net zero carbon targets. We have created an ongoing sequence of newsletters to update you monthly on the progress and activities we are involved in with our partnership organisations in local authorities, Government and industry alike.

The following examples are just a few of the items we are currently working on for the benefit of all our stakeholders and communities, please let us know if you have further questions on any of the items below or other items of interest and we will include them in future editions of our monthly newsletters.

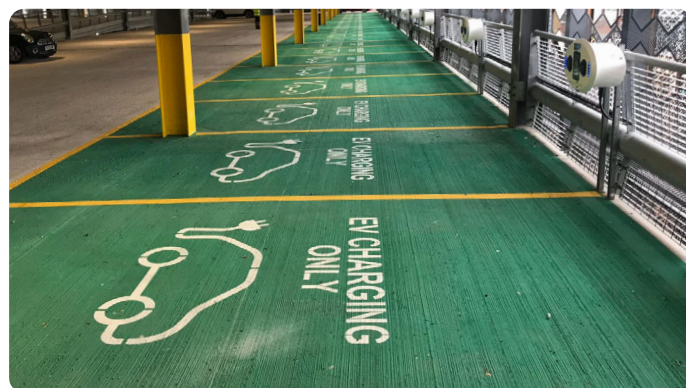
### EV

Transport Capacity Maps have been published this month to assist customers with electric vehicle charging applications by overlaying electricity distribution data with transport information for the first time. These are designed to give an indication of the relative energy demand for private cars alongside loading on the electricity distribution network. They have been produced using early transport data from 'Charge', an Ofgem Network Innovation Competition funded project currently underway within the SP Manweb license. Data has been published as a series of pdfs showing the full licence area followed by separate maps for each of the eight smaller areas based on major transport routes. Primary substation locations have then been ranked using a basic traffic light system to highlight areas of good capacity. We are to provide training to our customers in how to interpret these maps in May 2020. These maps form part of our early outputs from Project Charge and these will be updated with other interactive tools as the project progresses.

In addition with the increase of Low Carbon Technology (LCT) connections to our network (Domestic EV, PV, Heat Pumps and Energy Storage), we will introduce an 'Initial Contact Information Pack' for all customers who make an application to help them understand the requirements for each market segment as they proceed through the application stage.

The 'Initial Contact Information Pack' will be communicated at all ICE engagements events and published on SPEN website and we will proactively be engaging with car show rooms and EV Charger connection companies to ensure they are part of the wider communication on improving the installation of EV's throughout both our licence areas.

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## Heat

We are currently undertaking analysis for rural communities in Cheshire and Wales which are predominantly made up of customers who are not connected to the gas grid. We recognise that our electricity network will be an important part of how these customers decarbonise their energy use. The network studies currently being completed assess the scale of these communities in relation to the electricity infrastructure that current supplies the properties. We are theoretically testing a number of future energy scenarios to explore how shifts to alternative heating methods e.g. heat pumps, will impact the network and what strategic investment may be required.

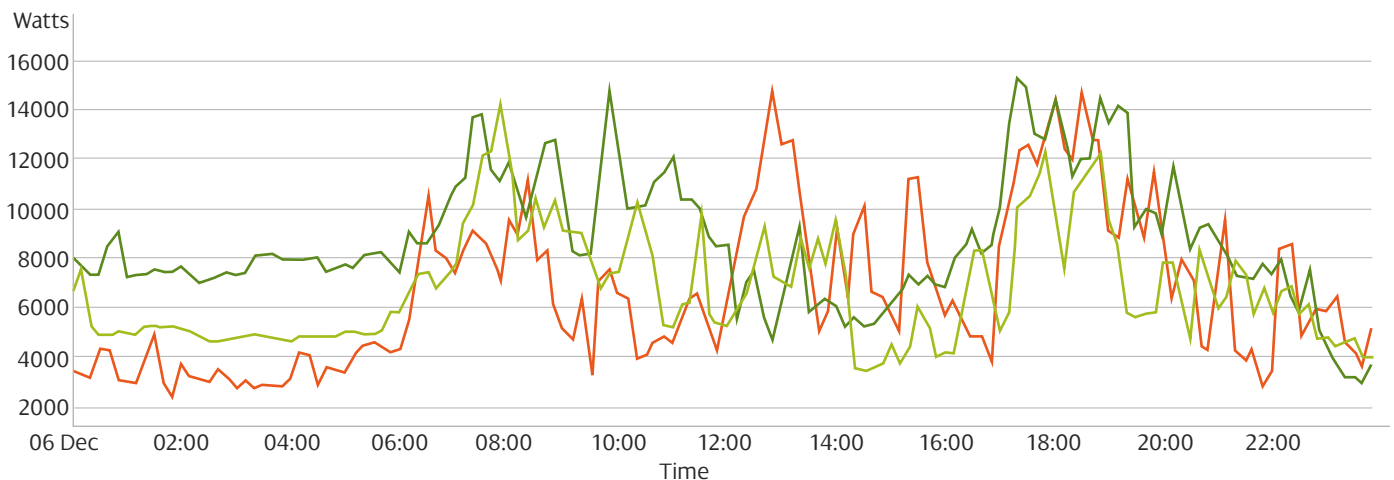
To support this activity in our SP ManWeb area we have been actively monitoring new and established Housing developments in SP Distribution with some of our Key Partners CALA Homes, EON Innovations, GTC and Energetics and Herriot University. Monitoring 5 sites continually over the past 18 months, which has given us empirical information to support and inform our theoretical modelling, with a view to provide a flexible reliable ADMD conversion table for developers and Designers alike.

These Housing developments have a diverse portfolio of LCT deployed including EV Chargers, PV, Heat pumps and a mix of large homes through to smaller affordable homes, giving information across the full spectrum of expected future usage.

As shown below, this gives real time data for our partnership group to review, analyse and determine what the future demand will be. Serendipitously we were monitoring one of the sites in the Falkirk area that had a major 5 day gas outage, during a very cold winter spell, where electric heaters and cookers were provided to the housing development. This allowed us to have a snap shot at all electric housing and the expected power demands this will require. The results of this 5 day incident and the previous 18 months monitoring is currently being fully analysed, the results of which we will publish in future newsletters

## Milton of Campsie - daily

### Busbar Power Mean Values up to 06/12/2019



## Innovation Projects

We have successfully launched two InnovateUK projects to explore credible pathways to Smart Local Energy Systems of tomorrow within two of our local communities:

For Project Rewire-NW based in Warrington, we are collaborating with 11 other partners, drawn from across the energy industry, local government and academia. We will assess ways of optimising the current energy infrastructure in Warrington, and bring forward proposals to adapt it to be able to deliver average cost savings of 25% and also meet Carbon Budget Five. Our investigations and recommendations will address the whole energy system, including Energy, Heat and Transport across the entire Warrington Borough area.

The Liverpool Multi-Vector Energy Exchange Project (LMEX) will develop the detailed design for a Local Energy Exchange for the trade of local, flexible energy services among commercial and residential energy users. Led by New Resource Partners, an energy innovation business, and with the collaboration of Liverpool City Council, LMEX will create a more flexible and dynamic energy system in a commercial area of Liverpool City Centre. It is hoped that the approaches and methods developed within the project will be replicated in other commercial centres, yielding benefits to consumers in terms of cheaper, cleaner energy services.

Another example of the innovating distribution World and potential first significant independent DSO area is the Bandedh holdings consortium on the outskirts of Stirling, that aims to transform an old military base and run-down industrial estate in a deprived area of Scotland, into one of the most exciting and innovative development projects that will enliven and transform the area.

The consortium which has been fully supported by SP Energy Networks from its initial concept 3 years ago has outline planning permission for a phased programme of work that will become an icon for redevelopment within Scotland and further. The consortium of interested parties include, Scottish Government, Stirling Council, Scottish Gas, Locogen and many others.

# 25%

Cost savings to be achieved in Warrington  
because of Project Rewire

The key areas for potential development and implementation over the next few years includes as a minimum; an H2 plant to provide fuel of LA Authority waste trucks and busses, new energy centre with industrial scale water sourced Heat Pumps and CHPs that can run on gas or H2, supply the main gas grid with H2 to blend with natural gas, link in with established LA and Commercial Solar farms, produce purified medical grade Oxygen, 80+ acres of hydroponic food production, create local employment of 50+ jobs and provide affordable heating for the local community.

Once completed this will be an exemplar for creating and using renewable energy for the benefit of the local economy within a SPEN designated DSO area. We will provide further updates in future newsletters.

## Policy Updates

We have recently published a new policy to the SP Energy Networks document library.

ESDD-02-019 Issue 3 Assessment of Equipment Capability can be found on the following link on our website –  
<https://www.spenergynetworks.co.uk/pages/documents.aspx>

In addition we continue to encourage our stakeholders to inform us of any policy's they require and when we provide these we endeavour to review, improve and enhance them to ensure they remain current for our ever changing distribution landscape. One such policy was our earthing policy requested by FES our of our ICP stakeholders which resulted in the new earthing policy – EART-03-003 publish in February this year.



## Community Partnerships

As part of our ongoing strategic partnerships throughout Wales we have recently completed the first phase of electric vehicle analysis for the Isle of Anglesey. This initial approach was focussed on EV charging opportunities within a close proximity to the A55 as a major transport route for both leisure and industry. Also through our partnership with the Hydrogen Cymru Trade Association we are actively supporting a hydrogen future across Wales, which we recognise is an important part of the future energy mix. Exploring further uses for hydrogen across transport, heat and industry could potentially mitigate the strain from our network as these processes decarbonise. We also are actively involved in assessing how hydrogen production and storage will be supported by our network too.

“SPEN have recently been working on improving our relationship with key stakeholders who sit within the utility and infrastructure fields. By improving these partnerships it allows us all to think more collaboratively, sharing forward plans and joining together works.

Partnerships with Transport Scotland and Network Rail are key in facilitating a low carbon future through the electrification of transport. By taking a central planning approach and then filtering this into the District model it provides visibility of the work going on across the country and key consistency on the deliverables to the customer.

Key relationships with Scottish Water and the country’s fibre providers are vital for co-ordinating work within certain areas, specifically city centres. By sharing forward plans excavation works can be shared and this causes less inconvenience to residents, businesses and road users.”

## DSO/Flexibility

Through our partnership with Cheshire Energy Hub and E-Port Energy we are working with high intensity energy users across the heavily industrial Ellesmere Port area in order to better manage local high demands with new and existing generation. Industrial energy consumption is a very high proportion of the energy consumed here so we are reviewing our network design philosophy to ensure we can simultaneously cope with maximum demands whilst ensuring off-peak loading is not underutilised. This flexible connections policy is also being discussed with new connections customers who may be able to flexibly change demand profiles based on signals from our network. This focus further accelerates our transition to the distribution system operator.

