SP Energy Networks

Drive to Decarbonisation Newsletter September 2020

Electric Vehicles (EV)

First electric charging hub delivered through Project PACE

We were joined by Cabinet Secretary for Transport, Infrastructure and Connectivity Michael Matheson as we opened the first of over 40 Electric Vehicle (EV) charging hubs in partnership with Transport Scotland.

The first of these charging hubs delivered through a strategic partnership with the Scottish Government has now been installed in Strathclyde Country Park just outside of Glasgow.

Using a new model of delivery to improve efficiency, Project PACE has now installed EV charging infrastructure at the first of over 40 sites across North and South Lanarkshire to be delivered by April next year. This Transport Scotland investment of £5.3m will deliver up to 180 new public EV charge points for the ChargePlace Scotland network which will more than triple EV charging capacity across Lanarkshire by April 2021.

We are delivering the project as part of the EV Strategic Partnership with the Scottish Government which was announced by the First Minister in August 2019. Project PACE is being facilitated by North and South Lanarkshire Councils, who are working in collaboration with us and Transport Scotland to test a new approach to planning and delivering EV charging infrastructure.

Michael Matheson MSP joined us at Strathclyde Park to see the new charging hub and to welcome our £1.2 million investment to Lanarkshire Community Transport groups through our Green Economy Fund. This fund will allow community organisations to make the switch and help ensure no community is left behind in the transition to fully electric vehicles.

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"I'm pleased to see the first charging hub delivered through Project PACE. The initiative demonstrates how collaboration and a joined-up approach will facilitate Scotland's green recovery. This is part of our EV Strategic Partnership with Scotland's electricity distribution network operator companies that is helping understand the vital role they can play in delivering more charging infrastructure in a cost efficient and effective way.

"I'm also encouraged by SP Energy Networks determination to support a green economy through their new awards to Community Transport Providers based in Lanarkshire. This is helping to ensure community groups can also take advantage of the many benefits of EVs in an inclusive and accessible way – helping to support our response to the climate emergency.

"This is all part of our ambition to phase out the need for new petrol and diesel cars and vans by 2032. We're investing over £30 million in our ChargePlace Scotland network and I'm encouraged that Scotland already has the highest level of rapid EV charging provision per head of population in comparison to the rest of the UK. We will continue to go from strength to strength through initiatives like Project PACE as we continue to decarbonise our transport system."

Cabinet Secretary Michael Matheson

"This project provides an incredible acceleration of electric transport in Lanarkshire to ensure no community is left behind. Our optioneering study identified over 40 community hubs where it will be most effective to install public electric vehicle chargers that offer universal access. The 6 new chargers in Strathclyde Country Park are just the start as we roll out 180 across North and South Lanarkshire.

"This project demonstrates an innovative delivery model that, if adopted more widely, could help accelerate the transition to net zero and support Scotland and the UKs green economic recovery.

"We're also helping Lanarkshire communities establish low carbon infrastructure by providing £1.2m funding for electric minibuses, vans and people carriers for community transport providers – building electric fleets that allow them to play a part in improving the region's air quality and supporting some of the community's most vulnerable residents."

Vicky Kelsall, Chief Operating Officer, SP Energy Networks

"This project demonstrates an innovative delivery model that, if adopted more widely, could help accelerate the transition to net zero and support Scotland and the UKs green economic recovery."

"It's wonderful that the first of the charging points should be located here at Strathclyde Park, which is one of the busiest attractions in Scotland. It will become a real asset for many people who visit the park.

"This is one example of our drive to provide people in North Lanarkshire with the opportunity to access electric charging points and will help to encourage the gradual ownership of electric vehicles. By making more charging points available the switch to an electric vehicle becomes a viable option for more people.

"It fits with this council's ambition for North Lanarkshire to be the place to live, learn, work, invest and visit and to improve our environmental impact for the benefit of all our residents."

Councillor Michael McPake, Convener of Enterprise and Transport with North Lanarkshire Council

"We are delighted to be involved in such an exciting project that will see the electric vehicle charging infrastructure increase significantly in South Lanarkshire by April next year.

"It is a great example of partnership working and allows us to build on our ongoing investment in infrastructure, helping the country meet climate change targets.

"Project PACE is a tremendous opportunity to improve sustainable, low carbon travel opportunities across Lanarkshire, and of course is part of the wider EV Strategic Network that will benefit the whole of Scotland. We recognise that to encourage people to use electric vehicles the infrastructure has to be there. Today marks an important step on that journey."

Councillor John Ross, Leader of South Lanarkshire Council

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SP ENERGY NETWORKS

DSO/Flexibility

SP Energy Networks launches its biggest ever call for flexibility services

SP Energy Networks is calling for flexibility providers to get involved as it launches its largest ever tender for flexibility services in 40 locations across its licence areas in Scotland, England and North Wales.

In partnership with Piclo, an independent online marketplace for trading flexibility, the network operator is looking to procure up to 650MW of flexibility over a five-year period.

The long-term contracts will be put in place for the period April 2023 to March 2028, with over 1,000 sites on offer.

Sites have been chosen where an increased demand on the network from electric vehicles and heating solutions is predicted, as SP Energy Networks continues to lead the way in creating a smarter, more flexible network to support the UK to meet its net zero carbon ambitions.

Access to flexibility, where the provider pays connected assets such as generators, aggregators and energy storage providers to operate in ways that benefit the network, will play a crucial role in its transition to a Distribution System Operator (DSO).

The move helps the firm continue to develop smarter, more flexible network solutions which remove the need for traditional reinforcement methods like new cables and substations, helping to reduce costs for customers and improve network resilience.

"At SP Energy Networks, we are committed to creating a smart, flexible network which ensures our customers continue to receive a secure and reliable power supply while also enabling them to play their part in delivering net zero through cleaner, greener energy solutions like electric vehicles, heat pumps and storage.

"Flexibility has a critical role to play and following the success of our last flexibility tender, we're now taking it to a far larger scale. We are bringing to the market our flexibility needs for the period 2023 to 2028, allowing flexibility providers to invest now and work with us to help the UK, Scottish and Welsh governments meet ambitious net zero targets and stimulate the green economic recovery in the UK.

"We are really excited at the scale of this tender and look forward to receiving extensive competitive offers from flexibility providers. By working together, we'll be able to deliver a better future, quicker for our customers."

Graham Campbell, Head of DSO at SP Energy Networks

Flex providers

Flex providers interested in taking part can get involved by uploading their assets for asset pre-qualification from today (Sep 8th) until the window closes on October 9th. Bidding opens on October 26th before a deadline of October 30th. The contracts will be awarded in December this year.

To view further details and register your company details for the tender, please visit **www.spenergynetworks.co.uk/flex2020**

SPEN launches its biggest tender for flexibility services

Looking to procure:

Active power
337MW

Reactive power
9MVAr

SP Distribution (SPD)
Central and
Southern Scotland
17 locations
33kV & 11kV

Across SPD and SPM regions:
1,098 locations
Low Voltage

SP Manweb (SPM)
North Wales, Merseyside,
Cheshire and north Shropshire
23 locations
132kV, 33kV & 11kV

Specific tender details and how to bid available at:
www.**picloflex**.com | www.**spenergynetworks.co.uk**/flex2020

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Heat

SP Energy Networks, EON, Energy Assets, Miller, CALA, Taylor Wimpey Homes Heat Partnership at Maidenhill Developments

Government net zero targets are accelerating the drive to transfer from traditional fossil fuel heat sources, with housing developers switching to air source heat pumps. This coupled with the transition to electric vehicles and solar panels on new houses has dramatically increased the load factor of housing developments and added new generation on to the grid that were not considered only a few years ago. This has created challenges in many planned developments that do not have the load capacity in the existing distribution network to cope with this additional load and generation.

The all- electric home is now a reality with air source heat pump heating, electric hob and oven for cooking and two perhaps three electric vehicles charging in the driveway. This coupled with the growing demand of electrical appliances in the home significantly increases the electrical energy load for each home and although solar panels on the roof will offset some of this load, it will add a generation element that needs to be taken into account. This is the future of climate change and the drive to net zero and with appropriate smart meters and smart grids we can all do our bit to meet the 2045 / 2050 Government targets.

This is how it will be for most people, those buying new build homes experiencing this new fully electrified lifestyle first, followed by those in social housing, and lastly those of us in privately owned existing housing stock.

If we were to continue on the traditional network set up, we would need three to four times the amount of copper in the ground to supply this increased load and micro generation, which is not feasible. Working in partnership EON, SP Energy Networks, ICP & IDNO's, house builders and consultants, are creating smarter solutions using the existing distribution network at a fraction of the cost using the existing network.

House builders are coming to the realisation that regulatory changes don't just mean adding PV arrays to a new home, or replacing the gas boiler with a heat pump, SP Energy Networks and E.ON are embarking on a partnership in innovation aimed at serving as a lighthouse project for the UK and beyond. On a constrained area of SPEN's network, three house builders are forging ahead with the construction of new homes with due to additional of heat pumps and EV charging has surpassed the original available capacity. Maidenhill is a joint venture development for Taylor Wimpey, Cala Homes and Miller Homes, where the builders are faced with the prospect of paying for an upgrade to the available infrastructure capacity to site, or endeavouring to build out the development within existing capacities.

The constraints to the site are for energy import as well as export, with rooftop Photo-voltaic (PV) arrays being the main solution of choice across the development. In addition to the PV on site, Cala Homes have delivered the first pod of their section of the site installing hybrid air source heat pumps, with the associated uplift in After Diversity Maximum Demand (ADMD) with is the electric load per home. figures assigned to that area of the development.

The reality of the situation for the Maidenhill site is that both SP Energy Networks and the IDNO Energy Assets have legitimate concerns regarding the import and export values upon completion, and importantly beyond the final houses being occupied.

"We're all now doing our bit to cut carbon dioxide emissions and counter climate change, as regulations have paved the way for a shift from burning fossil fuels over to low carbon and renewable forms of energy."

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As things stand the amount of PV on site will exceed the capacity available at the point of connection, and calculations suggest that the import capacity could well also be breached.

The 'go to' solution for house builders is preventing any export from new homes by curtailing the PV array when the solar yield exceeds self-consumption. While this strategy enables the developer to build the homes unhindered by the expense of upgrading the electrical supply, it is not ideal from a the perspective of new homeowners. Smart Export Guarantee tariffs cannot benefit customers whose PV arrays are prevented from exporting by design, and in reality the potential for self-consumption in the home of the average family, with working parents and children not at home during the day, is very much limited.

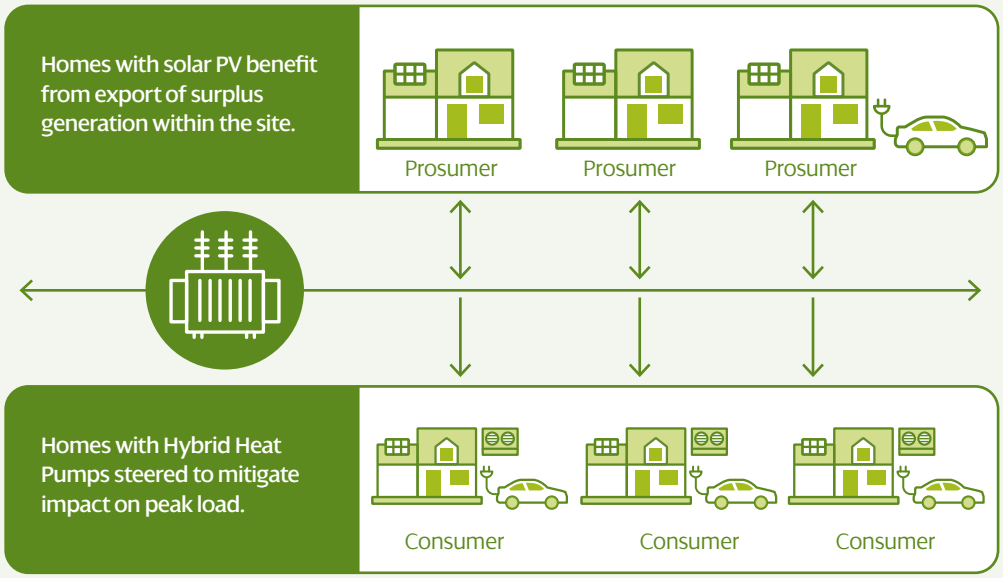
There is however a better way. In approaching this challenge with a view to demonstrating the significant potential impact of 'smartification', E.ON, SP Energy Networks and Energy Assets aim to deliver a solution which mitigates the need for an upgrade to the supply, maximises the potential of on-site microgeneration, and also monitors and steers the import and export loads at the point of connection to the site.

Utilising a range of communication protocols and controls used by E.ON Group Innovation on projects throughout Europe, the partners intend to reduce the peak load on the development and ensure that the existing capacity to site is not exceeded for import or export, while maximising the site wide consumption of on-site renewably generated energy.

Energy from residents PV arrays will be optimised and coordinated with the activation of hybrid heat pumps to minimise the impact on peak load conditions. Dynamic Export Limitation will allow micro-generated energy consumption to be maximised across the site, reducing overall import through the point of connection, and limiting export to the local network to within the capacity ceiling.

The site will serve as an exemplar project for house builders, distribution network operators and other relevant players in the energy industry. The vast amounts of money required to upgrade electrical infrastructure can and will be reduced through smartification, extending to and connecting with assets, homes and developments on the final mile of distribution networks. Loads will be shifted and balanced to intelligently smooth the peaks and thus avoid capacity breaches, and consumers will arrive back from work to their fully electrified homes.

The complete package: PD Hero



- Homes across the development connected to PD Hero control.
- Site import and export values monitored and managed to prevent capacity breeches.
- Homeowners benefit from export of surplus PV energy and associated revenue (Smart Export Guarantee).
- Potential Energy Community.

Nb. Non-residential buildings and processes would also utilise surplus domestic PV energy.

Infrastructure upgrade mitigated – Site build out unimpaired – DNO & IDNO peace of mind