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20 July 2018

By email only to [Dinker.Bhardwaj@ofgem.gov.uk](mailto:Dinker.Bhardwaj@ofgem.gov.uk)

Dear Dinker

### **LCNF STR Information Request**

Further to your request dated 6 July 2018, we have attached our response as an appendix. Our response should be treated as consolidated on behalf of UK Power Networks' three distribution licence holding companies: Eastern Power Networks plc, London Power Networks plc, and South Eastern Power Networks plc.

For your ease of reference, we have supplied our response in a table format.

If you have any questions, please do not hesitate to contact me.

Yours sincerely,

James Hope



Head of Regulation and Regulatory Finance

Copy Ian Cameron, Head of Innovation, UK Power Networks  
Sotiris Georgiopoulos, Head of Smart Grid Development, UK Power Networks  
Paul Measday, Regulatory Compliance Manager, UK Power Networks  
David Pang, Regulation Analyst, UK Power Networks

<b>DNO Group</b>	<b>Project Name</b>	<b>Description</b>	<b>Question 1: Have the outputs and/or findings from this Project been deployed on your networks? Please provide evidence of the extent and impact of any such deployment.</b>	<b>Question 2: Have the learnings from this Project been incorporated into your operational practices? Please provide evidence of how such a change has provided valuable benefit for consumers.</b>
Northern Powergrid	Customer-Led Network Revolution	A project that brings together the trialling of smart meters and customer-side interactions with new network technologies.	<p>No – although the learning input to our stakeholder engagement planning on energywise, also the energy storage element was useful while developing the SNS project.</p> <p>It should be noted there were several learning outcome similarities with Low Carbon London – such as evidenced DSR, smart meter variable tariff benefits, so it would be difficult to quantify whether this learning was specifically from CLNR and not LCL.</p>	<p>No – although the learning input to our stakeholder engagement planning on energywise, also the energy storage element was useful while developing the SNS project.</p> <p>It should be noted there were several learning outcome similarities with Low Carbon London – such as evidenced DSR, smart meter variable tariff benefits, so it would be difficult to quantify whether this learning was specifically from CLNR and not LCL.</p>
WPD	Low Carbon Hub	A focussed project to investigate how new network technologies can increase the capacity of wind generation that can be connected to a rural distribution network. New commercial arrangements also explored.	No.	No.
WPD	Low Voltage Network Templates	A focussed project assessing the impact of low carbon, demand-side technologies on the low voltage network. The aim is to create generic network models to assist DNOs in efficiently planning, developing and operating these networks as they transition to facilitate a low carbon future.	No.	No.

WPD	SoLa BRISTOL	A small project investigating the potential for battery storage in conjunction with PV solar generation to be used within homes, schools and an office to provide network and customer benefits. A variable tariff will be trialled to incentivise customers to use the battery to reduce electricity consumption at peak times.	No – the project demonstrated hardware solutions on the customer side of the meter as such not deployed on our network.	Yes – this project was reviewed and considered when developing the Domestic Energy Storage and Control project – which has now led to our latest Virtual Power Plant flexibility procurement.  Link to release <a href="#">here</a>
ENWL	Capacity to Customers	A project that trials new operational techniques to release latent capacity within the existing high voltage (HV) network. The project will utilise this capacity by combining network automation and 'interruptible' contracts with large customers.	No – we have taken learning that supports the case for closing 11kV normally open points for capacity increase and also suggests improvement of nearly 25% in Customer Minutes Lost (CML). The methods and result of these findings will be considered during the Active Response benefit assessment, it should be noted UKPN already run a highly meshed network.	No – we have taken learning that supports the case for closing 11kV normally open points for capacity increase and also suggests improvement of nearly 25% in Customer Minutes Lost (CML). The methods and result of these findings will be considered during the Active Response benefit assessment, it should be noted UKPN already run a highly meshed network.

WPD	FALCOLN	<p>A project deploying smart interventions on the HV network and novel commercial arrangements with customers. Data from these trials will be used to develop an investment tool to model where these techniques can be deployed efficiently across the whole HV network.</p>	<p>No, however the project developed a new Scenario Investment Model (SIM), and tested four technical and two commercial alternatives to traditional reinforcement.</p> <p>The four technical methods are dynamic asset rating, automatic load transfer modelling, live network meshing, and battery storage. The findings from the trials fed into the SIM. The network meshing trials used remote controllable actuators to operate switchgear but was limited to two sections of the 11kV network (one cable and one overhead line) and conducted over a period of two weeks per section.</p> <p>Whilst the new SIM and commercial arrangements were successfully demonstrated, the overall benefits of automatic load transfer and network meshing were questioned. However, the network reconfiguration trials were based on a small section of the network and over a short period.</p> <p>FUN-LV has since explored these principles further in larger trials, and added the use of power-electronics, to prove a variety of benefits, however, one key learning point is that appropriate site selection is vital to ensure installations allow the full breadth of benefits to be examined and demonstrated.</p>	<p>No, however the project developed a new Scenario Investment Model (SIM), and tested four technical and two commercial alternatives to traditional reinforcement.</p> <p>The four technical methods are dynamic asset rating, automatic load transfer modelling, live network meshing, and battery storage. The findings from the trials fed into the SIM. The network meshing trials used remote controllable actuators to operate switchgear but was limited to two sections of the 11kV network (one cable and one overhead line) and conducted over a period of two weeks per section.</p> <p>Whilst the new SIM and commercial arrangements were successfully demonstrated, the overall benefits of automatic load transfer and network meshing were questioned. However, the network reconfiguration trials were based on a small section of the network and over a short period.</p> <p>FUN-LV has since explored these principles further in larger trials, and added the use of power-electronics, to prove a variety of benefits, however, one key learning point is that appropriate site selection is vital to ensure installations allow the full breadth of benefits to be examined and demonstrated.</p>
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SPEN	Flexible Networks	A project investigating how to obtain extra capacity from the existing HV network in three separate locations by co-ordinating innovative engineering practices. The project also looks to encourage large customers to improve their energy efficiency.	<p>Yes, the Flexible Networks project was reviewed when we were developing our Innovation Rollout Mechanism bid, which has subsequently become a business as usual funded initiative to rollout LV monitoring and control across 5,863 sites within UKPN.</p> <p>Secondly we utilised Flexible Networks report on "HV and LV Phase Imbalance Assessment" as input to develop our LV Phase Switch project.</p>	No, not yet. However, when developing our system monitoring policy we reviewed the learnings from this project, however chose to develop LV control and monitoring as our standard solution due to the speed of uptake of Electric Vehicles, and the need to deploy smart solutions.
UKPN	Flexible Plug & Play	A project trialling ways to improve the control of the extra high voltage network to connect increased volumes of wind generation. The project will trial an open communications platform and develop an investment model for connecting renewable generation to the distribution system.		
SSEN	I2EV (My Electric Avenue)	A project investigating the use of a domestic 'smart socket' to manage network constraints caused by Electric Vehicles (EVs). Also known as 'My Electric Avenue'	No, as main product was data.	Yes, EV data for residential customers has been used to develop our granular forecasts for residential EV users and has fed into our BAU forecast of uptake and more recently into our Recharge the Future uptake model.