

Angus MacNeil MP  
Chair  
Energy and Climate Change Committee  
House of Commons  
London  
SW1A 0AA

26 May 2016

Dear Angus

At your Committee on 13 April, you asked to see examples of successful projects funded through Ofgem's innovation allowances that have developed into business as usual. Please find examples of this below.

### **Customer Led Network Revolution: Northern Power Grid**

This explored the impact of various low carbon technologies such as distributed generation, embedded storage, heat pumps and electric vehicles on the network. It also looked at how active network management solutions and demand side response, using smart meters, can avoid the need for network reinforcement.

The findings from the trial demonstrated that using dynamic line rating<sup>1</sup> and voltage control<sup>2</sup> can increase the capacity on the network. These are now included as business as usual processes for many DNOs. On the demand side the project found that customers were more responsive to price signals and could provide flexibility at times of high demand.

### **Capacity to Customers (C2C): Electricity North West**

This trialled remote controlled devices and demand side response to release capacity on the network which would otherwise be left unused. Circuits on the network were fitted with a remote control device to sectionalise faults. This decreased the amount of time the majority of customers were off supply due to a fault. Payments were also made to customers, or they were given lower connection costs, to reduce demand during a network fault.

The project demonstrated real cost savings from releasing spare capacity and this is now a business as usual process for DNOs in constrained networks.

### **Low Carbon London (LCL): UK Power Networks**

This looked at the impact of low carbon technologies (including electric vehicles and distributed generation) on London's electricity network. It considered how demand side response can assist network management using time of use tariffs on smart meters for domestic customers, and interruptible contracts<sup>3</sup> for Industrial and Commercial (I&C) customers.

These demand side response approaches to I&C customers are now being considered as alternatives to network reinforcement as part of business as usual processes. The project

---

<sup>1</sup> A system for calculating real time capacity on overhead lines based on actual weather data rather than on default data assumption.

<sup>2</sup> A system which maintains voltage at a constant value and within statutory operational limits

<sup>3</sup> These are contracts where the customer agrees to have their supply curtailed at times of high demand.

also deployed active network management products such as smart controls on electric vehicle charging<sup>4</sup>, and monitoring actual power flows at sub stations to better manage peaks in generation and demand. It also added smart controls on distributed generation to curtail generation at times of peak generation.

### **Flexible Plug & Play (FPP): UK Power Networks**

This project trialled connecting distributed generation such as wind and solar power to areas where the network was constrained. It enabled distributed generation to connect to existing network without having to wait and pay for costly upgrades to the network. It did this by trialling new technology to better use the capacity on its network.

The project trialled quadrature boosters which balance power flow dynamically from constrained lines to those with available capacity. It also trialled automated voltage control and dynamic line rating, and used a software based control system to control generator export to maintain the network within operational standards. Flexible plug and play connection offers are now available to all UKPN customers.

Ofgem want network companies to use innovation so they can meet the challenge of moving to a low carbon future. We recently published "Summary: Low Carbon Networks Fund Learning"<sup>5</sup> which further details the significant progress of projects supported through our Low Carbon Networks Fund.

We continue to review progress of ongoing projects and a separate independent report will be published this summer which will evaluate the Fund. We will use this report to develop proposals for changes to the governance of the scheme if required.

I hope you find this useful, please do not hesitate to contact me if you require any more information.

Yours sincerely



Maxine Frerk

---

<sup>4</sup> which controls when vehicles are charged so as not to over load the network.

<sup>5</sup>[https://www.ofgem.gov.uk/system/files/docs/2016/04/summary\\_of\\_low\\_carbon\\_networks\\_fund\\_learning\\_1.0.pdf](https://www.ofgem.gov.uk/system/files/docs/2016/04/summary_of_low_carbon_networks_fund_learning_1.0.pdf)

**The Office of Gas and Electricity Markets**

9 Millbank London SW1P 3GE **Tel** 020 7901 7000 **Fax** 020 7901 7066 **www.ofgem.gov.uk** **The Office of Gas and Electricity Markets**

Cornerstone, 107 West Regent Street, Glasgow, G2 2BA **Tel** 0141 331 2678 **www.ofgem.gov.uk** **The Office of Gas and Electricity Markets**

1 Caspian Point, Caspian Way, Cardiff Bay CF10 4DQ/ 1 Pentir Caspian, Ffordd Caspian, Bae Caerdydd CF10 4DQ  
**Tel** 029 2044 4042 **www.ofgem.gov.uk**