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28 April 2016

Dear James,

Getting an electricity connection when the network is constrained

In some areas of our networks, the existing network is already at full capacity and it is not possible to connect any further generation without carrying out system upgrades. In these cases, customers would typically have to wait for the required reinforcement works to be completed before being able to connect to the network. We are committed to finding and developing flexible solutions for our customers to allow them, where possible, to connect earlier. There are a number of alternative options available to customers who are willing to consider a more flexible connection offering, which, depending on the circumstance, may allow connection ahead of the required reinforcement works.

We have taken this opportunity to demonstrate our commitment to connecting customers when the network is constrained and have summarised:

1. the flexible options we currently offer to customers;
2. how we engage with connections customers; and
3. examples of where we have offered flexible options to deal with network constraints.



In line with our dedication to continuing to find and develop ways to help customers connect earlier, we created a new team, the Active Solutions Team to look specifically at rolling out innovation projects into business as usual.

The full detail of the flexible options we currently offer to our customers, including specific examples, are available on our website and provided for information in Annex 1.

1. Flexible options we offer to customers

We look to engage with our customers to discuss flexible contractual terms in circumstances where a transitional solution may be available for a customer, for example, when a local connection could be completed earlier but the customer's full capacity is not available until reinforcement is complete. In this scenario, depending upon what the current network can accommodate, we may be able to consider including special conditions within the Connection Agreement which will allow the customer to export some of their full capacity. Where possible, this allows us to efficiently manage the capacity available to get generators exporting electricity sooner and customers connected quicker.

We are currently developing a standardised application process for flexible generation which will include each type of flexible connection (listed in Annex 1) we support by the end of 2016. At the moment this is only available for Connect+ and ANM. All customers will be able to directly request flexible connections and to have the opportunity to discuss these options with our Commercial Connections and Active Solutions teams. This engagement, along with the connection offer, will allow the customer to determine whether flexibility will benefit their connection and can help customers get a quicker connection despite network constraints.

2. Engagement with our customers

We are committed to meeting the needs of our connections customers; this includes gathering their views on getting connected in areas where the network is constrained.

Through dedicated meetings we recently engaged with our customers to gather their views towards flexible connections and innovation. These high-level meetings brought together customers and key decision-makers at SSEPD. We presented on current projects responding to network constraints and used feedback from customers to inform our 2016-17 ICE plans.

Following the success of this dedicated engagement, we have decided to carry out further engagement on this topic by a variety of mechanisms including:

- Two engagement days aimed at communicating to our customers what Active Network Management (ANM) options are available for their connection. The most recent event was in Forres on 24 March and the next event will be held in Edinburgh on 17 May.
- A webinar was also arranged to encourage a wider audience of customers, which attracted over 90 registrations from customers online. A further webinar has been planned in response to meet customer demand.¹

Our plans and commitments for 2016-17 are outlined in our ICE Looking Forward Report which has been developed through stakeholder engagement. These include providing guidance and explaining the process for flexible connections and active solutions management teams online to enable our customer to discuss innovative ideas with our specialist teams.

3. Examples of where we have offered flexible options to deal with network constraints

In order to respond to the needs of our connections customers there are a number of examples of where we have managed network constraints and enabled more flexible ways of connecting customers without having to build new network capacity.

In 2015 we surveyed 2,734 of our domestic customers². This highlighted areas of interest to our customers and helped inform our project selection, examples of how we reflect our stakeholder views on our connections projects are outlined below.

¹ A number of other engagement events are planned for the coming year in relation to innovation and these can be viewed in full on our online events calendar - <https://www.ssepd.co.uk/stakeholderevent/basicsearch/>. As part of our commitment to continuous improvement these engagement activities will be assessed by obtaining customer feedback at regular intervals.

² 1,288 customers in SSEPD's Southern Electric Power Distribution (SEPD) licensed area and 1,446 customers in the Scottish Hydro Electric Power Distribution (SHEPD) licensed area.

Local Constraints Management (ACCESS Project)

- Survey findings: 92% of customers are supportive of projects to work with communities to develop methods to allow locally generated energy to flow freely within specified areas without strengthening network links to other areas.
- Outcome: ACCESS – Local Constraint Management (Mull).

The ACCESS project based on Mull involves creating the technical and commercial framework to allow generators to manage generation and demand within a pre- determined network area. Specifically this is intended to link local controllable demand (i.e. heating systems) with intermittent local generation.

We had a crucial role to play in facilitating this project. SHEPD installed network monitoring equipment which will monitor network parameters at potential constraint points and will send appropriate signals to disconnect either the generator and/or demand to protect and maintain network integrity. These signals will only be used should the network come close to breaching safe operating parameters. At all other times the generator and their chosen demand aggregator will be responsible for balancing supply and demand within the specified network area.

Constraint Managed Zone (CMZ)

- Survey findings: 94% of customers are supportive of paying for better network management. Where the network is getting overloaded instead of digging up the streets. SSEPD will encourage energy storage and flexible use of electricity in the area by paying for better network management.
- Outcome: Constraint Managed Zone (CMZ).

A CMZ is a commercial arrangement which allows commercial organisations to provide Constraint Managed Services to the DNO.

Through innovation projects, we know that flexibility services such as energy storage and demand-side solutions can successfully alter energy demand allowing us to effectively manage peaks in demand or distributed generation without the need for network reinforcement, which can be costly and cause disruption to customers' supply. Using this learning we have now moved forward with our first CMZ without the need for further funding – the CMZ will be deployed as “business as usual”. The cost of implementing CMZ will be more than offset by the savings we could make in network reinforcement, so CMZ



shows clear value for our customers. This flexible approach also allows SSEPD to optimise the timing of making large investment decisions, while still delivering the same level of network security and quality of service at a fraction of the cost.

Rollout of proven innovation into business as usual

Following the successful delivery of Active Network Management (ANM) on the Orkney Islands over a number of years, we want to ensure that customers throughout our network have the opportunity to access the same types of benefits. Utilising our new Active solutions team, we have rolled out ANM on the Isle of Wight and also set up SSEPD's first Connect+ device on the Western Isles.

Should you have any questions or wish to discuss any element of this response, please don't hesitate to get in touch.

Yours sincerely,

(by email only)

Lauren Milligan

Regulation, Networks

Annex 1 - Alternative generation connections

The alternative connection options we offer to customers that are listed below are made publicly and readily available on our website. We direct customers to this part of the website when we believe we can offer them an alternative connection arrangement, we also have an information leaflet for generation customers containing information on commercial and contractual innovation to explain what we are trying to do to tackle constraints. Alternatively, our connections account managers and designers also provide guidance to customers.

Forming a consortium – Our experience with Grudie Bridge

In some cases, the costs of network reinforcement or new connection assets can be prohibitive to a project. One potential option available to developers in this circumstance is to share this cost with other developers connecting to the same part of the network by forming a consortium. To assist developers with identifying a potential consortium, we have developed a consortia register as part of our Heatmap tool which has received positive feedback from both our customers and other DNOs.

We have recently presented a case study to Ofgem on the 'Grudie Bridge Consortium'. This area of our Scottish Hydro Electric Power Distribution (SHEPD) network was considered to be "full" from an electricity generation perspective. It was recognised that, in order to accommodate any further generation on the Distribution network distribution and transmission upgrades were required.

SHEPD explored whether there was appetite amongst interested parties to progress with a consortium-type arrangement. The 'consortium' allowed the connecting parties to share the initial high costs of connecting, thereby lowering the hurdle to connecting parties.

Timed connections

Our Southern Electric Power Distribution (SEPD) network tends to have predictable load and generation patterns which enable us to determine when limitations in capacity may occur. We are therefore able to offer connections that are given an operating schedule with defined times and levels of capacity available to the customer.

Intertrip

Some of our networks are constrained due to a single upstream asset requiring reinforcement, or a single limit being infringed under certain conditions. Through monitoring



these conditions, further capacity can be released when these limits or assets are within normal operating parameters

Active Network Management (ANM)

In areas where there are several, complex constraints affecting a number of customers over a long period of time, full ANM systems can be implemented. The ANM systems continually monitor all the limits on the network in real time and allocate the maximum amount of capacity available to customers in that area based on the date their connection was accepted. The earliest ANM schemes in Great Britain have been implemented as part of innovation projects, but SSEPD is beginning to integrate such approaches into their business as usual practices.

Commercial and Community Innovation

Earlier this year Ofgem announced that in order to facilitate shared ownership of Feed in Tariff projects, it would allow community projects to share a point of connection to the network with a commercial development. SSEPD have since created a number of innovative ways of accomplishing this in order to suit individual projects. The most cost effective method has been to use 'pseudo MPANs' with sub-metering. However, we have also facilitated fully metered circuit breakers and full settlement metering where this is preferred by developers.

SSEPD have also been collaborating with Community Energy Scotland (CES) on novel commercial arrangements, where the developer has received a connection offer which has a delayed connection date due to constraints on the transmission network.

Connect+

Connect+ is a way of getting ANM functionality for a single generator connection. We have trialled a Connect+ device onto a generation connection on the Western Isles, this is due to be complete by July 2016. If the analysis of the trial is a success, we will be able to offer this kind of flexibility across our networks³.

Constraint Managed Zones

A Constraint Managed Zone (CMZ) is a geographic region served by an existing network where requirements related to network security are met through the use of load variation

³ Where the network conditions allow.



techniques, such as Demand Side Response, Energy Storage and stand-by generators. We are looking to deploy this approach in the Yeovil area of our SEPD area.

Export-limiting devices

Additional measures are put in place to monitor power quality and ensure that the network operate within the required limits. We have a number of different types of these systems already connected to our network.

Flexible payment terms

We offer flexible payment terms for all connections at the pre-energisation stage. For large connections or those that will not be completed for several years, staged payments will be offered automatically to the customer.