

Electricity Network Innovation Competition Full Submission
Supplementary Answer Form

Project: REVISE

Tick if this answer has been provided verbally: ☐

Project code	WPD/EN/NIC/05	Question Number	2
Question date	09 August 2018	Answer date	13 August 2018
Submission section question relates to	Proforma Section 2		
Topic	(b) Provides value for money to electricity customers (d) Is innovative (ie not business as usual)		
Question	What does the Advanced Connection Solution achieve that load air break switches wouldn't, or other similar pole mounted switches.		
Notes on question	None		
Answer	<p>One of the main aims of the Advanced Connection Solution (ACS) is to create a standardised Solution for network connections which can be quickly deployed allowing customers to connect to the network faster and increase network flexibility.</p> <p>Developing ACS as a standard connection Solution would have the following main advantages over a Solution which uses air break switch disconnectors or pole mounted switches:</p> <ul style="list-style-type: none">• Safety – providing a ground mounted Solution creates a safer working environment for local operation and will simplify and standardise the surrounding network earthing arrangements.• Maintenance – the ground mounted, fixed pattern switchgear to be used in the ACS is "maintenance free" and therefore would require less maintenance compared with outdoor pole mounted switches. In addition, an outage for the maintenance of an individual outdoor pole mounted switch would require all connections to it to be isolated and earthed. This would mean that the surrounding pole mounted switches would have to be open to allow this maintenance to be undertaken. Therefore, this is likely to mean that the generator connection would need to be switched off for every routine		

	<p>maintenance of switch. Whereas the circuit breakers used in the ACS would not require intrusive maintenance meaning that the surrounding network can remain operational under routine maintenance conditions.</p> <ul style="list-style-type: none"> • Visual amenity – the compact ACS will be designed to be less visually intrusive than multiple pole mounted switches. • Operation – air break switch disconnectors and pole mounted switches are a low-cost way of providing isolation of the network but cannot be used for actively disconnecting the network for faults. Pole Mounted Reclosers can be used for disconnecting faults but cannot be used as a point of isolation. The ACS can fulfil both isolation and fault disconnection activities. Additionally, it can also be used to apply a circuit main earth during times of essential maintenance. Hence the ACS will have a far greater degree of operation and flexibility. It can also be combined with Intelligent Network Reconfiguration (INR) and protect the network through standard protection schemes or with the Dynamic Protection System (DPS). • Design – the ACS will be developed as a standardised Solution for connection to 33kV networks requiring limited engineering design input each time it is being deployed. Most connection design Solutions currently require a bespoke design to be prepared (consisting of new poles/structures, cable connections, switchgear etc.) depending on the size and configuration of the connection. The ACS will reduce the time and effort required for the bespoke design and the procurement of individual components. In addition, we also aim to develop the ACS with the option for either overhead line or cable connections as we believe there is scope for the ACS to be deployed in some urban environments and this was supported by UK Power Networks during DNO engagement. This type of arrangement would not be possible using pole mounted switches due to the surrounding urban environment. • New Technology – the technology provided within the ACS will integrate with DPS and INR to create a Solution which will release additional network capacity and increase availability for generation which would not be possible through the use of pole mounted switches alone. The new technology to be trialled in the ACS will also provide a transition towards a “digital substation” approach allowing increased operability and more granular data to improve network visibility. <p>Further details of the ACS can be found in Appendix L (page 79) of the Full Submission.</p>
Attachments	None