

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	28
Question date	30 August 2018	Answer date	3 September 2018
Submission section question relates to	2		
Topic			
Question	What proportion of the GB distribution system could each of the three methods be applied to?		
Notes on question	None		
Answer	<p>The roll-out methodology for each Method can be found in Appendix K. For the purposes of calculating the benefits, we have assumed that all three Methods would be rolled-out to align with the projected DG connecting to the 33kV network (based on a medium projection as detailed in Section K.4.4).</p> <p>Our analysis (described in Section 3.3 of the FSP) has concluded that the 33kV network has seen the greatest increase in DG connecting in recent years and now has the highest density of generation (MW per km of conductor) compared with other voltage levels as shown in Figure 1 and Figure 2 respectively. REVISE will therefore focus on the design of the Methods for the 33kV distribution network in order to maximise the benefits of the trial and subsequent roll-out of the Methods across GB.</p>		

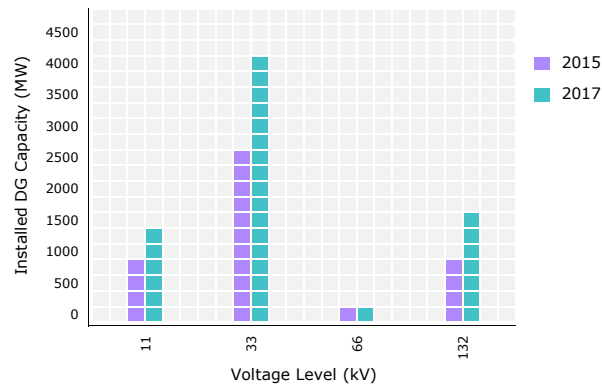


Figure 1 – DG on WPD’s network

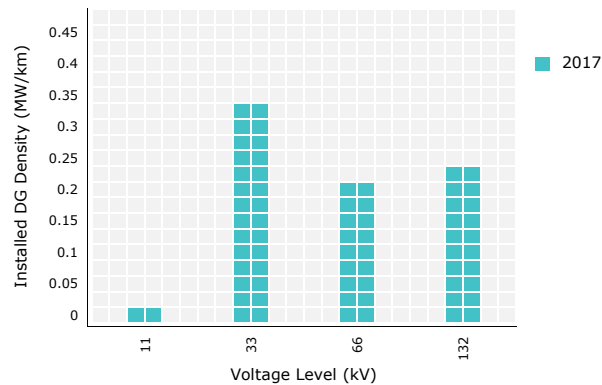


Figure 2 – DG density on WPD’s network

The ACS will be designed to increase the output of low carbon energy from DG connecting to the 33kV overhead line network as described in Section 2.1.2 of the FSP. The volume of DG connecting to the 33kV network is forecast to continue to increase as detailed in our Shaping Subtransmission Report. The ACS will therefore be a key facilitator of the UK’s Carbon Plan to decarbonise the electricity network by ensuring that the low carbon energy produced by DG is not curtailed due to outages on the network. We anticipate that the majority of this DG will be connecting to rural networks due to the type of generation (solar and wind). The ACS could be implemented across the entire rural overhead line network which equates to over half of the total 33kV network in GB. As part of the ACS design process we will look to include the facility for 33kV cable connectivity which would further increase the proportion of the 33kV network where the ACS could be applied.

For the purposes of REVISE, DPS and INR Methods will be designed for the 33kV network; however, with further development these Methods could be applied across all EHV and HV voltage levels. The DPS and INR Methods will not be applicable to current LV networks. This is because the majority of the LV network is protected by fixed setting fuses rather than protective relays and there is limited remote control / monitoring capability for LV network assets. Therefore the DPS and INR Methods would be applicable to around 50% of the GB distribution system.

Attachments None