Electricity Network Innovation Competition Full Submission

Supplementary Answer Form

Project: Black Start from Distributed Energy Resources

Tick if this answer has been provided verbally: ☐

Project code	ESOEN01	Question Number	38
Question date	23 Aug 2018	Answer date	28 Aug 2018
Submission section question relates to	Appendix D – Risk Register and Contingency Plan		
Topic	g) Robust methodology and ready to implement		
Question	Risk 4: What mitigation has been put in place? If it turns out that this is the case for all the test areas how will the tests be carried out? Should this be a red risk?		
Notes on question	Electricity NIC Submission 2018 ESOEN01_V01 Risk 4 - Development - DERs not suitable for Black Start testing Cause: DERs in SPEN licence area and other DNO licence areas are found to be unsuitable for testing of energisation or restoration without significant changes to technical capability. Also, see response to Q27.		
Answer	All case studies are likely to be built around at least one synchronous generator because this is the only technology (of sufficient TRL) that can be grid-forming and act as the 'anchor' for a Power Island. Thermal generation like biomass, gas or diesel engines, and hydro typically use synchronous generators and could feasibly be made self-starting, if they do not already have that capability. Expected (minor) modifications to DERs to facilitate testing of Black Start from DERs, such as control and communications changes, have been included in the project budget. We have also engaged with DERs from across GB to understand their perspective on the readiness of technical, commercial and regulatory aspects. This has informed our understanding of risks and costs. We continue to have meetings with DER owners/operators and have confidence that the proposed trials are technically feasible. Across the case studies		

	there is significant diversity in the generator types and sizes, which gives the project a range of options for online testing. In this way, we have mitigated against Risk 4. Based on our research and conversations, we have assigned this risk a probabability score of 1, which is equivalent to assuming that less than 10% of DERs in the case study networks require modifications that are much more costly than those budgeted. The financial and reputational impact scores have also been reviewed and are reasonable in our view. This results in a RAG score equivalent to a green risk. During the Development phase, we will assess the technical suitability of the DERs within the case study networks in detail. A key criterion for progression to online testing will be the cost of any required modifications to DERs. If we find that the cost of DER modifications for the most suitable case study networks is materially higher than budgeted, we will mitigate by rescoping the online testing. This rescoping may include full online testing of only one case study network, reduced online testing of two case study networks and/or testing of case study networks that are less suitable overall but require less modifications to DERs. It may also include further studies and engagement with OEMs to understand DER capability and how to overcome. In this way, we will maximise value and learning from the online testing, alongside learning from process walkthrough testing and detailed analysis.
Attachments	