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	2
Question date	7th August	Answer date	9th August
Submission section question relates to	3		
Topic	d) innovative		
Question	Please explain how the proposed project exceeds what the ESO has committed to deliver using business as usual funding in its Black Start strategy where it says it will investigate: a. Distributed Energy Resources: Generation embedded within the DNO networks has the potential to provide a restoration service, depending on the level at which it is embedded into the network and the ability to control restoration at this point. National Grid SOF had undertaken a piece of work to explore alternative methods of "Black Start from distribution networks ". This report also detailed the current challenges in place and National Grid is looking to further explore technical solutions to these and the commercial viability		
Notes on question	Excerpt from License Condition 4G detailing requirements of Black Start Strategy Part A: Black Start Strategy 4G.3 Further to the statement prepared pursuant to paragraph 3 of Standard Condition C16 (Procurement and use of balancing services) the licensee must, by the next working day following this condition coming into effect and thereafter at 12 monthly intervals (unless otherwise directed by the Authority), submit to the Authority for approval, a methodology (the "Black Start Strategy") setting out how the licensee will approach the delivery of Black Start onto the National Electricity Transmission System. The Black Start Strategy must include, but need not be limited to: (a) The strategy for Black Start provision which is to be applied for the duration of the Black Start Strategy including an appropriate Restoration		

	Approach, the Minimum Service Level required and appropriate Restoration Time; (b) The strategy for Black Start provision between one and three years including an appropriate Restoration Approach, the Minimum Service Level required, appropriate Restoration Time and identification of new technologies and approaches for the provision of Black Start; and (c) The strategy for Black Start provision beyond three years including an appropriate Restoration Approach, the Minimum Service Level required, appropriate Restoration Time and identification of new technologies and approaches for the provision of Black Start.
Answer	ESO, as part of its special license condition 4G, produces a Black Start Strategy and a corresponding Procurement Methodology. As part of the most recent publication of the Black Start Strategy, ESO has committed to explore new provider technologies and innovative restoration approaches, one of which being Distributed Energy Resources (DER). After considering this initially in the 2017 System Operability Framework publications, it was determined that "to fully develop these approaches, more specific design and research is required", specifically to address challenges around "roles and responsibilities and the need for additional infrastructure". Exploring this further, it has become apparent that the scope of work required to explore and to ultimately enable ESO to prove the concept, and form a methodology to deliver it, is much wider than originally considered and commented on in the strategy. A summary of some of the innovations that are required are included in Appendix H, which essentially explains that all elements of the current process not only need to be considered in an entirely new context, but wholly redesigned to align to a new methodology, and tested rigorously in a safe environment. Before rollout we need sufficient confidence that the approach is not just technically reliable, but economical and efficient, before we expose the end consumer to the costs of implementation. We now know that in order to do this, we need to adopt an open and collaborative approach with the wider industry. In particular, we need to develop frameworks that work for DNOs and DER whose roles will transform to be a central part of the new approach. The commitment in the Black Start Strategy is to explore these concepts only, and although it would be our ambition to develop these fully, the proposed method approach in this project exceeds the current commitment by seeking to develop, test and prove the concept, rather than simply exploring it.

Attachments	