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	59
Question date	18 Sep 2018	Answer date	20 Sep 2018
Submission section question relates to	Section 4.(a) Benefits		
Topic	(b) Value for money		
Question	A significant benefit of Black Start may be quicker restoration of local demand but this has not been claimed as a benefit. With this in mind, can you say: i. Compared to the licence conditions, what is the current target lapsed time for (a) restoration of individual GSP Groups and (b) the system as a whole following a complete loss of the system. ii. By which year do you think this target will be affected by the retirement or partial availability of the current Black Start fleet. iii. What targets have been set for retsoration of (a) individual GSPs and (b) the system as a whole once the system has a significant dependence on DER for black start, say in 2035 and 2050.		
Notes on question			
Answer	The project proposal has not referenced the potential reduction in restoration times, either at a local or national level, and the CBA has also not recognised this potential benefit. Therefore this benefit is in addition to the forecast project benefits and will be explored further in the project. The licence conditions require ESO to publish a Black Start strategy with a restoration time for the current restoration approach, rather than to meet a specific restoration time. The 2018/19 published ESO Black Start Strategy contains a planning assumption for average restoration time of 24 hours to restore 60% of national demand, and a Minimum Service Level value for this restoration time. These values can be met with the current level of Black Start provision.		

	Restoration times are not set (neither in the licence nor in the Strategy) for individual GSP groups given the number of unknown variables in a system shutdown event (the cause, the level of network damange etc) which are likely to impact on individual GSP restoration times. If Black Start capability is not maintained, this will result in increases to restoration time. A strategy is in place for replacement services to manage the trend in retirement (and lack of availability) of traditional Black Start Service Providers. However, without Black Start from DERs, new CCGT may need to be built and/or refurbished, resulting in increased costs for services and greater carbon emissions. Targets for restoration have not been set by any organisations for the 2035 or 2055 timescale. Work is onging as part of the E3C Black Start Task Group to set a Restoration Standard for GB – a restoration time that is deemed acceptable to restore a significant proportion of national demand. This may also set targets on a regional or zonal level but it is unlikely to specify restoration targets at the GSP level. Calculating and assuring expected restoration times is very difficult due to the large number of variables in the restoration process. This includes the state of the power network itself, the readiness of Black Start and other generators, DNO actions in restoring demand, the availability of robust communications, and effective interactions between parties delivering the agreed plan. One of the innovative outputs from this project will be the ability to include DER in this complex analysis. Obviously the goal is to achieve better restoration performance overall, at both a national level and locally, and we believe that a decentralised approach to restoration has the potential to achieve that. However, without detailed examination as proposed in the project we will not know whether this can be achieved in practice and cost effectively.
Attachments	