Electricity Network Innovation Competition Full Submission

Supplementary Answer Form

Project: Charge: Refuelling Tomorrow's Electrified Transport

Tick if this answer has been provided verbally: ☐

Project code	SPMV1	Question Number	47
Question date	30/08/18	Answer date	03/09/18
Submission section question relates to		N/A	
Topic	a) Low carbon/environment and net financial benefits		
Question	For the calculation of the Method 1 and 3 financial benefits, what is the assumption regarding the locational sensitivity of the charger location, i.e. what percentage of the MW capacity of chargers applied for will be able to move to a different location based on the information provided by these tools.		
Notes on question			
Answer	There was no direct assumption taken regarding the locational sensitivity of the charger location for Method 1. The business case around Method 3 is based on efficiencies for both the connectee and the DNO in dealing with a rapidly increasing volume of new connection requests/enquiries, respectively. As per page 50, the indirect assumption for Method 1 was that: • 25% of all en-route (rapid) chargers would trigger reinforcement if not directed • 10% of all public/destination (fast) chargers would trigger reinforcement if not directed The reasons for the differences in percentage is that: • The en-route and destination charge points are larger in size*, and therefore more likely to cause the existing distribution network to exceed ratings, triggering an intervention. The CCC predictions (source: Plugging the Gap: An Assessment of Future Demand for Britain's Electric Vehicle Public Charging Network, Ref. 105852, 11/01/18) shows that there are fewer of these required by 2030, but these are still a critical enabler to transition the transport fleet to low carbon. • We believe that the public / destination chargers will be electrically smaller, more likely to look like today's residential demand**, which are less likely to trigger a network intervention if spread evenly throughout the network. However, once the solutions and		

	business models are proven we expect these to be clustered into terraced streets or shopping centres. • There is an implicit assumption in our business case that the EV charging could be 'steered' to a suitable adjacent network, and that this would be accepted by the end users (EV drivers), we are seeking to test this in the project. By way of example, we are in discussion with Liverpool City Council on providing EV charging capacity to the 'Baltic Triangle' area of Liverpool, shown in Case Study 1 on page 77 of our bid (shown below for ease of reference). The 'triangle' aligns with the area shown by the red feeders in Figure 25, where we have no capacity. We are exploring ways to provide charging on adjacent feeders there is capacity (shown in yellow, amber and green), but it's not clear how flexible the end customers will be to this. Figure 25:Network constraint issues (green = no constraint, Red = constrained network) Whilst locational sensitivity can be estimated in a small geographic location, there is significant uncertainty in rolling this out across a DNO licence area - hence the need for innovation funding and the project to understand this interaction in more depth. *a CHAdeMO rapid dc charger operates from 40-63kW **a domestic slow charger is 3.5kW, and a fast charges at 7kW (a technical cap due to the rating of single phase circuits of 32A). As battery range increase, the charging rates also increase to allow the vehicles to charge in 'reasonable' times. Most EVs in 2018 have been built on the expectation of charging at 7kW.
Attachments	n/a