


LCN Fund Full Submission

Supplementary Answer Form

Tick if this answer is Confidential: ☐

Tick if this answer has been provided verbally: ☐

Project code:	ENWT205	Question Number	25
Question date	3 October 2013	Answer date	11 October 2013
Submission section question relates to	Expert Panel Bilateral		
Topic	Equipment		
Question	We understand that some consumer appliances are designed for certain voltages and that their lifetime could be reduced if operated at lower voltages. Have you reviewed research in this area? Is this an issue and, if so, how has this informed your view of the voltage levels which would be used in the trial?		
Notes on question			
Answer	<p>The aim of the <i>eta</i> Project is to operate the network in an efficient manner and within all design and voltage limits. By optimising the voltage profile some consumers, especially those further along the radial branch, will see a more stable voltage at their property without the potential high voltages from increased DG or potential low voltages with increased Electric Vehicles or Heat Pumps. For clarity, there is no plan to operate the network at the extremes of voltage. <i>eta</i> facilitates the opportunity to provide the added benefit of reduced energy consumption by operating at a slightly lower voltage but still within design limits.</p> <p>The objective of Conservation Voltage Reduction (CVR) is to supply our customers at a voltage at the lowest level consistent with proper operation of equipment, within nameplate ratings of equipment, and within levels set by regulatory agencies and standard setting organisations. This is how we have considered the voltage levels that would be used in the <i>eta</i> Trial.</p> <p>There have been numerous studies on the effects of CVR on equipment but these are mostly to quantify the benefits, which are variable based on the type of equipment considered; although some concerns have been voiced about the adverse impact on equipment lifetimes this is when the voltage is outside statutory limits or not controlled in an effective manner but merely 'set lower' at the Primary substation and allowed to vary across the network (see attached paper).</p> <p>Rachel Hodges, Managing Director of TNEI, the Technical Support for the <i>eta</i> Project has previously worked in the domestic appliance manufacturing sector as a controls designer and has confirmed that appliances are not designed specifically with the UK</p>		

	<p>market in mind; they are designed to operate across Europe where the supply voltage is historically lower at 220V compared to the UK where it was historically slightly higher at 240V, therefore a slightly lower voltage would not cause any issues. In fact the appliances will be operating at the nominal supply voltage rather than within the operating range, one of the main reasons why CVR techniques deliver energy consumption savings in appliance use.</p>
Attachments	 <p>IEEE_Conservation_ with_Voltage_Reduct</p>
Verbal Clarifications (Consultants)	