

LCN Fund Full Submission

Supplementary Answer Form

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Project code:	NP GT203	Question Number	18
Question date	3/10/13	Answer date	11/10/13
Submission section question relates to	Expert Panel Bilateral		
Topic	Benefits		
Question	<p>(a) We note that you assume a value of £43/KW for your base case value of DSR. How do you justify this level, particularly given that you are not using the DSR for STOR?</p> <p>(b) We note the benefit of £1 per household per year. What other benefits to GB electricity customers, both for distribution customers and others, would there be and can you quantify this?</p>		
Notes on question	<p>We have undertaken more analysis on the benefits case since the original bid through the period of the dialogue with the Expert Panel and the consultants. In this response, we provide more information on the benefits case presented in the original bid. It is because of the extra analysis and the revised view being generated that the figures in this response may vary slightly from the previous data shared. Much more detail will be provided in the revised bid that is being prepared in parallel to this response to the question.</p>		
Answer	<p>(a) We note that you assume a value of £43/KW for your base case value of DSR. How do you justify this level, particularly given that you are not using the DSR for STOR?</p> <p>Where distribution network operators (DNOs) can access DSR in the Base Case, we assume that they incur costs comparable to the costs of STOR to do so. This is because, absent the ACE measures, it is most likely that DNOs contract bilaterally with I&C customers to gain DSR. To do this, they have to compete with National Grid who currently contract similar services. The service DNOs are contracting for is likely to have similar characteristics to STOR, for example in terms of the utilisation rate. It is therefore unlikely that they could access this DSR at a cost below the cost of STOR. We therefore assume this DSR can be accessed at a cost comparable to the current cost of STOR, plus transaction costs associated with bilateral</p>		

contracting (£43/kW).

It is important to note that, in the Base Case, we assume that DNOs are able to undertake a range of conventional and smart network reinforcement options, including DSR. These mitigations include conventional reinforcement, as well as smart interventions such as storage, enhanced voltage control and real-time thermal rating. We include these measures in the Base Case, instead of just comparing the options to traditional reinforcement, as we assume that all DNOs will build their plans based upon the learning from CLNR and other research projects. This however is a conservative approach because we ensure that potentially cost-effective technologies and commercial arrangements, which are not yet part of DNOs' routine operations, are available to release headroom in the Base Case of our benefits case.

(b) We note the benefit of £1 per household per year. What other benefits to GB electricity customers, both for distribution customers and others, would there be and can you quantify this?

Our analysis suggests the ACE propositions will deliver between **£827m-£5,928m net benefits to DNO customers at GB scale to 2050, or between £27m-£198m annually**. Even the bottom end of this range represents a significant return on LCN Fund investment, in just one year. If we take the mid-point, this equates to a benefit of around **£113m per year**.

The gain to participants in ACE will be even larger than the average gain to customers. Participants in ACE will gain through energy savings and the potential to win prizes. These benefits are up to **£33 per year for each participating household** (this would be substantially higher if they are awarded a higher than average number of prizes). If communities choose to pool their prizes then there is real potential to create meaningful funds to provide material benefit to customers' neighbourhoods. For the I&C trials, the benefits are again meaningful at over **£2k per year for each local authority site**. For both customer types, these benefits are on top of the savings customers will gain through the lower DUoS charges driven by the reduction in network reinforcement costs that the DNOs will be able to achieve through their access to this more cost-effective DSR.

Table 1 shows the breakdown of annual GB-wide benefits across each of the customer groups for the upper and lower boundaries of the range¹. The benefits are split into four categories with the value of the benefits stated net of the cost of operating the ACE interventions, including the cost of prizes.

- **Benefits to all DNO customers:** All customers, including participants in ACE, will benefit from reduced energy bills due to lower distribution use of system (DUoS) charges. These reductions are due to reduced expenditure on network reinforcement due to the ACE interventions.
- **Benefits to ACE participants (households or I&C):** In addition

¹ These differ from the estimates quoted above as they represent the totals for all participating customers, rather than the per customer figures.

- to the benefits from lower DUoS charges, ACE participants will benefit due to reduced energy consumption. Households participating in the wider community games and in the school competitions also have the potential to receive prizes.
- **Benefits to other parties:** There may be spill-over benefits to the transmission system operator (TSO), suppliers or generators, if local network issues tackled by ACE coincide with national level issues. However, local issues may be increasingly driven by clustering of LCTs and therefore are less likely to coincide. We therefore do not quantify these benefits.
 - **Carbon benefits:** These include carbon savings due to reduced energy consumption and losses, and peak shifting. These are unlikely to be highly material and will be quantified in our revised bid. They are excluded from the figures presented here.

Table 1: Breakdown of the GB-scale annual benefits

ACE benefits	Benefits to all DNO customers	Additional benefits to all ACE households	Additional benefits to all ACE I&C customers	Total net benefits
<i>Lower boundary</i>	£16m	£11m	£0.5m	£27m
Midpoint	£62m	£49m	£2m	£113m
<i>Upper boundary</i>	£107m	£86m	£4m	£198m

Although the total benefit to I&C customers appears small compared to households, this reflects the smaller number of participants, rather than a smaller value per participant. Indeed, each local authority I&C customer should save over £2k through reduced energy bills.

Alongside these financial benefits ACE will deliver a range of other benefits such as:

- an increased feeling of control over energy use and costs for customers, gains from the knowledge that they are contributing to their community and saving carbon and fun they may have participating in games and competitions;
- a reduced risk of stranded assets due to the option value from using DSR instead of making capital investments;
- potential spill-over benefits to the TSO, suppliers or generators, if local network issues tackled by ACE coincide with national level issues; and
- carbon savings beyond those which we are monetising, for example due to facilitating the roll-out of low carbon technologies and reducing embedded carbon in network reinforcement.

These four areas of wider benefit have not been included in our

	<p>quantification of net benefits.</p> <p>It is also important to note that the lower bound of our estimate reflects a very conservative assumption on the base case - assuming that DNOs could access and apply cost-effective DSR without having the ACE tool to facilitate this. In fact, without the tool being developed in Method part 2, DNOs may not be able to integrate DSR into their planning and design decisions with the required level of confidence.</p> <p>In our revised submission, we will therefore be putting more emphasis on the mid-point of the range of net benefits. In addition, we will monetise carbon, review our cost assumptions, and present sensitivities around the quantity of low-carbon technologies on the system, and the energy savings that can be assumed to be associated with DSR in the base case.</p>
Attachments	
Verbal Clarifications (Consultants)	