LCN Fund Full Submission

Supplementary Answer Form

Tick if this answer is Confidential: ☐

Tick if this answer has been provided verbally: ☐

Project code:	Smarter Network Storage	Question Number	UKPN010
Question date	04 September 2012	Answer date	07 September 2012
Submission section question relates to	Section 4		
Topic	Evaluation Criteria		
Question	Please confirm that your base case is consistent with governance document assumptions (that is the Minimum Cost Scheme under which the DNO would deliver the Solution at the scale being tested within the project). Please confirm that the Base Case is delivering the same network capacity as the Method.		
Notes on question			
Answer	We confirm that the base case costs represent the minimum cost scheme for providing the necessary reinforcement at Leighton Buzzard. This reinforcement is the most efficient method currently in use on the GB distribution system, and is therefore consistent with the LCNF Governance document assumptions. This scheme and a proportion of associated costs reflect those previously included in the DPCR5 business plan, which are now being contributed towards the project according to the requirements of the LCN funding. You will recall that in our waterfall diagram on page 17 of the bid submission, that the base case cost was shown as £8.6m. This was set alongside the overall cost of the project of £21.3m from our full submission spreadsheet, and which constituted the £14m cost of the Leighton Buzzard installation, and £7.2m of innovation or first-of-a-kind costs. The additional cost of the Leighton Buzzard installation at 2012 prices (£14m - £8.6m = £5.4m) was more than met by the £3.8m of expected income from value streams outside the DNO; a conservative estimate of £2.6m in technology cost reduction; and the		

benefits at a GB scale of displacing carbon intensive generating capacity.

Further Analysis
Whilst developing the bid we have carried out a more detailed analysis of a range of proven and currently unproven alternative investment routes at Leighton Buzzard in order to fully evaluate the business case for storage. This analysis was used for internal stakeholder engagement with UK Power Networks' regulatory and investment planning managers and was not presented in the bid for clarity and simplicity of presentation. It forms an early start to project work itself in validating business models and cases for storage over the asset lifecycle, in particular since it enables us to place a value on storage services offered by a 3rd party to support a particular substation.

This detailed analysis involved Present value (PV) calculations of a number of investment routes that added required capacity at the site, some including storage, and some without, up to 2050.

All of these routes culminate in the eventual installation of the third transformer and cable route and therefore ultimately deliver the same capacity increase. However, different investment routes naturally provide step changes in the capacity at different times, based on the limitations of the different approaches available. One virtue of storage is that, unlike transformers, cables, etc. one is not limited to 'standard' step increases in capacities / ratings which may not be utilised for many years.

The analysis of all combinations of potential investment routes showed that those incorporating storage, based on an installed cost of £14m, are currently in the region of £7 – 9m more expensive on a present value basis *if only installed for distribution network support when no other value streams are leveraged*.

This scale of additional cost can be met by our estimates of technology cost reduction, income from value streams outside the DNO, and the benefits at a GB scale of displacing carbon intensive generating capacity.

In the interests of conservatism we have continued not to monetise the following:

- The increased certainty of delivery of timescales, emphasised by Barry Hatton (Director of Asset Management) in our meeting with the Technical Consultants.
- The additional value in power quality improvement and harmonics filtering.
- The provision of extra transfer capacity to other neighbouring sites. This can happen in windows when the device is not

	committed for ancillary services or network support, and particularly once further reinforcement has taken place. - The additional costs of making the Leighton Buzzard installation flood-resilient. A discount rate of 7.2% was used in the calculations.
Verbal Clarifications (Consultants)	