

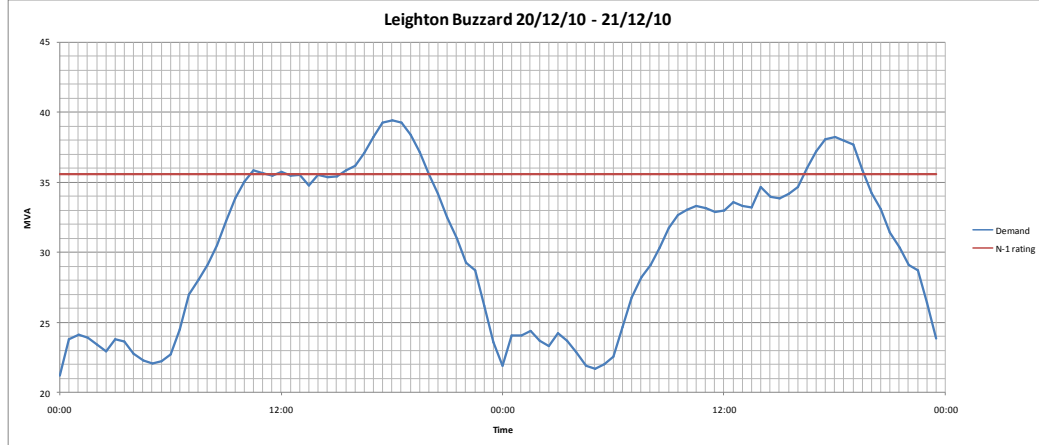
LCN Fund Full Submission

Supplementary Answer Form

Tick if this answer is Confidential: ☐

Tick if this answer has been provided verbally: ☐

Project code:	Smarter Network Storage	Question Number	UKPN007
Question date	30 August 2012	Answer date	04 September 2012
Submission section question relates to	Section 2		
Topic	Project Description		
Question	Why has the proposed battery size increased from 4MW in the initial proposal to 6MW in the final submission? And what is driving the battery size requirements?		
Notes on question			
Answer	<p>In the ISP submission we wrote "Procurement and installation of grid-scale energy storage device connected at 11kV, sized at approximately 4MW/16MWh based on the projected energy at risk".</p> <p>Leighton Buzzard primary substation was selected since the demand on cold winter evenings exceeds the site firm capacity for a few hours over the evening peak.</p> <p>The daily load curve for the two coldest days of 2010 is shown below. The load profile shows the demand was greater than the firm capacity for 5 hours with a peak shortfall of 3.8 MVA and 10MVAh would have been at risk for the loss of one of the 33kV feeder circuits.</p>		



As natural demand grows the magnitude and duration of the demand at risk will increase. UK Power Networks has sized the storage device to ensure security of supply for a number of years. Based on our current view of potential connections activity, our infrastructure planners estimate the demand at Leighton Buzzard may reach 40.9MVA by 2021/22.

The site also has a limited transfer capacity of around 2MVA from neighbouring primary substations.

Appendix H Summary Workstream Descriptions, Workstream 1 describes that UK Power Networks carried out a competitive supplier selection process. Based on the analysis above, initially we asked potential suppliers for solutions between 4 MW – 5 MW and 16 MWh – 20 MWh as manufacturers will have various ranges of energy storage solution.

Suppliers offered a range of battery and non-battery technologies from Lithium ion and Sodium Sulphur to flow battery and cryogenic designs as well as a range of sizes of capacity and storage. Criteria were set to de-risk the technology as much as possible to ensure that Smarter Network Storage project would be able to demonstrate the necessary commercial and regulatory frameworks.

Four suppliers were short listed, with two offering 5 MW / 20 MWh solutions. After being selected as preferred supplier, A123 Systems was challenged to further improve their offering without reducing the functionality necessary to demonstrate the ancillary services expected to deliver the value streams. A123's response was a 6 MW / 15 MWh solution that could be increased at a later date to 8 MW / 24 MWh.

As indicated in our verbal answer to the Technical Consultants and Ofgem on 4 September 2012, the materiality of the change from a 5MW / 20MWh solution to a 6MW / 15MWh solution was in the low £100k's.

It is clear to avoid traditional reinforcement and maximise the benefits to all market participants the 6MW / 15MWh solution is an optimum configuration.

Attachments	
Verbal Clarifications (Consultants	

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