*LCN Fund Full Submission*

# *Supplementary Answer Form*

Tick if this answer is Confidential: ☐

Tick if this answer has been provided verbally: ☐

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| Project code: | SSET204 – PATHS | Question Number | SSEP030 |
| Question date | 27th September 2012 | Answer date | 2nd October 2012 |
| Submission section question relates to | Section 2 | | |
| Topic | Project Description | | |
| Question | Could the project boundary be redefined so that SSE provides the ANM connection but not the electrolysers? | | |
| Notes on question | | | |
| Answer | We wish to make clear that in PATHS, SSEPD does not provide the electrolysers: we provide the connection for the electrolysers.<br><br>BOC Linde will own and operate the electrolysers and through commercial activities generate the maximum amount of income that they can. We will pay them to be available and to actively import energy at times of network constraint. The value of this service to the network is a key learning point from the project, the implementation of the project will allow us to validate our assumptions and demonstrate the value of an electrolyser as a tool for managing network constraints.<br><br>For clarification, it should be noted that when signalled to import energy the BOC system will have to purchase energy on a commercial basis from a Supplier, they do not receive 'free' or subsidised energy from the wind generation. The contract between the operator and SSEPD should reflect the additional costs of operating during these times of network constraint. The Network Services Agreement will reflect this arrangement.<br><br>**Network design**<br>Network design is currently based on the worst case conditions, either | | |

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| | maximum demand or generation. It is a well established concept that by providing 'peak shaving' of this load profile, re-enforcement of the asset can be deferred or even avoided, and there is therefore an opportunity to reduce costs to the customer.<br><br>This can be achieved in different ways, on Orkney we currently send signals to curtail generators, in NINES we schedule new demand and in NTVV we use energy storage. The PATHS proposal is based on an iteration of the work we have implemented on all three of these projects, but in particular this years Orkney storage park project. In this model, we manage the export of energy from the network as a contracted service, as opposed to directly managing the technology. This is the model we intend to use with PATHS, where we will buy a network service from a third party (BOC Linde ) to allow us to manage a network constraint.<br><br>By buying this as a network service, we achieve two significant benefits. Firstly we avoid responsibility of the asset, in this case electrolysers and hydrogen storage infrastructure. We recognise the inherent risks from dealing with pressurised industrial gasses and feel that these activities should be carried out by experts.<br><br>Secondly, we only require energy to be imported at specific times, the peak lopping described earlier. For the remainder of the time, the network is operating normally and can support additional demand or generation. There is therefore an opportunity for the connected device (the electrolyser) to operate during these times to generate additional revenues.<br><br>In this project we see the income streams coming from, sale of hydrogen to transport and heat sectors and operation in the ancillary services markets.<br><br>As network operators, we do not 'own' the energy within our network and feel that this is likely to be the position in the future. Therefore the generation of income streams is something that should be carried out as a commercial activity, by unregulated businesses and we should simply see the benefit to network customers. |
| Attachments | Attachment for SSEP030 |
| Verbal Clarifications<br><br>(Consultants ) | |