

LCNF Full Submission

Supplementary Answer Form

DNO Name:	ScottishPower	Question Number:	SP009
Question Date:	16/09/10	Answer Date:	20/09/10
Question Topic:		Location of Project	

Original Question No:		Original Answer Date:	
Original Question:			
Original Answer:			

Question:	It is noted that Glasgow has some specific characteristics (e.g. number of tenement buildings without gas supply) How will you ensure the results of the project can be applied to other parts of the UK?
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Answer:	<p>Albeit the project is looking specifically at dynamic switched load control in the context to electric space heating, for which there is a concentration in tower blocks throughout GB not unique only to Glasgow, the principle of managing interruptible load in premises is a more generic one. It is anticipated all-electric homes are likely to be on the increase over the next decade due to diminishing gas supplies and in a move to zero carbon homes, as cited by DECC in the Low Carbon transition plan.</p> <p>The principal being demonstrated in the project is applicable to other load which may require switched control by the network operator such as electric vehicles, water heating and other discretionary high load devices within the home or commercial properties. The project will look at how to improve the optimisation of the network loading where discretionary</p>
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	load can be controlled by the network operator within the constraints made by other parties in the energy chain such as generators and suppliers. For this reason, the learning derived from the project will be applicable across the UK.
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Attachments:	
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LCNF Full Submission

Supplementary Answer Form

DNO Name:	ScottishPower	Question Number:	SP010
Question Date:	16/09/10	Answer Date:	20/09/10
Question Topic:		Calculation of benefits	

Original Question No:		Original Answer Date:	
Original Question:			
Original Answer:			

Question:	An assumption in calculation of benefits is 5% of UK demand can be shifted on an annual basis from 2020 to 2050; Given that other parts of the UK have new heating systems in place (and high penetration of gas), can you provide further justification for this level of uptake?
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Answer:	As highlighted in question SP009, it is envisaged that loads other than solely space heating will be controlled beyond 2020. The assumption behind 5% of UK demand being capable of being shifted includes EVs, water heating and other forms of discretionary load being shifted in addition to space heating systems. Given the long time frame it could also be envisaged that other load may be capable of being controlled in a manner being trialled in this project such as industrial or commercial load (i.e. air conditioning systems).
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Attachments:	
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LCNF Full Submission

Supplementary Answer Form

DNO Name:	ScottishPower	Question Number:	SP011
Question Date:	16/09/10	Answer Date:	20/09/10
Question Topic:		Payments to customers	

Original Question No:		Original Answer Date:	
Original Question:			
Original Answer:			

Question:	Could you provide more rationale regarding the level of payment to users? Do you consider the amounts provided (£40) ensures sufficient buy-in?
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Answer:	<p>ScottishPower's intention is to offer each customer willing to participate in the trial a £20 credit to their electricity bill upon installation of the demand control unit. A further £20 credit will be made at project close out to those who participate in feedback/questionnaires. Dependent upon the response to questionnaires throughout the project, further vouchers may be made to customers as an incentive.</p> <p>The sum of £20 was deemed to be appropriate from previous work that ScottishPower Energy Retail have undertaken. The balance has also been sought such that a precedent is not set for future work which requires access to the customers premise such as the roll out of smart meters, in the event that all customers will expect a reward for allowing equipment to be installed in their property. Market Research agencies conducting surveys for ScottishPower have shown that customers are willing to give as much as 30 minutes of their time for a £10 gift.</p>
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Supplementary Answer Form

DNO Name:	ScottishPower	Question Number:	SP012
Question Date:	16/09/10	Answer Date:	20/09/10
Question Topic:			

Original Question No:		Original Answer Date:	
Original Question:			
Original Answer:			

Question:	Please clarify what electric storage heaters are being used and whether consideration has been given to their technical capability in terms of storing sufficient heat and flexibility for the trial?
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Answer:	<p>The premises targeted for the trial have all undergone refurbishment by Glasgow Housing Association within the last couple of years, with all the electric storage heaters being replaced as part of the programme. To the best of our knowledge the majority of properties are fitted with storage units manufactured by Creda. These units are already installed and operational as part of the existing radio tele switch scheme.</p> <p>As much as the project will be dynamically switching load on and off, the 'on' period will be long enough to ensure that sufficient charge is obtained by the units, therefore we do not envisage any adverse reaction to increased amount of on/off demand. This will of course be subject of close scrutiny throughout.</p>
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Attachments:	
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Supplementary Answer Form

DNO Name:	ScottishPower	Question Number:	SP013
Question Date:	16/09/10	Answer Date:	20/09/10
Question Topic:			

Original Question No:		Original Answer Date:	
Original Question:			
Original Answer:			

Question:	Please clarify whether the trial will include explicit simulation of, or actual, demand-side response to variable wind generation?
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Answer:	<p>The project will include a simulation of actual wind availability and the demand response that has been executed to understand what proportion of the load could have been met by renewable generation over the duration of the trial.</p> <p>If possible the control system will include an input relating to the forecast availability of renewable generation but this will be dependent upon the complexity of the algorithm that is developed for the control.</p>
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Attachments:	
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LCNF Full Submission

Supplementary Answer Form

DNO Name:	ScottishPower	Question Number:	SP014
Question Date:	16/09/10	Answer Date:	20/09/10
Question Topic:			

Original Question No:		Original Answer Date:	
Original Question:			
Original Answer:			

Question:	Please clarify whether the trial will consider the technical conflict of when the heating load is following renewable generation but then technical network constraints are reached?
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Answer:	One of the aims of the project is to optimise the loading within the trial area for the technical network constraints, but at the same time taking cognisance of the other factors such as wholesale prices, customer requirements and where possible renewable generation. It is expected that these various factors will be in conflict as ideally every customer would take load when generation costs and emissions are lowest. As discussed in response to question SP013, renewable generation will be considered as part of this where possible. Therefore a number of different conflicts other than solely renewable generation availability and network constraints will be considered as part of this project.
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Attachments:	
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DNO Name:	ScottishPower	Question Number:	SP015
Question Date:	16/09/10	Answer Date:	20/09/10
Question Topic:			

Original Question No:		Original Answer Date:	
Original Question:			
Original Answer:			

Question:	Please clarify the timeframes over which the Demand Control Units will operate and how this coordinates with the RTS, i.e. how it will operate within the time-period defined by the RTS when fine tuning yet ensuring customers energy requirements are met?
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Answer:	<p>The Demand Control Units (DCU) will operate on/off contactors downstream of the existing RTS, thus giving the RTS a master control feature. The RTS for the group of trial customers will be extended by an additional number of hours, such that the DCU can then undertake fine tuning control within this longer time frame. One of the parameters associated with the control system will be to ensure that customers get the number of hours of heating charge that they are obliged to receive as part of their electricity tariff.</p> <p>The RTS is being kept in place as a master control feature as a fail safe for the DCU. In the event that it fails, it will be designed such that it fails closed and the customer will receive a heating charge regardless via the RTS.</p>
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Attachments:	
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LCNF Full Submission

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DNO Name:	ScottishPower	Question Number:	SP016
Question Date:	16/09/10	Answer Date:	20/09/10
Question Topic:			

Original Question No:		Original Answer Date:	
Original Question:			
Original Answer:			

Question:	Will POS metering be fed back/recorded by SP in order to measure performance of the system and how will SP "know" that a heating unit switch action has been a success?
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Answer:	<p>POS metering information will be fed back to SP EnergyNetworks and recorded on a regular basis in order to measure the performance of the system and the consumption within each premise. A step change will be evident in the supply if the load is successfully switched on when instructed.</p> <p>The collection of the data from each customer will also provide an insight into the use of the electric storage heating. It is thought that in some instances customers may opt not to use the system and use alternative heating in place which may highlight other problems. This will provide invaluable insight into the future plans for electric heating and demand side management.</p>
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DNO Name:	ScottishPower	Question Number:	SP017
Question Date:	16/09/10	Answer Date:	20/09/10
Question Topic:			

Original Question No:		Original Answer Date:	
Original Question:			
Original Answer:			

Question:	Which partner has indicated interest in IPR on software development?
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Answer:	GE have expressed an interest in the IPR relating to the software development. The current view is that all development and resulting IPR generated will be in line with the IPR arrangements set out in the LCNF Governance. In the event that the potential IPR generated could be significant, GE have indicated that they may look to alternative arrangements such as funding this themselves.
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DNO Name:	ScottishPower	Question Number:	SP018
Question Date:	16/09/10	Answer Date:	20/09/10
Question Topic:			

Original Question No:		Original Answer Date:	
Original Question:			
Original Answer:			

Question:	Does this include water storage heating and domestic hot water or only space heating?
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Answer:	At this stage the trial will only be related to electric space heating, however it is envisaged that future possibilities could expand the control boundaries to take in other aspects of control associated with home energy use.
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