Community Energy Scotland
Cumhachd Coimhearsnachd na h-Alba

Smart Metering Implementation Team
DECC
3 Whitehall Place
London
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Date: 12/10/2011

Subject:
Smart Metering Implementation Programme: consultation on draft licence conditions and technical specifications for the roll-out of gas and electricity smart metering equipment (August 2011).

To whom it may concern,

Please find below a consultation response from Community Energy Scotland on the Smart Meter Implementation Programme.

Community Energy Scotland is a Scottish charity that supports communities in developing and managing their own renewable energy projects.

As many of the groups we work with are in areas of constrained grid capacity, we have a keen interest in advanced network management technologies, including smart metering.

There is also growing impatience with the current barriers to setting up small electricity supply companies, for supply to local consumers. We hope that the implementation of smart meters will help realise this goal, and increase transparency and competition in the electricity generation and supply markets.

Perhaps above all, we are hopeful that smart metering will help address fuel poverty, by putting consumers more in control of their energy consumption and ending inaccurate and potentially exploitative billing arrangements.

Please do not hesitate to contact us if you require clarification on any of the responses.

Yours sincerely,

Please note that only questions 43-46, and 50-52 have been answered, as these were considered most relevant to the concerns of our members.

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43. Do you think that maximum and minimum demand functionality should be included in the SMETS? Please provide supporting evidence for your response.

Yes. This functionality is important for DNO's to have accurate information on network demand, and thereby regulate the output of embedded generators.

Currently, the full capacity of grid networks is under-utilised because DNO's have to make best guesses of demand levels at specific points on the network, with conservative margins of error. This is a real and significant obstacle to the connection of new generators on constrained networks- numerous examples exist across Scotland and full details can be provided on request.

Being able to pinpoint actual electricity consumption would e11able better network management, free up latent capacity for new embedded generators, and allow for more sophisticated grid connection offers. This would assist the achievement of UK carbon and renewables targets at lower cost than conventional grid reinforcement.

Given the marginal cost of including this functionality, Community Energy Scotland is of the view that it would be a false economy not to include it in SMETS at this stage.

44. Do you think that network registers should be included in the SMETS? Please provide supporting evidence for your response (including the cost implications for Smart Metering Equipment, and any alternative approaches that would provide this functionality).

Yes. The use of network registers is currently the most streamlined and economical approach to providing DNO's with the information they need to send supply/demand price signals on to suppliers, and thereby onto consumers.

The scope for dynamic pricing is one of the big wins that Smart Meters are expected to deliver, and to curtail this functionality by relying on secondary data filters and analysis ('back office processing') would seem to be a missed opportunity.

The 'back office' approach could also be an impediment to competition in DNO licenses, as larger companies may have an advantage in managing the administrative burden through economies of scale. This would risk creating an obstacle to competition, and is likely to lead to higher transaction costs being passed on to consumers over time.

Building network register functionality into the SM through SMETS is more likely to ensure more accurate and more up to date data sets than secondary data processing. This accuracy is vital for dynamic pricing to reflect actual network conditions and will help create a diverse and transparent electricity market.

While it is recognised that there is a potential security risk, it is not obvious why this could not be addressed by the security protocols being prepared for the other data handling required for the operation of SM's. On the contrary, by reducing the volumes of data transmitted, network registers may *increase* the security of customers' data.

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45. Do you think that the prepayment meter contactor switch should be utilised to protect consumer premises from "floating neutral" network faults? Please provide evidence on the costs and benefits to support your reasoning.

In principle, the ability to remotely disconnect faulty loads could assist network stability. However, given the security risks, and the risk of cascade effects from automatic disconnection, a rigorous technical assessment and detailed protocol is required before a final decision can be made. If this assessment cannot be completed before the SMETS is finalised, Community Energy Scotland suggest that it is not required at this stage.

46. Do you agree with the proposed approach for consumers to access data and transfer it from the HAN via a separate "bridging" device? Please explain your reasoning.

Without detail on what the bridging device will consist of, or how consumers will use it, a definitive answer is not possible. Indeed the proposal appears to merely postpone the decision that needs to be made, namely if customer access should be built in to the SM, and whether a single communications standard should be mandated in SMETS.

Community Energy Scotland is of the view that it is vital to consumer confidence and engagement for there to be a direct access option, accessible to all, as standard. While not all customers will use this functionality at the current time, it creates the conditions for the close monitoring of energy consumption to become a norm in most households.

By bypassing the need to rely on electricity suppliers for consumption data, this functionality makes a statement about who is in charge of, and responsible for, energy consumption- i.e. the consumer. It also opens the field to the development of innovative applications and technologies for handling, displaying and interacting with this data. In other words, it maximises the transformational potential of Smart Meters.

The additional cost to the consumer of creating this functionality through aftermarket products is likely to be a disincentive to many, hence limiting the market for data display and analysis, and retaining the traditional role of the electricity meter as an appliance out of sight, out of mind.

Regarding the communications standard, the key issues are reliability, security and inter-operability. 'WiFi' (IEEE 802.11) standards would appear to satisfy these requirements, provided suitable hybrid encryption is included. The WiFi 'g' standard strikes a good balance between range, speed and legacy compatibility.

Given the relatively small volumes of data likely to be generated by a SM, higher data speeds are not required. Being mains powered, the higher power consumption of WiFi compared to Bluetooth for example, is not an issue, and is outweighed by the improved rangand speed of WiFi.

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While new wireless communications technologies are emerging, there is no reason to believe that the data requirements of SM within the home will exceed what WiFi can already provide; and because of its ubiquity any future wireless protocol is likely to have backwards compatibility with WiFi meaning that stranding is unlikely.

To fix the standard in SMETS would have considerable advantages regarding interoperability of different SM's, and a known and well understood interface for product developers (both for SM's and third part accessories) to work with.

Therefore we would urge DECC to take a clear decision and mandate built m customer data access, via secure WiFi.

50. Do you agree that the IHD should only be required to display ambient feedback based on energy usage? Please explain your answer.

No- the customer should be able to configure the IHD such that they can choose to have the ambient feedback relate to either energy usage (in kW), *or* cost (in p/kWh).

Different consumers will have different priorities, but given that it is likely that energy tariffs will increasingly vary at different times of day, it is probable that if anything the key signal will be cost, rather than energy usage per se.

However to fix the metric for ambient feedback at this stage risks making the IHD less relevant to many consumers, and reducing the efficacy of the 'feedback effect' that ambient feedback is hoped to deliver. Several studies, (e.g. Derby S (2006) 'The Effectiveness Of Feedback On Energy Consumption: A review for DEFRA ofthe literature on metering, billing and direct displays'; also Dobbyn J and Thomas G (2005) 'Seeing the light: the impact of microgeneration on the way we use energy. Qualitative research findings'. Hub Research Consultants, London, on behalf of the Sustainable Consumption Roundtable) have found that the extent of consumer behaviour change as a result of feedback is dependent on the intelligibility and subjective significance ofthe feedback information.

The clear implication of this research is that it makes sense to give consumers some input in defining the reference point for their ambient feedback. Any increased cost to SM rollout in including this functionality (which is likely to be low as it is software based) will be outweighed by the consumer cost savings, and wider savings to the UK economy, of reduced consumption due to effective feedback.

51. Do you agree that Smart Metering Equipment should be designed to support the calculation and/or display of account balances as described above, even though suppliers may not initially be mandated to invoke such functionality for credit customers?

Yes- the argument could be made on the basis of future proofing alone. However there is good evidence (see references in previous question) that consumers modify their behaviour significantly when presented with a finite rather than undefined resource. The clearest way of communicating this in practice is to have a credit balance that reduces in real time, depending on consumption. While not all electricity

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consumers manage their accounts through credit, it is important to have this functionality included in SMETS so that is available as a tool for those customers who it would benefit most by putting them in control of their consumption.

52. What do you think the costs and benefits are of mandating suppliers to display an account balance (over-and-above those arising from display of information on cumulative cost of consumption) for credit customers on their IHD?

As per 51, we consider the benefits to outweigh the limited administrative costs, as it will provide a clear and concrete measure for a consumer to manage their own consumption, in line with their financial resources.

The argument offered by electricity suppliers, that tariffs are too complicated to provide this functionality, is an argument against complicated tariffs, not displaying account balances. We understand that Ofgem is currently reviewing the overly complex tariffs systems offered by electricity suppliers, and hope that this will result in simpler and more transparent energy pricing, which will complement the functionality provided by SM's and IHD's.

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