

Second Consultation Smart metering CER submission

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Response to the Second Consultation on Possible National Roll Out Scenarios for the smart metering Cost Benefit Analysis

This submission is mainly concerned with the In Home Display functionality section and aims to highlight the area of individual household energy awareness and behaviour and how important and key this is to any national overall energy reduction and energy efficiency programme. The role of individual energy learning and energy literacy and the ability to see how much energy the household is consuming at any one time, enables an awareness of energy use, costs and then the ability to learn to control this energy use through behavioural change involving:

- Trial and error behaviours (Darby, 2009)
- Energy efficiency investment and upgrades

If energy behaviour change is to occur, people need to be motivated, informed and enabled to control their own usage and an in home display is necessary for this to occur as energy use is a lifestyle issue, often used without any knowledge of costs, emissions etc, as it is an invisible commodity.

There are also some limitations of the current smart metering Customer Behaviour Trials (CBT) mentioned at the end of the document.

3.3.1

- *What information set should customers be provided with?*

A number of supplier respondents advocated that suppliers should be left to define varied information sets so as to best meet the diverse informational needs and preferences of their customers.

This would not give customers the flexibility of defining what it is they want to know. Ie how much energy they use at a specific half hour during the day for space heating. The information set must be customer-defined in order to provide the desired information that enables customers to save energy

and to be energy efficient. Customers need to see how much energy they are using, as this is an invisible commodity in specific energy applications- ie space and hot water heating and then to control this and ultimately to attempt to reduce this or make upgrades to improve efficiency and make energy savings.

Should suppliers provide data directly to their customers or would it be preferable that the data is accessible from a Web portal provided by the meter data collector? Or are there any other options that should be considered?

Again if suppliers provide information this may not enable a tailored approach to energy consumption (Abrahamse et al, 2005). This is where a customer is provided with information specific to their particular energy usage. This tailored approach would only be possible if the customer could select which information they wanted to see in terms of energy use at specific times of the day, to be specified by the customers themselves.

The importance of real time energy feedback information is emphasised in the energy efficiency research literature. Providing information after the fact or a day later could only help if this information was broken down into detailed time of day use and could indicate which appliances were using the energy. Otherwise the customer is faced with a blank energy consumption figure that tells them nothing about how it was arrived at, ie that gives them no behavioural cues or insight.

This is where the importance of an in home display features, as time of use and amount of energy use in terms of cost is displayed and this enables a customer to see what energy application is using the most amount of energy and how they can, behaviourally reduce this, in real time, through trial and error. This is the most effective form of feedback as it enables the customer directly to make their own energy saving behaviour more efficient.

3.6 In Home Data

Do respondents feel that Internet enabled technology could meet customer requirement for consumption information or will it be inadequate?

In areas where there is broadband access and people have broadband, the internet may be very useful in delivering individualised personal energy consumption information. Areas with no access and low income areas would need another solution, a non market based solution but more of a social project

bringing access. In the case of some non internet using elderly customers, provisions would need to be made for an alternative.

Do respondents view the In Home Display (IHD) as an essential feature of their future product offerings?

Yes, the in home display is essential as an individualised personal feedback display of individual household energy consumption. An in home display provides time of use feedback and highlights energy consumption in real time of various household energy applications, appliances, space and water heating, cooking etc. Some people may have their laptops open at all times of the day and maybe this information would be accessible via the internet, if it was real time, but for the majority of customers, a separate device eliminates the need to make the extra effort to access energy consumption information that people may not have time to do –ie. In the mornings, in the evenings at dinner time.

In the case of families with children, a separate in home display enables all members of the family to develop energy literacy and to associate energy consumption with specific behavioural actions- ie turning on the electric shower, Xbox, etc and this leads to energy learning and awareness. In the case of households with more than one member, an in house display acts as behavioural feedback mechanism for all the members and for those who may be more or less energy aware and energy efficient. Other members of the household may point out patterns of consumption and use the display to illustrate ways of energy saving.

Aim of the in home display

The IHD should be set up in a focal area of the home, such as the kitchen, where people gather. The in home display's aim is to bring a constant awareness of energy use and its costs into the everyday lifestyle routine and behaviour of the household. This is not a technical or supplier-based issue but a personal, psychological, learning based, individual behavioural issue. In order to truly facilitate energy saving and energy efficiency behaviour, customers need to learn about their own energy use and to be able to see in real time how much energy is being consumed by which behaviours. 'Laundry lists' or generalised energy efficiency information has been shown to be hardly effective in effecting energy reductions.

The importance of the in home display is to underline that energy use and energy saving are lifestyle issues and providing real time feedback on what is usually an invisible commodity- energy, enables a household to:

- A. Become aware of their energy consumption
- B. Find out where they are using energy and for what purposes
- C. Be able to reduce this energy usage or upgrade energy equipment or make structural improvements. These will then make sense financially when the in house display feeds back the reductions in energy use and costs

IHD technology

Technology for IHDs is progressing and developing rapidly. There may be a cost effective, secure, future proofed bespoke technological solution, different to current market products available that would cater for both houses and apartments.

The argument mentioned in the consultation from suppliers that only interested customers receive an IHD means that those who may have lower levels of energy awareness and see less reason to make efforts to save energy- ie higher income, high consuming customers may not be encouraged to save energy. This is a defeatist argument, as one of the IHD main functions is to stimulate energy awareness and enable energy efficiency.

What in your view is the high level minimum functionality for an IHD?

I would agree that the 'minimum requirement for an IHD should

be to display real time and historical energy usage information in kWh and

Euro values'. Minimal functionality would also entail comparisons on an hourly, daily, weekly and monthly basis to be able to track trial and error attempts to reduce energy use and to track improvements and engender a sense of achievement and the encouragement to continue to try to make savings. A function of 'amount saved on previous bill' would enable satisfaction and a sense of achievement that would act as motivation to continue to try to make energy savings.

Is one way communication between the Meter and the IHD sufficient? If not

what are the additional requirements that would drive two way

communications?

There should be two way communication between the Meter and the IHD.

What data should be provided to an In Home Display or equivalent from the meter?

A higher sampling rate than half hourly intervals is needed for the IHD. If it is to provide real time feedback it needs to be possible every five minutes to provide an accurate picture of energy usage. The 'basic' of 'complex' mode may be a good option but IHD controls functionality should be as clear and easy to use as possible or people will associate it with too much effort and as too complex, as currently is the case with many heating and hot water controls systems.

Limitations of the Customer Behavioural Trials

It should be noted that there are certain limitations in the current smart metering Customer Behaviour Trials. These limitations would influence how representative the BCT would be in the case of IHD provision and any policy implications and smart metering roll out conclusions that are to be derived from the results.

Limitations of CBT:

1. The IHD unit and its functionality.

The exact details of the functionality of the IHD used in the CBT has not been stated. In the paper CER Information Paper 3: Smart Metering Project Phase 1 (CER/09/186), the IHD functionality is given as:

- Current cost per hour
- A daily budget graphical display
- Price at peak, day and night rates
- Cost of electricity per month

The rest of the functionality is covered by the words 'The consumer will be able to view additional information on their electricity usage & cost by navigating through additional screens "behind" the home screen.'

It is not clear whether consumers have the option of comparing hourly consumption rates throughout the day- to indicate the amount of energy used per hour, so people can pinpoint when they are using the most and for what energy purposes- ie heating, cooking etc.

This functionality would be important when comparing progress and in enabling awareness and energy literacy. It would also increase motivation to use the display as clear benefits can be charted and control over energy use exercised.

It is not stated whether the functionality includes daily and weekly energy consumption comparisons either.

The CBT of the IHD does not include apartments. The technology used –the Elster IHD could not accommodate the specific structural requirements of apartments. As 10% of the national population now resides in apartments (CSO, 2006), the CBT have left this increasing percentage of the population out of the CBT and its results will not include any of the specific requirements that apartment households have.