

**Response to CER Consultation on Possible National Rollout  
Scenarios for the Smart Metering Cost Benefit Analysis**

eircom Ltd.

30<sup>th</sup> July 2010

## Foreword

eircom is delighted to have the opportunity to respond to the Commission for Energy Regulation on their consultation on possible National rollout scenarios for the Smart Metering Cost Benefit Analysis. As a major utility provider and as a key stakeholder in Ireland's ambitions to build the Smart Economy, eircom welcomes the opportunity to share some of its views on Smart Metering.

The recent economic downturn has put huge constraints on both private household and public spending. Potentially large infrastructure projects such as Smart Metering must keep to the fore the fact that Ireland is a country when compared to its European peers, that has a high proportion of its population living in rural areas. Adding to this we have a comparatively low level of population living in multi-dwelling buildings. These factors can greatly increase the cost of infrastructure projects. Ireland will increasingly be required to look at solutions where we can harness and share existing infrastructure and applications to deliver innovative and effective solutions.

In reviewing the Commission's definition of Smart Metering, we note it defines a smart meter as an electronic device that can *'measure the consumption of energy, adding more information than a conventional meter, and can transmit data using a form of electronic communication'*. A Smart Meter therefore can be an existing Meter with enhancements that can deliver this type of measurement and electronic communication, as opposed to replacing all existing meters in the country. There are obvious cost benefits to the project associated with a solution that does not require the cost of purchasing and installing new meters to every (or the majority of) Irish homes.

eircom has reviewed the area of Smart Home Energy Management Services and are aware of devices and Internet based applications that can deliver near real-time energy consumption data into consumer's premise. Reviewing the CER's goals for the Smart Metering program we believe that these devices and applications, in conjunction with time based tariff plans, can deliver behaviour change, to reduce peak loads and promote energy efficiency. We believe that enabling remote appliance management by customers would enable them to better plan their energy usage and make it more efficient.

eircom is looking to be at the centre of the Smart Economy and the drive toward economic renewal in Ireland. Therefore, we welcome the opportunity to give feedback on some of the rollout scenarios for Smart Metering in Ireland and the Cost / Benefit Analysis that will be undertaken.

## Section 2.0 - Objectives

*Q1. Respondents are invited to submit their comments on these stated objectives of the National Smart Metering Programme. In particular, do you agree with the objectives outlined for the Irish National Smart Meter Programme? Have you any other suggested objectives? If so give details.*

The stated objectives of the Programme appear logical and reasonable. Incorporating a ‘potential platform’ to support national targets on Electric vehicles looks the most challenging of all the objectives. This is because the proliferation and development of electric vehicles and platforms to support them will be beyond the control of the Regulator and other energy stakeholders in Ireland. One of the key benefits of Smart Metering will be removal of the need for manual readings given that the Smart Meter will be able to send readings to suppliers.

One point we believe worthy of review is how many of the objectives can be achieved without installing new meters in customer’s premise.

**Energy Efficiency** – as detailed in the definition provided, energy efficiency can take place ‘via enhanced information and pricing signals, resulting in reductions in overall energy usage and thus reduced emissions’. Therefore, customer education and clear pricing plans (similar to the ones in place for the trials) can change behaviour. This can deliver the results required in relation to active participation of customers in the electricity and gas market and more energy efficient usage without the needs for a new meter. Promoting the use of remote appliance management devices and applications would also help deliver on these objectives. An example of a remote appliance management system would be where an end user could turn on or off appliances in their home remotely using a web interface or their phone.

**Peak Load Management** – similar to the previous point we would agree that Peak Load management can be achieved via pricing signals and differentiated pricing during the day and customer education around these tariffs with practical examples of the monetary savings possible.

**Support Renewable and Micro Generation** – we acknowledge that Micro Generation would require new meters. In supporting renewable energy, if there are specific times during the day when renewable energy is more economic or practical, pricing tariffs could reflect this to encourage end-users to consume energy in times when renewable contribution to the power supply is most economic.

**Enhanced Competition and Improved Consumer Experience** – offering the consumer more choices and giving more information in relation to the pricing and renewable elements of their electricity consumption will lead to an improved consumer experience. Again, time of day differentiated tariffs

and education can help achieve this objective. Allowing differentiated time of day tariffs can also help promote competition between suppliers based on their underlying economies of production.

**Support more timely and efficient switching by customers** – the efficiency and timing of customers switching between providers may be more impacted by systems and processes that operate beyond the meter as opposed to any technology that is part of the meter.

**Improved Network Services** – time of day and innovative tariff plans can help improve load forecasting and networking planning. Initiatives such as building platforms for electric cars and any possible deferment of infrastructure expansion would require comprehensive analysis.

We also support the view that the Smart Metering project should be aligned with, if not central to the Government's framework for sustainable economic renewal (Building the Smart Economy December 2008). All stakeholders in the project must keep in mind the relative size of the country, our geographic isolation from mainland Europe, and the need to identify innovative and cost driven solutions within our market context to achieve what is best for the Irish people and the Irish Exchequer.

In summary, we believe the objectives are suitable for the project and that the definition of Smart Metering allows the project to assess a number of alternative solutions that can meet the objectives set out.

### Section 3.0 - Ownership, Display and Provision of Information

*Q2. Respondents are invited to submit their views on the granularity of data that should be available from smart metering systems and how this data should be made available to energy suppliers. In particular:*

- *What granularity of data do suppliers require to carry out their business: interval reads, daily reads, monthly reads?*

Real-time data offers the best approach to development of innovative control systems; it should be the goal for the Smart Metering project. It would be logical to put in place the systems to allow suppliers read and access this information in as near to real time as possible. This will be of particular relevance in the early stages of rollout, in that suppliers will want to be able to understand how different tariff plans impact consumption patterns, and how this may or may not impact the peak load on the grid. On the consumer side, again the goal should be to offer real-time or near real-time data to enhance the customer's interaction and experience, and encourage them to adjust their consumption pattern to maximise efficiency.

- *Do suppliers have a view on whether data is pushed to them at defined frequencies or would they prefer to pull/access data from a web portal as required?*

It would be logical to build a central data storage facility that can store all the relevant meter information and can allow the relevant operators access to information pertaining to their customers. Having a single provider operate such a service would make sense to allow for the central collection of the data, as well as being responsible for managing data distribution to the relevant energy retailers. A web portal would be ideal for providers in that they could have access to the information they require as and when they want it.

- *How frequently do suppliers want to access data?*

Real-time access to data should be the goal. By putting in place an automated systems with a web portal front-end, suppliers could access the data as often as they wish.

- *What service levels are required around the various information sets that are required by the suppliers?*

If real-time systems are developed they will require a high service level.

Service levels should be considered at two levels. Firstly, is the type of and percentage of customer information that would always be available to a service provider. For example, if an energy supplier knew that they would always have access to 99% of customers' consumption data, this is likely to be sufficient for real-time control and plan for power generation. Secondly, service levels need to be defined from a customer's perspective, what information will they need, and how often this data is refreshed, for a customer to be able to adjust their consumption in real-time.

It would be beneficial for the industry to review and agree the optimum method and service levels required, for an information system to support Smart Metering. A holistic view of the data is required, the frequency with which it is gathered and the access required from suppliers would need to be understood. The goal should be for real-time or near real-time collection and dissemination.

- *Do suppliers want to hold all historical data on their customers or are they happy to access historical data from a centralized portal?*

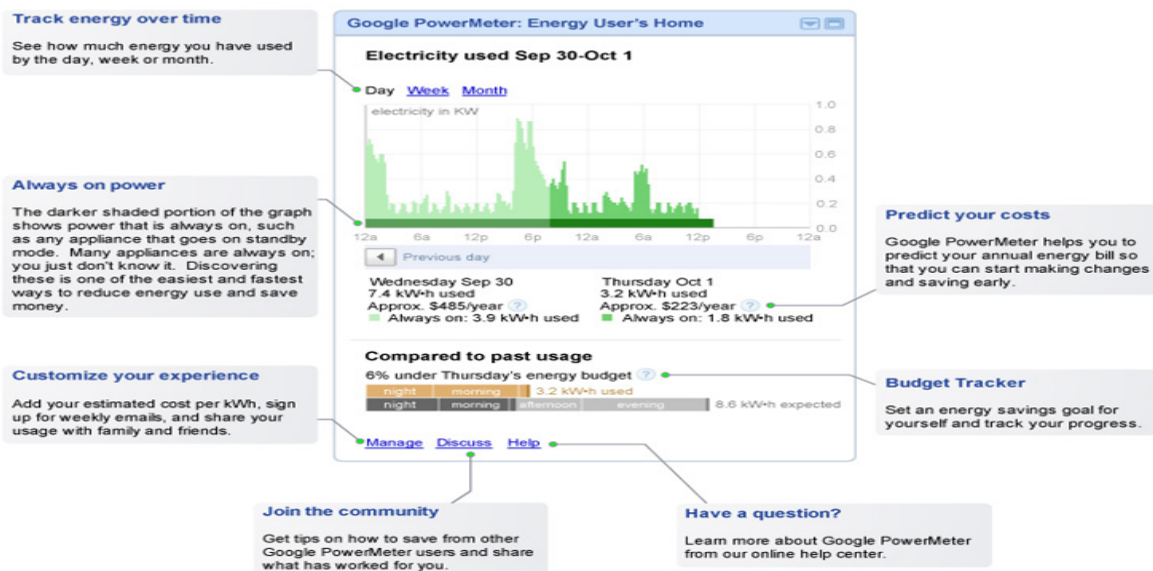
Accessing data from a secured centralized portal should be sufficient for operators assuming they have access to all historical data relevant to their customers.

**Q3.** Respondents are invited to submit their views on how smart metering data should be made accessible to energy customers. In particular:

With time of day tariffs in place at a minimum, customers will need time of day and cost information that could be delivered via a central source, or via their energy service provider. Drilling further into usage information, would require an in-home solution that measures the energy consumption of various appliances. This is presently out of scope of the program but is worthy of consideration to educate consumers on usage, and in particular to information customers of appliance specific energy consumption. Energy Measuring devices and applications already exist and can offer consumers and energy companies access to intelligence and usage patterns that can help deliver some of the goals of the Smart Metering project.

Developing and delivering consumer information over the Internet has benefits in that Internet penetration is widespread and growing and Internet technology is not likely to become redundant or replaced anytime soon. Having web portals or web applications in place has the potential to avoid costs as it removes the need for In-home display devices given the web application can deliver more detailed information to the end-user.

Google has positioned itself in this area by developing the Google Power Meter. Google has developed the application to directly interact with a number of utility companies (trailing 4 across UK, USA, Germany) and to integrate with a number of energy measurement device providers (UK, Australia, USA). Given Google's brand name and association with innovative Internet services, it would be beneficial in driving consumer education and understanding of energy consumption to ensure that any Irish Smart Metering solution can integrate easily with the Google Power Meter application.



Screen shot of the Google Power Meter Application

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

Improvements in energy efficiency must start with changes in consumer behaviour. If price plans are generally not time based, i.e. flat tariff, customer behaviour is not likely to change and there is little point in providing information on energy consumption. However, with time of day tariffs in place, it is imperative that consumers have access to their consumption information and how this relates to cost and how the cost can be decreased.

With time of day tariffs and with the goal of getting customers to consume energy in off-peak times, customers will need access to their actual time of day usage, preferably including their recent usage history, and how this relates to the cost of their energy usage. It would be logical that such information is available to customers online via a secure login, either from a central source or from their energy provider in as real a time as possible.

Ideally, customers would also be able to measure the energy consumption of different appliances and view these statistics online. This gives the user more information on the power consumption patterns in their home. It will also enable them to change behaviour in order to become more energy efficient and save money on energy bills. Delivering this level of data is possible but appears to be presently outside the scope of the Smart Metering project. There are suppliers in the market who specialise in this area and some of the technology is well developed and Internet-based enabling it to be deployed quickly and easily in the home. As mentioned previously, the technology also exists to allow remote monitoring and management of appliances in the home that could further drive energy efficiency.

- *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 network company / meter data collector? Or are there any other options that should be considered?*

As detailed previously, the industry should take a holistic view of data collection and dissemination. In an ideal situation there would be an industry agreed process and system for data collection, data storage, and processes for how providers and consumers can access this information. The industry and the consumer could benefit by having an independent body that could be made up of all the stakeholders, owning and operating the meter data system and agreeing processes around data dissemination.



**Q4.** Respondents are invited to submit their views on the required frequency and detail of billing. In particular:

*- Do you have a view on the likely requirement for monthly billing of customers?*

Bills are an important part of the feedback loop to customers. Users should be billed every month and have access to their energy consumption patterns and cost information online, to review as required. Bills can include information on energy saving tips and if providers have access to individual's consumption patterns, they can specifically tailor advice on bills to individual customers or group of customers, with relevant cost saving tips.

*- Do you have a view on the type of information relating to energy usage that should be contained on bills?*

As outlined in the response to Q3, users should have access to their energy consumption patterns through the day, the cost implications, and based on their specific usage patterns suggestions on how they can change behaviour to save on energy costs.

*- Also, for the purposes of such informative billing what granularity of data are the suppliers likely to require?*

In order to provide users with consumption patterns and relevant energy saving tips, suppliers will require very specific information and data pertaining to the customers' consumption and time of consumption.

**Q5.** Respondents are invited to comment on the viability of the “Thin Prepayment” solution. In particular:

- *The availability of meter reading data to agreed service levels is important for the operation of a “thin meter” prepayment solution. What service level do suppliers require for the thin prepayment solution?*
- *Do Suppliers believe that the “thin Prepayment” solution is workable? Specifically do Suppliers believe they will be able to provide sufficient access to credit balances to Customers without any display on the meter?*
- *Do Suppliers think that an occasional loss of the communications channels to the prepayment meter will cause difficulty?*
- *How do respondents feel customers should be kept up to date on their balances? For example, do respondents see the provision of an In Home Display (IHD) as an essential part of a thin prepayment” solution?*

No Comment

**Q6.** Respondents are invited to submit their views on how smart metering data can be made available dynamically in the home. In particular:

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

Internet enabled technology should be at the centre of delivering all the consumption information that consumers require in relation to the energy usage. While energy consumption and time of day consumption are the two critical pieces of information required, applications presently exist that can measure the power consumption of specific devices or appliances in the home, that can be fed to an Internet portal where the user can review their specific consumption patterns and change accordingly. Therefore, Smart Meters can deliver a high-level consumption view to homes or businesses but Internet devices and applications can give users a much better analysis and insight into their energy consumption.

Internet technology is well understood and used across Ireland therefore it is logical that the user interface is built on Internet platforms and built to cater for a range of devices where energy usage can be viewed e.g. Smart Phones, iTouches, iPads etc.

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

The information and functionality that is delivered via an In Home display can be replicated and improved with Internet applications. Consequently, in our view, the In Home Display is not an essential feature of the future product offering as Internet applications that can access the user specific information can provide the same information, in a more flexible manner at a fraction of the cost.

Internet capabilities for energy management can also be extended into remote management and to the control of appliances and energy usage in the customers' premise. Customers would have the ability to switch on and off appliances via a web portal or via their Mobile phone.

- If an IHD is a requirement which of the following should be responsible for providing and maintaining the IHD and what are the reasons for your preference: The Customer; The Supplier; or Network company?

As stated in the previous response we do not feel an IHD is a requirement. We believe that the industry can and should jointly develop Internet applications that have the same 'look and feel' to make it easy and simple for users to assess their usage patterns and change behaviour regardless of which energy provider they are a customer of, e.g. an Energy Ireland website / application.

- *Do suppliers intend to offer products in the market that would feature load management or demand response by the customer?*

No comment.

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

At the highest level an IHD or an Energy Measurement Internet application should be able to give customers both time of day usage information and how this relates to the cost of their energy usage.

**Q7.** Respondents are invited to submit any comments or views on the issue of data ownership or data security relating to smart metering.

The consultation document mentions the Data Protection Acts 1998 and 2003. If there is a common on-line platform to gather information on behalf of all suppliers then there are issues to be addressed for the on-line platform. Data cannot be shared between suppliers. In terms of security there would need to be protection for consumers and suppliers alike, to prevent hacking and fraud.

Data ownership and security is a key issue for a project such as this. If the industry develops online Energy Monitoring applications, users will be asked to sign up to Terms and Conditions that would ensure that the Energy providers can use and display their energy usage information back to the user and also give recommendations and tips on reducing the customers' energy bill. The technology that communicates meter data will also need to be secure to ensure that data cannot be intercepted or accessed by non-authorized users.

The ownership of the data will also need to be considered. A model worthy of consideration is the establishment of an independent group or company, possibly formed from the energy stakeholders that would be responsible for collecting and storing all Meter data and would establish the online portal and information tools for both the Industry providers, and for Consumers.

The flow of data and the system / processes / technology that enables this data flow and data dissemination is a critical component to the success of a Smart Metering project. The flow of information to the Consumer must empower the user to change consumption patterns while the flow of information from the Meter to the provider is key to help industry understand changing behaviour, and to measure the success of different time of day tariffs in reducing peak load and changing behaviour.

**Q8.** Respondents are invited to submit any comments or views on whether specific data provision and accessibility requirements for vulnerable customers need to be considered as part of a smart metering solution? If so, give details.

Any 'in-home' solution or device should cater for older people, and for people with disabilities. The features of the solution or device can include:

- large text
- easy to read display (i.e. good contrast between the text and the background)
- convenient location
- audible readout
- large buttons
- audible (or text) signal to indicate when a monthly usage threshold has been reached (this would be of value to financially vulnerable users).

If there were to be a fee associated with the supply of 'in-home' solutions/devices, consideration should be given providing these free or at a reduced cost to vulnerable customers, including those who may be financially vulnerable.

## Section 4.0 - Smart Metering System Functionality Scenarios

*Q9. Respondents are invited to comment on the core smart metering functionality as outlined in Scenario A. In particular:*

- Do you agree with this core functionality? Are there any functions you feel should not be in the core scenario or are there any functions missing?*

The core functionality appears to cover the basic requirements adequately

- How many or what flexibility is required in relation to the number of Time of Use (ToU) registers on the electricity meter?*

The greater the flexibility in relation to the number of Time of Use registers, the better given that operators may wish to trial or test a number of different tariffs in order to reach optimal tariff that improve energy efficiency.

- Apart from the current meter reading is there any requirement to display further information on the meter? Please bear in mind that meters are not easily accessible to all customers.*

Given many meters are not accessible to customers we do not believe there is a requirement to display further information on the meter.

As mentioned throughout this response, the data flow and systems / processes /communications methods that are part of this flow are essential to the success of the project, and an industry led open approach to this data flow can ensure the project starts from a solid footing.

**Q10.** Respondents are invited to submit their views on the whether you think that leveraging the communications module in the electricity meter as a hub for Gas metering is a good idea or would you rather see a separate communications hub in the home to support gas metering?

From a cost perspective, it makes sense to have one device as the hub and have all meters communicating with it. Separate meters could be controlled by a single integrated meter management system. Having a common and industry agreed data flow and system may alleviate any concerns that Gas providers may have with the Electricity meter being the 'Master' meter. All initiatives on Smart Metering should enable customers to optimise their energy consumption across both electricity and gas.

We would also support the point made in this section that Water metering can and should be considered as an extended part of this project.



**Q11.** Respondents are invited to give their views on the additional functionality scenario B. In particular:

- *Is one way communication between the Meter and the IHD sufficient? If not what are the additional requirements that would drive two way communications?*

A major risk identified in Scenario B and the communication between the Meter and the IHD is the lack of a standard or agreed protocol. As detailed previously in this response, collecting Meter data and being able to provide the information to end user via the web decreases the need or necessity for of an IHD in the home and removes the protocol risk mentioned by the Commission.

One way communication into the home, whether via IHD or via an Internet application, is the minimum necessary to drive changing behaviour. Further benefits would result from two-way communication between the home and the meter / grid but it would add a level of consumer and supplier complexity that is not clearly defined or articulated yet.

- *What are respondents' views on the issue of the communications protocols to be used in the home?*

Building online interfaces for Consumers to review and interact with their energy information alleviates the risk of picking one protocol over another. Internet based services should be at the centre of all information strategies for the project.

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

If IHDs are required, or if the project uses Internet based applications, they should display time based usage information, daily / weekly / monthly usage and cost trends and they should have the ability for users to change the time of day tariffs to ensure that the IHD or Internet application reflect the tariff plan that the customers will be on.

Internet applications can provide much more detail to customers and they are accessible from anywhere, with future developments such as adding remote management capabilities that would be relatively simple to deploy.

**Q12.** Respondents are invited to give their views on the additional functionality scenario outlined in section 4.3.2 above. In particular is there any additional functionality required to support the “thin prepayment” solution?

No comment.

**Q13.** Respondents are invited to give their views on the additional functionality scenario C. In particular:

- *What are the additional requirements in terms of smart metering and associated benefits to support the smart home?*
- *What devices should be allowed to join the HAN?*
- *Will there be any special metering or control requirements for Electric Vehicles?*
- *What is your view on what HAN standard should be used?*
- *Is the technology too immature to progress with the functionality described in Scenario C.*

As identified by the Commission, scenario C is the most ambitious and forward looking scenario, and as alluded to, it is also the scenario that contains the most immature and unproven technology and standards. Analysis and discussion of the type of solutions that could support this scenario and where they may be in place elsewhere, is a worthwhile exercise. However, looking to implement the project based on this scenario, at present, looks ambitious.

## Section 5.0 - Implementation Issues

**Q14.** Respondents are invited to give their views on the high level implementation timelines outlined above. In particular:

- *Do you agree with the indicative timetable?*

The indicative timelines look reasonable. Other initiatives such as time of day tariffs, customer education on such tariffs, and changing consumption patterns, can and should be implemented as soon as possible.

- *Do you agree with following an accelerated deployment or taking a more phased approach in line with a scheduled meter replacement programme?*

An accelerated deployment would be more beneficial in the long run.

- *How should metering arrangements for Micro generators and Electric Vehicles be dealt with before full roll out?*

Both Micro generation and Electric vehicles are immature and little understood concepts at the consumer level. Waiting until one or both of these concepts is well defined technically and commercially has the potential to de-rail the other strategic goals that the Commission has outlined and wants to achieve from the project.

- *Should there be priority areas or priority customer categories for early roll out?*

No comment

**Q15.** Respondents are invited to give their views on the need for customer awareness and education work programme as outlined above. In particular:

- *What would be the nature and timing of such customer awareness education and promotion relative to the programme timelines?*

Customer awareness programs on efficient energy consumption need not wait for the Smart Metering project, nor should the industry wait to deploy innovative time of day tariff plans as both education and tariff plans in themselves can help promote energy efficiency and have the potential to reduce peak time loads.

As detailed previously in this response, technology exists today that can help customers monitor and manage their energy consumption through a number of devices that ‘talk’ to Internet based applications.

A significant portion of the strategic goals of energy efficiency and peak load management can be achieved with education and innovative price plans. They can also be supported by in-home energy measurement devices communicating with customised and individual web interfaces, all of which can happen independently of any outcome of the Smart Metering trial or Cost Benefit Analysis.

- *Where should responsibility reside for the development and execution of such an awareness programme?*

Responsibility for such a program will lie ultimately with those who can benefit most from these programs, in this case Public Sector stakeholders who have specific EU targets and goals to achieve, and with the industry that can benefit from lower peak loads and with customers who have the potential to benefit from innovative pricing plans.