

**Response to CER11191 Consultation on the Proposed
National Rollout of Electricity and Gas Smart Metering**

13 December 2011

eircom Ltd

Summary

eircom is delighted to have the opportunity to respond to the Commission for Energy Regulation on the Proposed National Rollout of Electricity and Gas Smart Metering CER11191. As a key stakeholder and as with our previous submissions, we welcome the opportunity to share some of our views on Smart Metering and the wider implications of same. In all instances during the response, eircom are referring to electricity, and gas and where applicable water metering.

Firstly, eircom are very supportive to proceed with the rollout and are in broad agreement with the objectives and working assumptions as outlined. The functionality requirements are comprehensive. We concur that it is important based on the lifetime of the project and the potential cost of meter-related premises visits that the meter is flexible in terms of WAN and HAN interfaces, and remotely manageable.

Noting the agnostic stance regarding WAN technology and the guiding principle that the most cost effective communications solution is put in place, we suggest that the WAN itself should utilise existing virtual privacy technology, to ensure network investment is leveraged via a commercially available market offering. Similarly, authentication and encryption is best handled between the meter and the collection system to ensure cost efficiency and avoid bespoke network development that would both be reflected in cost to the project and lead to 'vendor lock-in'.

With regards to HAN technology, as HAN standards continue to evolve, it would be advisable to recognise the value available through the selection of 'de facto' market leading technology with a critical mass of component production and procurement. Generally speaking we are supportive of the procurement model and the indicative timelines.

Q1.

Respondents are invited to comment on the proposed decision by the CER to proceed with the national rollout of electricity and gas smart metering as outlined in Section 2. Are you in favour of this proposal? Outline reasons for agreement or disagreement.

eircom is delighted to have the opportunity to respond to the Commission for Energy Regulation on the Proposed National Rollout of Electricity and Gas Smart Metering. As a key stakeholder and as with our previous submissions, we welcome the opportunity to share some of our views on Smart Metering and the wider implications of same.

eircom are very much in favour of the proposal to proceed with rollout and look forward to participating in both the design and rollout phases. We note the positive results of the recently completed electricity and gas smart metering trials and associated cost-benefit analyses and the variation in output for different WAN technologies. We are of the view that significant consideration needs to be given to this area before decisions are made. eircom also notes from the CER second consultation workshop that the decision timeframe for the communications element is likely to be around late 2012 / early 2013.

eircom are cognisant of concerns regarding issues such as

- Proprietary solutions
- Vendor Lock-in
- Commercial viability
- Allocation of spectrum
- Performance levels

In this context we feel that significant consideration needs to be given to a network choice that will be future proofed both technically and commercially. Implementation of the most appropriate communications network should be agnostic and should not lend itself to commercial or technical monopoly.

Q2

Respondents are invited to comment on the proposed objectives of the National Smart Meter Programme outlined in Section 3. Are you in favour of the proposals? Outline reasons for agreement or disagreement.

- 1. Encourage Energy Efficiency**
- 2. Facilitate Peak Load Management**
- 3. Support Renewable and Micro Generation**
- 4. Enhance Competition and Improve Consumer Experience**
- 5. Improve Network Services**
- 6. Review and Realise Synergies with Water Metering**

Q2.1 Encourage Energy Efficiency – As previously noted, customer education and clear pricing plans (similar to the ones in place for the trials) can change behaviour. In our previous submission we noted, that this can deliver the results required in relation to active participation of customers in the electricity and gas market and more energy efficient usage. Promoting the use of remote appliance management devices and applications would also help deliver on these objectives.

Q2.2 Facilitate 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.

Q2.3 Support Renewable and Micro Generation – It is important that the programme facilitates the wider take up of micro generation, which will lead to better renewable uptake and increased competition. In supporting renewable energy, if there are specific times during the day when renewable energy is more economic or practical, pricing tariffs should reflect this to encourage end-users to consume energy in times when renewable contribution to the power supply is most economic.

Q2.4 Enhance Competition and Improved Consumer Experience – eircom strongly support this objective and emphasise that there are a number of key dependencies that affect this. Offering the consumer more choices and giving more accurate information in relation to the pricing, billing 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. More timely and efficient switching by customers may be more impacted by systems and processes that operate beyond the meter as opposed to any technology that is part of the meter and as outlined previously are key to the success of this objective.

Q2.5 Improve Network Services – We note the objective to keep under review the implications of smart metering for a smart electricity network and to support national targets on Electric Vehicles. 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.

Q2.6 Review and Realise Synergies with Water Metering – We agree with the objective that emphasises the need to review and realise any synergies that can be achieved with the

Water Metering initiative. It is very important that key elements of the implementation plans across Electricity, Gas and Water, are co-ordinated centrally to ensure these synergies are achieved

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/complimentary solutions that can meet the objectives set out.

Q.3

Respondents are invited to comment on the proposed working assumptions outlined in Section 4 relating to data ownership, display and provision. Are you in favour of the proposals? Outline reasons for agreement or disagreement.

- 1. Data Granularity**
- 2. Data Access for Suppliers**
- 3. Data Access for Consumers**
- 4. Billing Content and Frequency**
- 5. Data for Prepayments**
- 6. In-Home Data**
- 7. Data Security and Protection**
- 8. Vulnerable Consumers**

Q3.1 Data Granularity – eircom continue to be of the view that real-time data offers the best approach to development of innovative control systems. 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. We also note the intention to further investigate the appropriate interval for gas data and recommend that this applies to water metering also.

Q3.2 Data Access for Suppliers – eircom support the proposal for a data portal for suppliers. 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. Real-time access to data should be the goal. By putting in place an automated system with a web portal front-end, suppliers could access the data as often as they wish. Service levels can then be agreed and standardised between the suppliers and the single entity managing all aspects of the information.

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 and agreed. The goal should be for real-time or near real-time collection and dissemination if economically feasible.

Q3.3 Data Access for Consumers eircom are in broad agreement with the working assumptions outlined and summarised as follows;

- The consumer owns the data and should have access to it in a harmonised format, these may be via the same data portal assumed to be used by suppliers
- Consumers will have the right to provide their historical information to other suppliers
- Consumers can give permission to other third parties to access their data
- The consumers will cost and usage based information via in-home displays (IHD) and energy statements (with their bills).

However, 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.

Q 3.4 Billing Content and Frequency – eircom note that CER intend to leave it to the marketplace to inform billing content and frequency issues. We also note that consumers will receive an energy statement, which we are in full agreement with. We reiterate that bills are an important part of the feedback loop to customers. Users should be billed as the market determines but should 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. The content of the bills should provide enough detail to make change choices and also should reflect in an agreed format the type of on-line information that will be available. We also note and are in agreement that all smart meter users will have time of use tariffs mandated.

Q3.5 Data for Prepayments

Agreed.

Q3.6 In-Home Data

eircom agree on the principle of having the IHD provided, 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 via the HAN, where the user can review their specific consumption patterns and change accordingly.

Q3.7 Data Security and Protection – summarised as, full end-to-end security of smart metering systems is paramount and data protection will be to the fore of smart metering systems design.

eircom are in agreement with the stated objectives, in the context of the smart metering project it is paramount that there is protection for consumers and suppliers alike from an end-to-end perspective.

Q3.8 Vulnerable Consumers – Specific considerations for vulnerable consumers should be integrated into the design of the smart metering systems and accompanying education and awareness programme at an early stage.

eircom agree with this principle.

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.

Q4

Respondents are invited to comment on the proposed working assumptions outlined in Section 5.2.1 in relation to the electricity smart metering functionality requirements. Are you in favour of the proposals? Outline reasons for agreement or disagreement.

The functionality requirements are comprehensive. We concur that it is important based on the lifetime of the project and the potential cost of meter-related premises visits that the meter is flexible in terms of WAN and HAN interfaces, and remotely manageable.

The Data Collection functionality required within the overall system needs to be determined and shared with interested parties i.e. the requirement pertaining to how meters are polled or push profile data, as outlined in Figure 7. The Collection function is dependent on the meter, and these functions are best described as a single system to ensure a manageable and consistent meter collection process.

The Communication hub requirement to store and switch information received via the HAN from Gas Meters over the WAN is implicit in the intended approach described in Section 5.2.2, but we suggest it should be referenced as meter functionality in Section 5.2.1 also.

The support for digital key storage within the meter for use in encryption and authentication (e.g. for securing and encrypting transmission from meter to Collection system) needs to be considered, and the role and responsibility around the management of these keys, given the likely requirement for non-repudiation of smart meter data used for billing purposes. The association of a digital certificate or similar with the meter must be considered, as well as the assignment of responsibility for meter authentication management.

Consolidation of the communications hub within the meter to support multiple HAN networks via a common WAN is accepted as practical and cost effective, dependent on an overall operational model that equitably and efficiently supports all utilities.

Q5

Respondents are invited to comment on the proposed working assumptions outlined in Section 5.2.2 in relation to the gas smart metering functionality requirements. Are you in favour of the proposals? Outline reasons for agreement or disagreement

Interoperation and compatibility with the Communication hub and WAN functionality within the electricity smart meter described in Section 5.2.1, and responsibility for same needs to be determined.

The Data Collection and Communications Head-End functionality required per 5.2.4 within the overall system needs to be determined and shared with interested parties i.e. the requirement pertaining to how meters are polled or push profile data, as outlined in Figure 7.

These functions are dependent on the meter, and are best described as a single system to ensure a manageable and consistent meter collection process.

The support for digital key storage within the meter for use in encryption and authentication (e.g. for securing and encrypting WAN transmission) needs to be considered, and the role and responsibility around the management of these keys, given the likely requirement for non-repudiation of smart meter data used for billing purposes. The association of a digital certificate or similar with the meter and the consumer must be considered, to ensure the meters facilitate same and responsibilities are appropriately assigned to BGN or to an external partner. Whether the gas meter requires a separate digital certificate, or can be subordinate to an electricity meter based certificate needs to be determined.

Q6 - Respondents are invited to comment on the proposals outlined in Section 5.2.3 in relation to the Wide Area Network (WAN) functionality and technology. Are you in favour of the proposals? Outline reasons for agreement or disagreement.

Noting the agnostic stance regarding WAN technology and the guiding principle that the most cost effective communications solution is put in place, we suggest that the WAN itself should utilise existing virtual privacy technology (e.g. Mobile APN on GPRS) to ensure network investment is leveraged via a commercially available market offering. Similarly, authentication and encryption is best handled between the meter and the collection system to ensure cost efficiency and avoid bespoke network development that would both be reflected in cost to the project and lead to 'vendor lock-in'.

With the same concern in mind we note that alternatives to MVNO should be carefully considered. Ensure competitive conditions exist within the market and availability of a suitable MVNO offering for the specific APN service required for Smart Metering. This is essential to avoid MVNO becoming a paradoxical 'lock in' factor.

We propose the use of IP as a communications protocol. The responsibility for management of IP address allocation within the WAN is a vital function, given for instance the potential remote commands to de- or re-energise a meter will depend on deterministic and authenticated addressing. Such a fundamental function needs to be assigned to ensure overall control of the environment is strong, consistent and auditable.

While the majority of meters could be addressed by the WAN technologies identified in CER trials to date in the timeline of the proposed project, the potential coverage challenges – e.g. based on meter location in remote locations or where mobile coverage is poor due to local building or environmental factors - may require tailored or enhanced WAN functionality for service provision. The deployment of such WAN functionality may be site-specific in nature, and would need to be included in the scope of smart meter installation by ESNB, or by a WAN provider working in collaboration. The approach in such cases needs to be decided and factored into the WAN selection, deployment model and/or the scope of the smart meter rollout plan.

Q7 - Respondents are invited to comment on the proposed working assumptions outlined in Section 5.2.5 in relation to the Home Area Network (HAN) functionality and technology. Are you in favour of the proposals? Outline reasons for agreement or disagreement.

We agree that this area is relatively immature and risky in terms of technology selection at this stage. As HAN standards continue to evolve, it would be advisable to recognise the value available through the selection of 'de facto' market leading technology with a critical mass of component production and procurement.

Given HAN security concern, a single shared Utility HAN may not be appropriate for addressing additional meters such as Water. Multiple HANs may be required.

Q.8

Respondents are invited to comment on the proposals outlined in Section 5.3.1 in relation to the procurement model. Are you in favour of the proposals? In particular which of the two IHD provision responsibility options outlined do you prefer? Outline reasons for agreement or disagreement.

Eircom are broadly in favour of the procurement proposals. With respect to the IHD, eircom prefer option 1 where ESB Networks will be responsible for procurement for all consumers. This allows for consistency, economies of scale and ensures, efficiency.

Q9

Respondents are invited to comment on the proposals outlined in Section 6 relating to the implementation approach and timelines. Are you in favour of the proposals? Outline reasons for agreement or disagreement.

The indicative timelines look reasonable and are prudent. However eircom feel that all opportunity for acceleration should be taken as the programme evolves. Specifically, eircom feel that specification for meters, comms and IT should be started immediately in order to facilitate wider industry discussion on how some of the challenges can be met. 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.

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.

