



Margaret Coaster
Smart Metering Team,
Ofgem E-Serve
9 Millbank,
London SW1P 3GE

smartmetering@ofgem.gov.uk

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Dear Margaret Coaster

Please find following the second and final installment to the latest smart metering and climate change consultation.

We acknowledge from the numerous discussion forums, that there is a requirement to further finalize an architecture that expedites smart metering implementation whilst affording flexibility, security, scalability and most importantly choice.

As previously commented, we continue believe that smart metering is the catalyst to greater Machine to Machine (M2M) innovation within the UK. Some initiatives that Telefonica O2 and Silver Spring Networks have practical demonstrability in facilitating and driving include; Smart Grid, Smart Cities, Smart Home and Smart Networks.

Whilst we realize that this innovation can create opportunity and change for the Energy Industry, we also understand the import of the consumer. We hope that our responses suitably reflect our opinions and considerations as to the consumer benefits, over the industry changes and cost to serve implications.

In addition, we realize that whatever is selected to facilitate smart metering has to accommodate known requirements, and potential emerging requirements without 'locking in' and eliminating competition whilst promoting choice both to the Industry and Consumer. We would advocate that the solution, should also consider sustainability and potential UK infrastructure impact – as discussed in the recent UK Infrastructure paper released this week; by ensuring open standards and inter-operability throughout the technology and service provider selection process.

We recognize that a number of the areas covered in this response will need further dialog and we would be only too pleased to meet with you to do so.

Yours sincerely

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Ofgem Consultation Questions. DEADLINE FOR SUBMISSION, Thursday 28th OCTOBER 2010

Question 1: Do you have any comments on the proposed minimum functional requirements and arrangements for provision of the in-home display device?

Whilst O2 and Silver Spring Networks understand the requirement for an IHD (in home display), we recognise from experience that the best format for communication is either through a mobile device and/or a web interface. Research has indicated that many IHD's become 'redundant' after a few weeks as the novelty value has passed – only a small percentage of customers retain full interactivity with this 'bespoke' communications device.

We also recognise that certain social segments need an IHD as it is better suited to their lifestyles, hence our support for an IHD functional requirements specification and legal provisioning requirement.

However, experience and research have proven that for interaction and therefore behaviour change (such as consumption patterns and energy management) to remain constant and longer term, the device has to have multiple uses to retain customer interest. This is why when researching and understanding the results of many pilots, both the web portals, and smart phones retain customer focus much much longer, as these devices have much more uses and therefore more opportunity for customers to use them. The other most important factor is that both these forms of interaction are **not** geographically tied, allowing customers greater freedom in the setup of personal preferences whilst away from their place of residence.

It would be more appropriate to legislate that an IHD should be supplied at customer **request** rather than 'blanket' supply, as many customers would prefer either a mobile applet or web portal. This change would enable a better cost of deployment model and suit quicker implementation plans - which should support the recent Government preference of an expedited deployment model.

Question 2: Do you have any comments on our overall approach to data privacy?

As per our previous consultations and submissions with respect to data privacy, we advocate that within a unique communicating environment (such as this) whereby utilisation could grow to include applications such as Smart Grid; security **has** to be embedded not just within the technology architecture, but also the business processes that enable the; deployment; provisioning; and operation of the infrastructure. This can **only** be achieved through detailed planning and tight contracting models for service provision. We would stoutly recommend that this be supplemented with solution and business references for 'large scale' smart metering/grid deployment integrity.

In addition, we have already recommended contracting models that enable further security through the partitioning of data, and ownership of sub-data sets across; DNO's (Distribution Network Operators); Energy Retailers; Consumer Services Organisations; DCC. By not only contracting with entities that have embedded security protocol in their technology and processes, and further overlaying this type of partitioning, we are minimising the risk of fraudulent activities, simply because there is no one single complete record repository – every stakeholder only has access to and holds data relevant for their business requirements.



Security has to become one of the prime factors (if not **the** prime factor) for selection of technology and provisioning partners within the DCC contracting criteria, simply because there is so much unknown about the future requirements and utilisation of the proposed Smart Metering communication architecture – therefore greater emphasis has to be placed on the integrity of the network operation and management.

Question 4: Have we identified the full range of consumer protection issues related to remote disconnection and switching to prepayment?

O2 and Silver Spring Networks, believe that the main concerns with enabling an environment whereby remote ‘migration from credit to prepay’ can occur at the discretion of the energy supplier, is not one of security or technology, but rather process and industry regulation. The only real technology and communications infrastructure concern has to be one of communications network latency (from time of disconnection as a credit customer, and then re-enablement as a prepay customer), and how the data flows are managed between the different databases. There has to be minimum service level requirements (SLR’s) for this process, so that it can be factored and accommodated within the communications network and data provision planning.

Fundamentally the main customer protection challenge is ensuring that - due to the dramatically different pricing policies; Energy Retailers do not ‘automatically’ migrate customers from one tariff to another, in an attempt to ratify revenues and secure customer ownership. To ameliorate this type of ‘consumer protection concern’ will require detailed process ratification and management – this is therefore not a technology constraint but rather regulatory.

Question 5: Do you have any comments on the proposed approach to smaller non-domestic consumers (in particular on exceptions and access to data)?

The current approach of recommending that small NDC’s (non-domestic customers), have the choice to utilize the proposed DCC model is logical. To fully realize a Smart Metered environment, that will enable future Smart Grid activities, requires that **all** estates are being monitored and measured. Without the inclusion of the small NDC’s into this framework approach, a significant section of UK industry (and therefore power demand), will be missing for Smart Grid and future energy management applications.

In an ideal scenario we should allow small NDC’s to seek alternative services and methods of recording consumptive loads, but should also legislate that if they do not utilize the DCC framework, they then adhere to similar Smart Metering demands placed upon the C&I (Commercial & Industrial) community.

To allow choice and promote competition in service provision and data registration within the small NDC sector, will require open standards and inter-operability requirements, else that this important segment is in jeopardy of ‘lock-in’ to a particular service/technology provider. Couple this requirement with a minimum network performance need, as small NDC’s will want differing products and services to that of a domestic user, makes for a rather complex decision and evaluative process for a small NDC.

It is also highly likely that the costs of self monitoring and regulation for this industry segment will ensure a preference for the utilization of the DCC framework, as long as the communications infrastructure managed by the DCC enables for innovative products and services that this segment will want in the future.



Question 8: Do you have any comments on the proposals that energy suppliers should be responsible for purchasing, installing and, where appropriate, maintaining all customer premises equipment?

The current market model for the provisioning of monitoring (meters) equipment can be applied to the emerging Smart Metering environment. There is however the need to ensure that sufficient open standards and inter-operability is demanded by the DCC and WAN service providers to ensure connectivity and data flows within this new environment. Failure to enforce inter-operability and open standards will allow for customer lock-in and an environment for 'stranded assets'.

To maintain competition, customer choice, and market dynamism; multiple vendors (in this instance Energy Suppliers) have to be empowered to choose technology and servicing models appropriate to their specific customer and business needs. But, to enable this, standards; open standards; and inter-operability have to be demanded to prevent future lock-in and market lethargy.

In this proposed market model, the DCC would ensure that SLR's are fully managed and adhered to, with emphasis placed upon additional functionality and customer applications, to drive competition and choice, whilst lowering the barriers for future market entrants.

It is also foreseeable that much of the customer premise equipment will be either sourced and on a managed service contract directly from the services providers (MOP providers etc), or sourced via the DCC.

Naturally we would welcome the opportunity to continue to discuss our proposals to ensure open standards and inter-operability, so as to promote greater competition and choice. We would also be happy to hold a workshop for interested stakeholders.

Question 9: Do you have any comments on the proposal that the scope of activities of the central data and communications function should be limited initially to those functions that are essential for the effective transfer of smart metering data, such as data access and scheduled data retrieval?

O2 and Silver Spring Networks are in provisional agreement that this should be the limit of the **mandate**. However, due to the uncertainty around future architecture demands and service delivery models, there is a requirement for future flexibility and inclusion of additional products/services/applications.

Couple this uncertainty around future market development, with the potential for the communications and data provisioning models that enable differentiation and competition to the consumer, dictates an evolution of DCC scope and requirements to better serve changing market needs.

By launching the DCC with this finite scope, we are managing the complexity and potential for failure, especially given the preference for an even quicker deployment model. We must however, for the reasons noted above, be able to allow evolution and scope creep as industry and society energy requirements change (e.g. such as the commercialisation and mainstream purchase of electronic vehicles), whilst inviting innovation of both services and cost models to the consumer.



Question 10: Do you have any comments on the proposal to establish DCC as a procurement and contract management entity that will procure communications and data services competitively?

O2 and Silver Spring Networks can foresee two main contracting models;

1. The DCC is the contractor and contract management entity for the WAN and Data Services
2. The DCC is the SLR management entity for the Data and WAN services, which are contracted by the Energy Suppliers or nominated representative

Each model has both benefits and pitfalls for the emerging Smart 'environment'.

Model (1) helps to alleviate the debate of stranded assets and inter-operability as there is a single contracting entity that can ensure that multiple communications and data vendors adhere to the DCC singular requirements specification. This would in theory enable for quicker deployment, but also conversely place greater probability for complete failure should the DCC not perform to expected criteria.

Model (2) will drive market competition; price; innovation and displace the possibility of 'complete failure' as multiple businesses are accountable, and if one fails others may succeed. This model however, does require greater inter-operability; open standards; and standards frameworks, to be successful – it is however more aligned to the 'spirit' of a de-regulated industry. Model (2) also arguably enables, for the provisioning of faster to market innovative products and services within the Energy Industry.

Irrespective of what model is employed, and where the demarcation of contractor and management resides, both models need to ensure that **multiple** Data and Communications vendors support the Smart Metering environment. By enabling this multiple contracting model, the DCC will be able to ensure a level of competition, and service security.

As previously submitted (Q18 September 2010, consultation response) and subsequently discussed, O2 and Silver Spring Networks also believe that a multiple contracting model split by geographic territory (factored with urban density and topography) would have to be a consideration for WAN services provision. Simply, differing territories and population densities will have a profound impact on communications technology employed and the cost to serve models.

A singular WAN services contract is not in the interests of the DCC or the Energy Industry as a singular communications technology type is inappropriate for the challenges that this environment offers.

As always O2 and Silver Spring Networks, advocate a blended network technology approach in a multiple contracting environment to ensure competition, and best of breed solution for specific requirements, both immediate and potential, whilst delivering the keenest cost to serve model for the **entire** contract duration.



Question 11: Do you have any comments on the proposed approach for establishing DCC (through a licence awarded through a competitive licence application process with DCC then subject also to the new Smart Energy Code)?

The Ofgem proposal for the creation and operation of a DCC entity is both sound and reasonable. However, the process of selection, scope definition and implementation **has** to be both inclusive and transparent. Not only does the DCC have to adhere to operational requirements, it will have to evolve to accommodate the emerging SEC (Smart Energy Code), and the ever expanding remit of 'Smart', - from Metering to Grid. Therefore the creation process will have to be both prescriptive and flexible, with an oversight committee ensuring that all interests are being considered during the formulation and first few years of operation.

A competitive licence process is probably the most suitable avenue to establish the DCC, as there are presently so many unknowns. But this selection process has to be balanced with the longer term UK Government aspirations for the Smart environment (with those aspirations made fully known to all potential applicants), and not just reliant upon competitive and price models.

Typically infrastructure of this import has historically been over-engineered to accommodate many potential outcomes and therefore able to provide the security of UK infrastructure that we currently enjoy. A pure competitive price contracting approach may not be in the longer term interests of the country or future requirements of the industry – ability to adapt and deliver in an emerging market has to be a considerable selection criteria.

Question 12: Does the proposal that suppliers of smaller non-domestic customers should not be obliged to use DCC services but may elect to use them cause any substantive problems?

As described earlier in this response, we will need visibility of load demands in the future as the SEC and Metering environment will evolve to incorporate Grid applications and requirements. Please see our previous response and proposed solutions.

Question 13: Do you agree with the proposal for a Smart Energy Code to govern the operation of smart metering?

O2 and Silver Spring Networks endorse the formulation of a new consumer oriented code, as an interactive communicating Smart Metering environment is incredibly complex and subject to 'abuse' if not managed either through regulations or codes of practice.

The new ability to interact directly with **every** consumer in **every** home requires altruistic management practices to ensure that the consumer interests are placed at the heart of the UK infrastructure deployment for Metering and future Grid practices.

We would therefore advocate that the SEC has core principles factored around the consumer, and the types of interaction/services (SLR's), with annexes that accommodate Smart Metering; Smart Grid (when applicable); Smart Home Services (when applicable). We would envision an organic code that would grow and accommodate future industry and market developments through the addition of an annex when appropriate.



Question 14: Have we identified all the wider impacts of smart metering on the energy sector?

As commented in previous submissions and discussions, we believe that whilst sufficient consideration has been placed upon Smart Metering, much has been neglected within the wider context of the Energy Sector, and this unique M2M (machine to machine) communicating environment.

Only recently have discussions considered known Smart Grid implications/applications that the WAN architecture could support. Little to date has been considered for emerging global trends and implementations of Electronic Vehicles and Smart Cities to name but two areas.

As the WAN is ubiquitous and could be used for both communication and M2M control, other global deployments are dual purposing the networks for the implementation of Grid and future Grid applications (such as EV monitoring and LV management) and the realisation of Smart Cities (both energy efficiency and social inclusion through data connectivity).

By ensuring that these global implementations are considered, along with the 'art of the possible' we will be able to implement a strategy and infrastructure that is both accommodating and places the consumer at the forefront of the decision making process. By not fully considering the implications of Smart Metering to not just the Energy Sector, but also the UK, we are severely limiting its' operational lifespan and could be creating future additional cost to deploy, as different infrastructure will be needed to realise these emerging markets and requirements.

Question 15: Is there anything further we need to be doing in terms of our ensuring the security of the smart metering system?

As per our previous submissions and discussions with Ofgem, O2 and Silver Spring Networks would advocate that the security sub-committee group fully explore not just the embedded security within technology, but also how processes need to be governed and managed to maintain the integrity of the total system – operation and implementation.

Naturally we would welcome the opportunity to continue to discuss our proposals to ensure security, and would be happy to hold a workshop for interested stakeholders.