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Phil Nash
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Area E, 1st Floor
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20th July 2009

Consultation on Smart Metering for Electricity and Gas

Dear Phil,

ElectraLink welcomes the opportunity to comment on the DECC Smart Metering for Electricity and Gas consultation. I am pleased to provide the following response on behalf of ElectraLink Limited.

ElectraLink was founded to fulfil the need to provide a common interoperability layer to the electricity market following deregulation. Significant investment was made in setting up the company and then procuring and maintaining the Data Transfer Network (DTN) infrastructure asset upon which the Data Transfer Service (DTS) now operates. ElectraLink has a proactive investment programme designed to ensure the DTN meets market requirements, maintains technology currency and delivers our customers' changing business requirements. ElectraLink is an industry owned company, each of the 14 Distribution Network Operators having received a share allocation when the organisation was established. This ownership model reflects the licence obligation to deliver the DTS to the market.

In addition to providing the DTS, ElectraLink operates commercially and competitively to provide additional gas and electricity data services to a wide range of companies in the utilities sector and to provide governance and business services for the SPAA and DCUSA industry codes. We are also developing our consultancy capability to provide additional value to these customers.

Executive Summary

ElectraLink welcomes the DECC consultation and the progress towards defining the model by which the UK will introduce smart meters into the domestic and small and medium business sectors. We believe an "innovation by increment" approach is ideally suited to this nationally critical project, as it will allow the use of existing assets while ensuring latest developments can be exploited through the lifetime of the programme. We are broadly supportive of the conclusions reached within the consultation, including the selection of the Central

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Communications model from those that were defined. We do however believe that there are significant opportunities to improve the forecast net present value (NPV) by adopting a pragmatic approach to rollout that also seeks to realise some of the benefits currently only being shown in the alternative market models.

These additional benefits fall into the following categories:

1. Accelerated Roll Out and Early Adopter Smart Metering

The consultation highlights that the speed of the roll out of smart meters has implications for the costs and benefits of the project overall. It has been assumed that the most rapid deployment can be achieved under an energy retailer led competitive rollout, with the preparation period lengthening as the complexity of any central coordination increases.

ElectraLink anticipates a significant increase in the number of smart meters being installed during the preparation period as energy retailers seek to meet mounting customer demand for smart meters and establish a lead in the market. This provides both an opportunity and a risk to the national smart metering initiative. Early deployment will provide valuable lessons that can be incorporated in planning whilst also bringing early realisation of some of the benefits that DECC identifies. However, the risks posed by a disparate approach to the early adopter market are that the short term benefits come at the price of a lasting lack of interoperability, resulting in inhibited competition for energy supplies and increased customer transfer costs. We believe these risks can be effectively mitigated by the approach we have set out below.

The early adoption of a central administration function that provides secure meter access controls and common functional and data standards can be achieved with minimal adaptation of existing industry infrastructure, rules and agreements. This would provide a window of opportunity for interoperable rollout within the existing market model, but would retain a roadmap to achieve Central Communication integration. This could be achieved far more rapidly than the forecast 36 month preparation period forecast for the Competitive Model roll out.

DECC identifies a risk that a longer rollout would require energy retailers to run two “back-office” systems. Close integration of a smart meter administration function with ElectraLink’s Data Transfer Service for electricity, and xoserve’s IX Network for gas would remove this risk by providing the ability to filter smart meter data into either existing legacy processes, or a “new world” smart meter process, as determined by each energy retailer at a time most appropriate to their business. This approach removes the back office obligation to run smart processes in parallel to legacy processes and provides a flexible roadmap towards the common industry goal. In doing so, costs are reduced and payback is accelerated to improve the NPV position.

The approach outlined above would enable energy retailers to rollout significant volumes of smart meters to “early adopters” without impacting the overall programme aims. By contrast,

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the option suggested in the Baringa paper under which 'suppliers are not compelled to use the central communications provider for any customers where a smart meter is already installed', creates a challenging environment where the resulting lack of interoperability becomes increasingly significant as meter volumes rise.

2. Regional Coordination

Perhaps the biggest attraction of the Fully Centralised Model is the opportunity to achieve cost savings through a regionally coordinated rollout of smart meters. We believe that network operators provide a natural agency for the regional coordination of smart meter deployment and that coordination by this means could be achieved without necessitating all of the overheads associated with the Fully Centralised Model. The participation of the networks businesses in this manner will also enable early realisation of smart grid benefits by appropriate geographical targeting.

The dual principles of the definition of an appropriate minimum meter standard, and the technical and commercial segregation of discretionary functionality and services, are important pre-requisites that will enable any coordinated rollout and address the risk of stranded metering and other assets.

We are pleased that DECC has initiated a further work stream to discuss the role and requirements of network operators which we believe should consider: a coordination role; issues of asset ownership; end user operational benefits; and evolving smart grid requirements.

3. Data Governance

The collection, handling, storage, processing and exploitation of data available from smart meters are important topics that will require significant focus and consultation during the preparation for a national scale implementation of smart metering.

Multiple stakeholders are likely to have legitimate claims to accessing different or overlapping subsets of meter data and functionality in order to carry out the services that they provide or consume. Only by adequately securing the meter, its communications and its supporting infrastructure will these requirements be reliably met. This will also mitigate the risks from unauthorised use and protect the rights of the consumer to determine the extent to which their energy usage data is shared and exploited beyond the provision of contracted energy services.

We believe that it is imperative that the consultation considers the means by which the governance of data ownership, and definition of rules for data storage and processing will be achieved during and after a rollout of smart meters. We suggest that a model whereby the consumer retains ownership of their consumption data is the most equitable. Under this model, service providers in the competitive energy supply market would have rights to retain and

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process the essential aspects of a consumer's data only for the period of time that they are contracted to supply energy and energy related services to that consumer. Consumers should have the right to access their consumption data within the same timeframe as it is available to their retailer, and should have the option to utilise their own data through discretionary value adding data management services from multiple service providers, not just their existing energy retailer.

We welcome the DECC proposal to take forward the detailed design and delivery of the project as a whole, in conjunction with the Ministry of Justice and the Information Commissioner. We believe that securing the meter and its communications and data processing infrastructure is essential to ensure that the risks from unauthorised access to meter functions, such as disconnection and prepayment credit, are effectively managed. The multi stakeholder environment, comprising the UK energy markets, presents significant additional challenges over and above simply securing meter communications back to a single utility company. The establishment of an independent central security management agent will ensure that the certification and cryptography is performed in a uniform and effective manner. We believe that the practice of relying solely on meter passwords and /or GSM network encryption does not provide an adequate mitigation of the risks. Any communications between the meter and stakeholders should be done through the central communications infrastructure and each transaction should be authenticated by an independent central communications service and encrypted end to end by the use of keys identifying the stakeholder, central communications service and meter. The security policy operated by the central communications service should include the employment of a method to routinely refresh these keys thereby providing a much greater degree of protection to the security of energy supplies and sensitive consumer data. The DTS secures data transfers in this way and has not had a single security breach in over 10 years of operation.

Data needs to be highly available to allow network operators to make real time decisions to manage demand, embedded storage and generation, and outages. While a retail supplier will suffer little effect from latency in the communications solution, it has the potential to cripple smart grid aspirations. It is important to achieve supplier objectives for smart metering whilst still ensuring networks businesses have rapid access to data from the range of suppliers within their geographical region. Making the management of central communications data the joint responsibility of the networks provides a means of ensuring smart grid operations remain viable.

In Summary,

ElectraLink favours the rapid establishment of a smart meter administration and access control function which provides open access web service interfaces to all market participants, as well as providing the option of data being delivered over current industry data networks. This entity should be network owned as networks businesses have the most time critical need for data access and their ownership should promote activities to deliver smart grid functionality in the future, whilst remaining independent of individual retailers, or groups of retailers. Early

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establishment of the minimum smart meter specification, RDU functionality and data governance rules will allow suppliers to start the rollout process. The central administration function will support this without the risk of stranding or loss of interoperability. We view the work done by ERA on meter functionality to be a useful foundation for establishing standards.

Roll out can then proceed whilst the market model is refined. Early customer adopters will act as a catalyst for increasing customer demand and preparing the public sentiment for the wider rollout. Divorcing the provision of the meter communication network from the central data management function expedites the rollout and places the focus on establishing successful processes for market operation. This will also reduce any reliance on communications rollout (Digital Britain for example) that may put the 2020 target at risk. Meter competition will be retained and the communications channel will remain the responsibility of the supplier during the preparation period, but may be provided by a central function at a later date.

We support plans to simplify market processes as well as the centralisation of those processes where cost savings to the industry can be achieved in non-competitive functions. Process changes should be considered on a case by case basis and can evolve with the market, administered by a suitably representative and managed governance body.

The role of the networks operators requires further attention, but this work should not delay the smart meter rollout. As an organisation whose shareholding comprises of networks businesses, ElectraLink is keen to support DECC's work in this area.

ElectraLink is investing in developing the capability to deliver the administration and access control functions to our customers who are planning smart meter deployments. We are keen to share our demonstration of this capability with DECC and explore how this capability can be used to strengthen the business case for smart metering in the UK.

I hope that you find our response useful and I would like to take this opportunity to offer our continued assistance to your team.

Yours sincerely

Dave Mutton
Chief Executive

Question Responses

Questions from Section 2: Proposals for the Domestic Sector: Delivery Model

Q1.	**Do you have any comments on the Government's preference for the Central Communications model?**
a.	The provision of a common open industry interface and a degree of centralised data and process management are the keys to ensuring reliable and interoperable smart metering. We believe that the Central Communications model should be further developed with these principles in mind to ensure that the resulting market infrastructure achieves: much greater efficiencies and improved consumer experience in the customer transfer process; economies of scale on common data processing functions; and efficient, secure data sharing across all interested parties encompassing metering, grid planning and control systems.
b.	We feel that the title 'Centralised Communications Model' may be prone to some misinterpretation and would like to highlight that the core strengths of this model are based on, as a minimum, a degree of centralised data and process management. The concept of a 'communications only' model is not viable as the 'thinnest' possible configuration would need to be supported by common standards for interoperability, security and access control which would need to be based on knowledge of the identification and rights of access of the parties using the communications. We would urge DECC to consider whether the existing impact assessment includes costs for these essential components. Without these components a deployment of smart meters by energy retailers using GSM and 3G mobile networks may not be fit for purpose in the sense of the end to end data security and interoperability needed to support efficient customer transfer and data and supply security. We think it is essential that further consultation on a central communications and data processing model should focus on requirements for a comprehensive range of end to end services and technology that can represent a viable, interoperable, secure metering infrastructure which meets the needs of the stakeholders.
c.	We see some benefit from separating the provision of centralised data and process management from the provision of a national communications capability. In doing so, benefits of early adoption can be realised through the data and process function without the overhead of procuring a national communications infrastructure.
d.	We wholly support the simplification and unification of energy industry processes. In particular, common functions such as Metering Point Registration, Data Collection and Data Aggregation could be delivered more efficiently through logically centralised utilities. Centralisation of these functions would provide opportunities to: converge energy industry processes; improve the quality of shared data; shorten the elapsed time taken; and provide greater choice and flexibility in the ways that energy retailers, network operators and energy consumers interact with the market.

	However, we feel that an evolutionary approach to support transition to an optimised model can be delivered in the short term by integration of smart meters with existing market processes, with extended data management and processing (e.g. Registrations, New Connections, Meter Installation and DC/DA improvements) being delivered in a phased manner to consistently support both early and late adopters. This approach would avoid unnecessary delay to smart metering benefits pending a rollout of a national communications infrastructure which could become a complex element in the 'critical path' of the programme. The removal of the time dependency on the selection of a dedicated communications network technology, or the building of flexibility into the commercial choice of communications networks, may assist when considering some of the potential options that are likely to be available as a result of the Digital Britain initiative or the innovative use of existing DSL infrastructure.
e.	An evolutionary approach to centralised metering point administration maximises the value available from existing market structures that are successfully supporting the industry. Whilst some existing processes could be more efficient, it is doubtful that the business case for a wholesale redesign of the market model is strong. An evolutionary approach also speeds the early rollout of smart meters and improves the forecast NPV.
f.	This pragmatism does not extend to unfettered support for a commercial model. The early adoption and the evolution of the market should be closely monitored by a Strategic Design Authority to ensure alignment with longer-term goals. One good example is the provision of an infrastructure that supports smart grid operation, for which the requirements will continue to develop over time. The UK needs to ensure that in an energy retailer led rollout, the benefits of smart grids can still be achieved.

Q2.	**Do you have any comments on the analysis and conclusions on the delivery model contained in this consultation document, the reports prepared by Baringa Partners, or the Consultation Impact Assessment?**
a.	The options analysed provide a sensible split of the different approaches when considered at a macro level. When considering the detailed implementation of the preferred model, dogged adherence to that model's macro description should be avoided. The best approach takes aspects of each model whilst following a dominant ethos.
b.	Ongoing refinement of the market model through the incorporation of consultation feedback and learnings from trials should push the NPV towards increased benefits realisation from the range currently defined.
c.	We support DECC's initiative to consult further with network operators who may provide a means of delivering regional benefits. ElectraLink is keen to explore how we might be best engaged to support: a co-ordinated rollout; optimised data access and sharing to support smart grid objectives; and ongoing operation of common industry services.
d.	We would recommend that DECC considers the in-home design proposed for use in the German market. The separation of the communications functionality from the 'core' metrology functions contained in the meters for each fuel has some merit. Advances in communication technology may require upgrading or replacement of the communications controller but would leave the core metrology unchanged. We believe that the approach taken to specifying the meter functionality and in-home configuration should be aimed at securing a long term asset life in the area of the core metrology. Providing segregation and flexibility in the communications infrastructure will enable longevity of meter assets. The use of a Multi Utility Communications Controller type of device also supports the ability to aggregate in-home energy data for presentation via a single In-Home Display (IHD). We don't believe that the prospect of having 2 IHD devices installed, one for each fuel, will be appealing to retailers or consumers. Segregation of the communications controller role from the gas and electricity meters will also support further flexibility in options available to installation co-ordinators as single fuel installations become viable and practical options.
e.	We support the reduction in the IT and settlement capex optimism bias. Our view is that this can be further de-risked by greater use of existing industry capability and the use of evolutionary rather than big bang deployment without compromise to the programmes aims.

Q3.	**Do you agree the Central Communications model effectively facilitates 'end to end' management of the electricity networks system needed for smart grids?**
a.	Yes, the provision of a centrally co-ordinated interoperability, data management and communications infrastructure can facilitate, and not limit, the 'end to end' management of electricity networks required for smart grids. The requirement for 'real time' event notification and control demanded by smart grid applications will require careful capacity design and management of any shared communications media to ensure that both time critical and non time critical events are provided an appropriate quality of service (QoS). The volume and granularity of data available from street level will require careful filtering and quality management to ensure network operators can act quickly on relevant information. This may be achieved by making provision for data aggregation and sharing at many levels throughout the communications infrastructure. It is likely that distributed intelligence will play a part and a requirement to share data between national networks and district networks may be an essential feature of smart grids. An holistic approach to the design and operation of the communications and data provisioning infrastructure will be essential. Executing this responsibility through an independent central body will ensure that the needs of all energy stakeholders can be met equally.
b.	One model supporting sharing of network load/consumption data is for each DNO to provide a "regional hub" and then to aggregate the required data into a central system. This could give DNOs direct control of network loading information for their region whilst also ensuring other parties have access to energy consumption data. This distributed model eases some of the scaling challenges facing the UK and ensures smart grid functionality will be supported. Interoperability would be provided by a layer sitting above the regional views, which could also provide a consolidated UK view.

Q4.	**Do you consider that Government should adopt measures to promote co-ordination of roll-out at local level? If so, what measures would you support?**
a.	Local co-ordination brings benefits in terms of communication with the local community and efficiency savings for the meter install.
b.	A DNO owned rollout would naturally provide this regional co-ordination.
c.	The optimal rollout model will be affected by the communications technology, the co-ordination of the multiple parties involved and local factors such as housing type and meter location. More clarity on the strategic approach is required before a preferred rollout method can be identified.

Q5.	**Should any particular policy considerations be taken into account in considering whether there should be priority target groups for early deployment of smart meters?**
a.	Priority installations based on customer segment would also require targeted information to the customer, but have the potential to bring benefits to target groups. Concentrated mobilisation, with retries as necessary, on a regional basis may achieve a greater rate of penetration towards the national target.

Q6.	**Do you have any comments on the merits of alternative approaches under which electricity and gas network businesses take on responsibility for aspects of smart metering?**
a.	As previously covered, we see benefits for network operators having a role in the rollout and initial data collection function.
b.	DNO involvement in the planning and rollout of regional communications could allow technology such as power line carrier to be considered. Such technology may be otherwise overlooked under a Competitive Market Model.
c.	Stability in the meter functional model is essential to ensure asset life. Suitable agreements could make meter asset ownership a logical fit with network businesses.

Questions from Section 3: Proposals for the Domestic Sector: Functionality

Q7.	**Do you agree with the functionality proposed for electricity meters? Please explain your reasons and if possible give evidence for your comments.**
a.	The meter functionality described appears to be broadly consistent with retail requirements. We recommend that other supply quality and network engineering metrics such as phase measurement, voltage and frequency should be considered to assess their potential benefits to consumers and network operators. Ultimately, some initially unassigned communications 'bandwidth' and remotely updateable firmware will help to ease the path to additional future functionality, provided the metrology is in place.
b.	Section 3 lists requirements of a metering system rather than specifically the meter as per the question. We support the separation of core metrology functions from WAN and HAN communications control. The WAN and HAN communications functionality does not need to be embedded within the meter but can be delivered by a separate unit in a manner similar to the Multi Utility Computer (MUC) proposed for the German energy markets. This approach

	carries the significant benefit that the core metrology can be specified at a level which will ensure the long term asset life of the meter thus minimising the risk of stranding.
c.	The principle of physical separation between the communications system and the meter has some resonance with the way the Central Communications Model is currently described by DECC.
d.	The communications network aspect of the required infrastructure may be able to support and benefit from resource sharing with telecare and other in home services.

Q8.	**Are there any additional requirements that will be needed to facilitate smarter network management, efficient energy management and the development of "smart grids"? Please provide analysis, particularly on costs and benefits, where possible.**
a.	Demand management will be a key component of the functionality required to deliver both smart grids and reduced carbon objectives. We consider the central communications provider to be the natural home for effecting demand control and aggregation. This and other aspects of smart grid enablement will require a rethink in the nature of the relationship between distributors and customers.
b.	Particular consideration should be given to the effects of expected growth in electrically powered vehicles; how metering infrastructure will need to support the scale and patterns in demand; and also if any potential for energy storage/export will be available from this technology in the foreseeable future.

Q12.	**Do you agree with the Government's position that a standalone display should be provided with a smart meter?**
a.	Yes, unless the customer has a preference for an alternative means of data presentation such as the internet. Whilst it is likely that consumers will over time take advantage of more pervasive means of data presentation and sharing, we believe that offering consumers the option of an IHD is likely to be the most effective means of raising awareness of energy consumption on an aggregate and 'time of use' basis.

Q13.	**Do you have any comments on what sort of data should be provided to consumers as a minimum to help them best act to save energy (e.g. information on energy use, money, CO2 etc)?**
a.	Displaying monetary cost is likely to be one effective way of changing consumer behaviour, although it does imply the download of unit rates and, possibly the algorithms to deal with the wide range of suppliers' tariff structures and terms that have evolved in a competitive market.
b.	Consumption (kWh) should be displayed.
c.	CO2 metrics should also be displayed. It is difficult to see why providing each of these alternate measures should add significantly to cost.

Q21.	**Do you agree with the Government's approach to promoting interoperability in the non-domestic market? Do you have particular views about the interaction between the Government's proposals for the non-domestic sector and the domestic smart meter roll-out?**
a.	Yes, we believe that interoperability in the non-domestic sector can be easily achieved by re-using the solutions implemented in the domestic sector. Whilst the impact of non-interoperability is less in the non domestic sector, the ability to transfer customers without a change to metering and communications may bring some time and cost efficiencies.

Q22.	**Has Government identified the right issues for the immediate next steps? Are there other activities or key issues which you think should be addressed at this stage of the preparations for roll out?**
a.	Yes, the key steps are to: • Establish a Strategic Design Authority. • Clarify the implementation roadmap and establish the procurement body. • Establish project roles for the Ministry of Justice and the Information Commissioner. • Define the minimum meter specification to support early rollout of compliant meters and promote asset life. • Enlist the co-operation of existing governance and infrastructure bodies to define an evolutionary roadmap. • Define the role of the Network Operators and the means of supporting the smart grid.

	• Clarify any plans for the national communications infrastructure provider or providers. • Clarify the scope ('thickness') of the central communications and data management layer. • Clarify any plans for engaging the views of consumers. • Consider the data ownership and security model. For example: o What rights will consumers have to access and share their own consumption data? o What rights will Suppliers have to retain, consume and share energy consumption and other data pertaining to supply points that they currently or historically have supplied? o Who is responsible for ensuring the security of data in its broadest sense? o What measures will be required to adequately protect the security of energy supplies from the risks associated with the proposed communications infrastructure?