



**Secure Meters (UK) LTD**  
**Secure House, Moorside Road, Winchester, Hampshire, SO23 7RX, ENGLAND**

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

28<sup>th</sup> October 2010

Sent via email to [smartmetering@ofgem.gov.uk](mailto:smartmetering@ofgem.gov.uk)

**Smart Metering Implementation Programme – Prospectus – SECURE METERS’ Response**

Dear Madam,

We are grateful for the opportunity to respond to this consultation. Please now find our 2<sup>nd</sup> response below, for those questions required by 28<sup>th</sup> October 2010, as requested.

Apart from the detail there are some key points raised in this and our September response:

- a) The need for the overall data security architecture to be agreed early on, including on-line vending and encryption services for prepayment metering,
- b) This also involves the choice that needs to be made at an early date for the utility-robust HAN, and interfacing smart meter information to a consumer HAN or smart home system,
- c) Rapid progress on Technical Specifications is essential – we are working to support this under the Elster/Landis+Gyr/Secure announcement (see Annex C),
- d) On microgeneration in domestic premises there are several challenges to be resolved now – including with prepayment operation, FITs metering data, and IHDs,
- e) A sanguine view of smart grid requirements is clearly required – we suggest reviewing the Advanced Metering minimum specification from the DPI Victoria (Australia) mandated rollout.
- f) A review of the RTS-based infrastructure for metering and control of electric heating is required – the RTS still has an important role including for heat pumps and electric vehicles.

For any questions concerning our response please contact me via:

[REDACTED]

[REDACTED]

[REDACTED]



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## **Secure Meters' Response to Ofgem's Smart Metering Prospectus**

Secure Meters (UK) Ltd (formerly PRI Ltd) welcomes the OFGEM/DECC Prospectus for Smart Metering.

Our second stage of responses to the prospectus, the questions raised and the highlighted issues are detailed below.

Secure Meters Group is an international supplier of Smart Metering solutions that has been actively involved in the UK market since the mid-1980s, pioneering a number of intelligent metering solutions along the way. Secure has extensive experience of prepayment metering and systems with very successful deployments and operations for Northern Ireland Electricity in the UK. Today Secure generates over 1.4 million encrypted transactions per month on-line. We believe that Secure has valuable expertise to bring into the work being undertaken by OFGEM and DECC, particularly on prepayment as this is a ubiquitous requirement for rollout.

Secure is leading the deployment of Smart Metering projects in the mandated rollout in Victoria, Australia, which is generally regarded as the most function-rich deployment of smart metering around the world. These projects involve WAN, outage detection, provision of DNO data from each metering point, remote download of firmware, and adoption of HAN for in home displays. A key question coming from the OFGEM/DECC questions recently has been about the ability to accelerate rollout. From our perspective there is a necessity to formalise a minimum mandated specification by early 2011 to accelerate the subsequent rollout. From the aspect of production capacity on metering equipment Secure does not have a constraint for the rollout volumes as it operates 5 accredited production facilities, including at our European logistics centre at Bristol. In addition to the Smart Metering Programme, Secure is heavily engaged in Smart Homes and customer engagement to achieve energy awareness, leading to more efficient use of energy and reductions of costs and CO<sub>2</sub>. Our group company Horstmann Controls is leading the debate and delivery of solutions in the UK.

We would welcome the opportunity to provide our expertise to OFGEM and DECC as an equipment manufacturer and service provider (of meters, in home displays, WAN/HAN gateways, payment encryption services, heating controls and smart homes products).



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## **1. Prospectus** [Q's 1, 2, 4, 5, 8, 9, 10, 11, 12, 13, 14, 15 for 28 October]

### The Consumer Experience

**Question 1:** Do you have any comments on the proposed minimum functional requirements and arrangements for provision of the in-home display device? (28<sup>th</sup> October 2010)

Secure: The IHD must support Prepayment Meter Operation (e.g. status of account and, alerts, Emergency and Friendly Credit operation) as well as current mode of operation (credit/prepay). Where electricity prepayment modes are in use the IHD also needs battery back-up during any service interruptions. As an aid to reduction in energy consumption a real-time predictive cost calculation of daily, , weekly, monthly, billing period or yearly costs based on current consumption would be of benefit.

It is important that the IHD displays a sufficiently-accurate indication of the costs of use of energy, for electricity and gas. Accuracy as at the last midnight time-point should be taken as part of the relevant definition. For some tariff structures and charge calculation methods a daily approximation method should be considered (see also our response to Q.14 below).

For electricity the IHD also needs to take into account of the presence of microgeneration connected on the consumer's side of the smart meter and its impact on energy values and charges or credit amounts. The benefit of FITs payments for gross generation may or may not accrue to the consumer, depending upon the commercial arrangements for microgeneration at the premises. For gas the IHD may need to employ the same calculation methods and parameters as for billing to get a sufficiently-accurate indication of the costs, which may involve the use of regularly-updated gas CV values for the district (after the event, with small adjustments) if average values for domestic indication and billing purposes cannot be adopted.

**Question 2:** Do you have any comments on our overall approach to data privacy? (28<sup>th</sup> October 2010)

Secure: The overall approach is a first step only, for specific requirements and details will need to be addressed, for instance by the PSAG. Privacy by Design and Security by Design are good principles, but much more detail is needed before



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comments can be made on the proposed security arrangements and architecture.

The statement that 'customers shall choose in which way consumption data shall be used etc' under 2.18 needs further exploration as to how these needs will be identified, registered and policed. For example what happens to the customer's historical data on change of tenancy, or what happens if existing customers change their mind regarding the data availability at some time in the future and could this be retrospective? The clearing of any data stored in the smart metering system (including any DNO-required data) needs to be defined, as well as data access arrangements. Also the case for 2 separate HANs in Annex A needs further consideration in relation to data privacy and security.

**Question 4:** Have we identified the full range of consumer protection issues related to remote disconnection and switching to prepayment? (28<sup>th</sup> October 2010)

Secure: As any Smart Meter can be switched from credit to prepayment or remote disconnect a Smart Metering Installation Code of Practice is required which will address all the issues including customer protection. There needs to be a defined process which must be followed including customer training when a customer is taken off credit mode and put onto prepayment mode (e.g. customer training, vending process, available outlets and channels). Remote gas disconnection and re-enabling needs further detailed consideration. Also extensive trials are needed prior to validation and general adoption of specific processes and codes.

**Question 5:** Do you have any comments on the proposed approach to smaller non-domestic consumers (in particular on exceptions and access to data)? (28<sup>h</sup> October 2010)

Secure: We agree with the approach proposed in the Prospectus. We recommend that the "2 HANs" approach in Annex A is also made available for smaller non-domestic customers (under 2.44), without necessarily providing the utility IHD.

## Industry Roles & Responsibilities

**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? (28<sup>h</sup> October 2010)



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**Secure:** We agree with the proposals, for all the equipment in the utility smart metering system including the WAN module and any antenna. Mixed ownership and maintenance of modules in or on or next to meters in a domestic premises setting is very problematic leading to confusion and disputes. However, other arrangements for provision of customer IHDs, or gross generation meters, or data transfer for smart homes or ESCOs will arise – see Annex A also.

**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? (28<sup>th</sup> October 2010)

**Secure:** We agree with the proposal and stress that a robust national sites and smart meters database is also essential if the benefits of an efficient and effective smart metering service are to be achieved in electricity and gas. This needs to be part of the DCC from the start if subsequent migration difficulties and the costs of duplicated databases are to be avoided. In relation to the current market model in gas, the setting up of the DCC gives industry the scope to solve legacy issues and provides for efficient industry processes and developments.

**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? (28<sup>th</sup> October 2010)

**Secure:** We fully support the OFGEM/DECC proposal.

**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)? (28<sup>th</sup> October 2010)

**Secure:** We agree with the proposed approach.

**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? (28<sup>th</sup> October 2010)



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Secure: The proposal is acceptable provided that the interfaces for CoS and/or CoT flow seamlessly between the existing suppliers' services and new DCC services.

**Question 13:** Do you agree with the proposal for a Smart Energy Code to govern the operation of smart metering? (28<sup>th</sup> October 2010)

Secure: Yes. In principle it is needed from the start of mandated roll-out, but should not cover existing domestic smart meters.

**Question 14:** Have we identified all the wider impacts of smart metering on the energy sector? (28<sup>th</sup> October 2010)

Secure: By and large yes, but an allowance for existing domestic smart meters installed prior to the mandated timetable by smaller suppliers is needed.

On TOU tariffs there are few actual barriers from the metering technology perspective, but there are some practical and system and consumer aspects apart from any settlements-related aspects. Some hybrid block/TOU tariff structures and calculation methods pose issues with mirroring accurate cost-reflective charges on IHDs and prepayment meters. Also rising block/TOU tariffs with arbitrary thresholds are unlikely to be workable in a fully-competitive energy market. Some tariff structures and calculation methods are unhelpful if clarity of consumption and costs on IHDs and prepayment meters is desired in order to achieve energy awareness and demand reduction through consumer response.

**Question 15:** Is there anything further we need to be doing in terms of our ensuring the security of the smart metering system? (28<sup>th</sup> October 2010)

Secure: We support the paramount need for an end-to-end approach to security by design. The security requirements need to extend beyond data retrieval to installation/commissioning/registration/exchange, remote meter management and prepayment/PAYG modes of operation, with real-time vending systems and encrypted payment updates transferred to the target smart meter. We have also proposed the case for use of 2 separate HANs in each smart metering system to permit a separate local access to metering data by the customer and/or their agents without compromising the security of the utility HAN – see Annex A.

The security architecture and implications for security key management and audit require detailed consideration using appropriate expertise. Every smart



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metering site must be capable of being switched to/from credit/prepayment /PAYG modes during installation or at any subsequent time and appropriate operational and security arrangements need to be in place for this.

Further consideration also needs to be given to the method of debt recovery used with prepayment metering. With remote communications and smart meters the functionality and security aspects of debt management can be handled advantageously in the back office rather than in the smart meter – see Annex B.

## **2. Consumer Protection** [for 28 October]

Developing services for consumers

**Question 1:** Do you have any views on our proposed approach for addressing potential tariff confusion? What specific steps can be taken to safeguard the consumer from tariff confusion while maintaining the benefit of tariff choices? (28<sup>th</sup> October 2010)

Secure: TOU or complex tariffs should not be introduced at the same time as the smart meters are installed in the consumer's premises. Experience from other jurisdictions shows that confusion and dissatisfaction is then likely to arise, slowing the programme down and increasing costs. Information from the first year of use of the smart meter could be used by the consumer or his supplier/advisor to illustrate the likely outcome of moving to a new TOU tariff for the following year.

Some hybrid block/TOU tariff structures and calculation methods pose issues with mirroring accurate cost-reflective charges on IHDs and prepayment meters. Also rising block/TOU tariffs with arbitrary thresholds are unlikely to be workable in a fully-competitive energy market. Some tariff structures and calculation methods are unhelpful if clarity of consumption and costs on IHDs and prepayment meters is desired in order to achieve energy awareness and demand reduction through consumer response.

**Question 2:** Do you agree with our proposed approach for addressing unwelcome sales activities during visits for meter installation? (28<sup>th</sup> October 2010)

Secure: The industry cannot afford to confuse the consumer or get known for mis-selling from site visits in the roll-out. We agree that any confusion between statutory/mandated visits and sales propositions needs to be avoided. Also it may be that the person having the contractual agreement with the supplier may not be present during the metering replacement visit – it may be the spouse,



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teenage child, or neighbour who is present instead. This then limits the ability to sell during the visit. The variable and unknown time taken for any selling activity by smart metering installers would also lengthen visit times and make it more difficult to hold appointment times for subsequent visits.

**Question 3:** What do you consider as acceptable and unacceptable uses of the installation visit and why? (28<sup>th</sup> October 2010)

Secure: We think that Suppliers and Consumer representatives will respond to this.

**Question 4:** Do you agree with our proposed approach to ensuring that the IHD is not used to transmit unwelcome marketing messages? (28<sup>th</sup> October 2010)

Secure: Yes we agree. Unwelcome messages will only slow down the roll-out if consumers get a bad experience or think the messages have led to mis-selling or confusion.

**Question 5:** Do you agree that consumers should be able to obtain consumption information free of charge at a useful level of detail and format? How could this be achieved in practice? (28<sup>th</sup> October 2010)

Secure: There is nothing in the proposals to indicate that any body other than consumers as a whole will be paying for the smart metering equipment, irrespective of the actual ownership or financing of it. Consumers should be able to access their consumption data free of extra charges either on the minimum utility IHD, or via the consumer HAN port – see Annex A.

#### Prepayment and remote disconnection

**Question 6:** Do you consider that existing protections in the licence are sufficient to ensure that consumers are not remotely switched to prepayment mode inappropriately? (28<sup>th</sup> October 2010)

Secure: We think that Suppliers and Consumer representatives will respond to this.

**Question 7:** Could provision of an appropriate IHD help overcome meter accessibility issues to facilitate prepayment usage? (28<sup>th</sup> October 2010)

Secure: Yes, for instance in flats. In Northern Ireland the consumer has convenient access to prepayment facilities via the IHD. This has been a major factor in the success of the prepayment programme in NIE – see also Annex B.



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**Question 8:** What notification should suppliers be required to provide before switching a customer to prepayment mode? (28<sup>th</sup> October 2010)

Secure: We think that Suppliers and Consumer representatives will respond to this.

**Question 9:** Do you believe that suppliers should be required to provide emergency credit and „friendly credit“ periods to prepayment customers or whether, as now, this can be left to suppliers? (28<sup>th</sup> October 2010)

Secure: The core metering functionality should support this. Then it is for suppliers to decide how to use it. We note that this has been used in NIE for 10 years and has had a positive outcome on consumer experience and operational cost savings.

**Question 10:** Do you consider that an obligation similar to Prepayment Meter Infrastructure Provision (PPMIP) may be required? (28<sup>th</sup> October 2010)

Secure: If it is decided to include PPMIP-like processes then any mis-directed payments issues must be avoided.

**Question 11:** Is the obligation which Ofgem is proposing to introduce on suppliers to take all reasonable steps to check whether the customer is vulnerable ahead of disconnection sufficient? If not, what else is needed? (28<sup>th</sup> October 2010)

Secure: No specific comments, but vulnerable customers must always be allowed for.

**Question 12:** What notification should suppliers be required to provide before disconnecting a customer? (28<sup>th</sup> October 2010)

Secure: We think this is for consumer representatives and the FPAG to respond to, but in our view extensive trials are needed prior to validation and general adoption of specific processes and codes.

**Question 13:** Do you have any views on the acceptability of new approaches to partial disconnection and how they might be used as an incentive to pay bills? (28<sup>th</sup> October 2010)

Secure: Load limiting modes invoked when available credit is exhausted (i.e. „partial disconnection“) have been used successfully in some other jurisdictions.



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**Question 14:** Do you agree with our approach for addressing issues related to remote disconnection and switching to prepayment? (28<sup>h</sup> October 2010)

Secure: In relation to Clause 3.36 we note that the existing arrangements with prepayment metering for electricity and gas in the UK are working satisfactorily, and are included in BS EN 62055-31 for electricity payment meters.

**Question 15:** Have we identified the full range of consumer protection issues associated with the capability to conduct remote disconnection or switching from credit to prepayment terms? If not, please identify any additional such issues. (28<sup>th</sup> October 2010)

Secure: As any Smart Meter can be switched from credit to prepayment or remote disconnect a Smart Metering Installation Code of Practice is required which will address all the issues including customer protection. There needs to be a defined process which must be followed including customer training when a customer is taken off credit mode and put onto prepayment mode (e.g. customer training, vending process, available outlets and channels). Remote gas disconnection and re-enabling needs further detailed consideration. Also extensive trials are needed prior to validation and general adoption of specific processes and codes.

#### Vulnerable consumers and fuel poverty

**Question 16:** What information, advice and support might be provided for vulnerable consumers (e.g. a dedicated help scheme)? Who should it be provided to? (28<sup>th</sup> October 2010)

Secure: We think this is for Suppliers, Consumer representatives and the FPAG to respond to, and would note that this is becoming more important as fuel prices continue to rise.

#### Cost recovery and monitoring of costs

**Question 17:** Do you have any comments on our proposals to prevent upfront charging for the basic model of smart meters and IHDs? (28<sup>th</sup> October 2010)

Secure: We support the proposals in Clauses 5.8 and the expectation in clause 5.11 of the document. Upfront one-off charging to consumers for “minimum” smart metering equipment and its installation would effectively kill the prospects for the



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whole roll-out. It would work against the benefits of smart metering for all consumers and the benefits of smart metering and smart prepayment/PAYG options for fuel-poor and vulnerable customers. It would also appear to be unfair to expect a customer to pay for the equipment up front if it then became part of some organisation's assets and was not owned by the customer. A customer who moved home several times during the roll-out might then have to pay for several sets of smart metering equipment.

### 3. Statement of Design Requirements [for 28 September]

#### 4. In-Home Display [for 28 October]

Functional Requirements of the IHD

**Question 1:** We welcome views on the level of accuracy which can be achieved and which customers would expect, in particular in relation to consumption in pounds and pence. (28<sup>th</sup> October 2010)

Secure: It is important that the IHD displays a sufficiently-accurate indication of the costs of use of energy, for electricity and gas. Accuracy as at the last midnight time-point should be taken as part of the relevant definition. For some tariff structures and charge calculation methods a daily approximation method should be considered.

There are also some practical and system and consumer aspects. Some hybrid block/TOU tariff structures and calculation methods pose issues with mirroring accurate cost-reflective charges on IHDs and prepayment meters. Also rising block/TOU tariffs with arbitrary thresholds are unlikely to be workable in a fully-competitive energy market. Some tariff structures and calculation methods are unhelpful if clarity of consumption and costs on IHDs and prepayment meters is desired in order to achieve energy awareness and demand reduction through consumer response; this is then akin to inaccuracy.

For electricity the IHD also needs to take into account the presence of microgeneration connected on the consumer's side of the smart meter and its impact on energy values and charges or credit amounts. Also the monetary benefit of FITs payments for gross generation may or may not accrue to the consumer, depending upon the commercial arrangements for microgeneration at the premises. For gas the IHD may need to employ the same calculation methods and parameters as for billing to get a sufficiently-accurate indication of the costs, which may involve the use of regularly-updated gas CV values for the district (after the event, with small adjustments) if average values for domestic



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indication and billing purposes cannot be adopted. Errors in gas volume-to-energy conversion and costs for homes at altitudes of 100 or 200 m above sea level can also give rise to positive errors of 1 or 2 % in gas energy content and costs. Overall a pragmatic approach to on-site cost indication is therefore needed.

**Question 2:** We welcome evidence on whether information on carbon dioxide emissions is a useful indicator in encouraging behaviour change, and if so, how it might be best represented to consumers. (28<sup>th</sup> October 2010)

Secure: Feedback so far is that indication of the cost of energy consumed is the most useful and meaningful indicator for most domestic users. Cost is also directly related to the average amount of carbon dioxide emissions associated with energy use under the UK method of allocating emissions to suppliers and so to their customers by consumption. We note that where microgeneration is connected in a home under the UK connection arrangements the effect on overall carbon dioxide emissions associated with the smart meter data is a variable mixture while the generator is providing energy, complicating presentation of emission values. However the connection arrangements in some other countries (e.g. France) result in separate values for consumption and generation.

**Question 3:** We welcome views on the issues with establishing the settings for ambient feedback. (28<sup>th</sup> October 2010)

Secure: We agree that ambient feedback is important as it provides continuous consumer engagement when appropriate settings are used.

**Question 4:** Do you think that there is a case for a supply licence obligation around the need for appropriately designed IHDs to be provided to customers with special requirements, and/or for best practice to be identified and shared once suppliers start to roll out IHDs? (28<sup>th</sup> October 2010)

Secure: We support this, appropriate IHDs are needed for various user groups, e.g. the visually impaired, and need to evolve.

**Question 5:** We welcome evidence on whether portability of IHDs has a significant impact on consumer behavioural change. (28<sup>th</sup> October 2010)

Secure: Once ambient recognition is established portability is less important. But battery back-up of IHDs is also needed for other reasons, including to handle any prepayment interruptions.



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**Question 6:** Do you agree with the proposed minimum functional requirements for the IHD? (28<sup>th</sup> October 2010)

Secure: The minimum specification IHD must support Prepayment Meter Operation (e.g. status of account and, alerts, Emergency and Friendly Credit operation) as well as current mode of operation (credit/prepay). Where electricity prepayment modes are in use the IHD also needs battery back-up during any service interruptions. As an aid to reduction in energy consumption a real-time predictive cost calculation of daily, weekly, monthly, billing period or yearly costs based on current consumption would be of benefit.

For electricity the IHD also needs to take into account of the presence of microgeneration connected on the consumer's side of the smart meter and its impact on energy values and charges or credit amounts. This also affects any presentation of information on carbon dioxide emissions.

Nature of the Mandate on Suppliers in relation to the IHD

**Question 7:** Do you have any views or evidence relating to whether innovation could be hampered by requiring all displays to be capable of displaying the minimum information set for both fuels? (28<sup>th</sup> October 2010)

Secure: In our view the minimum specification IHD must be capable of dual-fuel operation and display. Other IHDs for use with the consumer HAN may be used for specific requirements such as electric heating and heat pumps.

**Question 8:** Do you agree with the proposals covering the roles of and obligations on suppliers in relation to the IHD? (28<sup>th</sup> October 2010)

Secure: We agree.

## **5. Communications Business Model [for 28 October]**

The Scope of DCC

**Question 1:** Do you agree that access control to secure centrally-coordinated communications, translation services and scheduled data retrieval are essential as part of the initial scope of DCC? (28<sup>th</sup> October 2010)



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**Secure:** We agree with the proposal and stress that a robust national sites and smart meters database is also essential if the benefits of an efficient and effective smart metering service are to be achieved in electricity and gas. This needs to be part of the DCC from the start if subsequent migration difficulties and the costs of duplicated databases are to be avoided. In relation to the current market model in gas, the setting up of the DCC gives industry the scope to solve legacy issues and provides for efficient industry processes and developments.

**Question 2:** Do you agree that meter registration should be included within DCC's scope and, if so, when? (28<sup>th</sup> October 2010)

**Secure:** We agree. A robust national sites and smart meters database is essential if the benefits of an efficient and effective smart metering service are to be achieved in electricity and gas. This and meter registration needs to be part of the DCC from the start.

**Question 3:** Should data processing, aggregation and storage be included in DCC's scope and, if so, when? (28<sup>th</sup> October 2010)

**Secure:** No, neither for NHH nor HH settlements in electricity, which should remain as Supplier responsibilities. Appropriate gas arrangements are similarly required.

**Question 4:** Do any measures need to be put in place to facilitate rollout in the period before DCC service availability and the transition to provision of services by DCC, for example requiring DCC to take on communications contracts meeting certain pre-defined criteria? (28<sup>th</sup> October 2010)

**Secure:** AMR and smart metering roll-outs in other countries have not proceeded without first having a clear view of the data communications services to be used. It is sensible to bring the DCC start-up date forward to align it with the mandate on Suppliers to roll-out smart metering. This will not only minimise the risks of duplicated costs and visits and the security risks, but it will also facilitate interoperability.

## The Structure and Realisation of DCC

**Question 5:** Do you agree that the licensable activity for DCC should cover procurement and management of contracts for the provision of central services for the communication and management of smart metering data? (28<sup>th</sup> October 2010)

**Secure:** We support the OFGEM/DECC proposal.



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**Question 6:** Do you consider that DCC should be an independent company from energy suppliers and/or other users of its services and, if so, how should this be defined? (28<sup>th</sup> October 2010)

Secure: We agree. It should be and remain fully independent at all times. The proposed licence conditions should be subject to consultation.

**Question 7:** Do you have any comments on the steps DCC would need to take to be in a position to provide its services and the likely timescales involved? (28<sup>h</sup> October 2010)

Secure: We note that the DCC will need to publish its interface requirements well in advance of the smart metering roll-out so that meter manufacturers can deal with any implications.

**Question 8:** Do you have any comments on the proposed approach to cost recovery and incentivisation for DCC? (28<sup>th</sup> October 2010)

Secure: We note that it is not yet clear who will cover the accreditation of metering units and communications units and utility IHDs, and how the costs of this and any related security requirements will be recovered, whether by the DCC or by another body.

## **6. Data Privacy and Security [for 28 October]**

### Data Privacy

**Question 1:** Do you have any comments on our overall approach to data privacy? (28<sup>th</sup> October 2010)

Secure: The overall approach is a first step only, for specific requirements and details will need to be addressed, for instance by the PSAG. Privacy by Design and Security by Design are good principles, but much more detail is needed before comments can be made on the proposed security arrangements and architecture.

The statement that 'customers shall choose in which way consumption data shall be used etc' under 3.11 needs further exploration as to how these needs will be identified, registered and policed. For example what happens to the customer's historical data on change of tenancy, what happens if existing



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customers change their mind regarding the data availability at some time in the future?

**Question 2:** We seek views from stakeholders on what level of data aggregation and frequency of access to smart metering data is necessary in order for industry to fulfil regulated duties. (28<sup>th</sup> October 2010)

Secure: In our view the minimum requirement for billing and settlements and DUOS would be to obtain a minimum set of data from each site monthly. For smart grid aspects the basic requirement for customer service is to report relevant events from domestic premises rather than large amounts of data frequently.

**Question 3:** Do you support the proposal to develop a privacy charter? (28<sup>th</sup> October 2010)

Secure: We support this.

**Question 4:** What issues should be covered in a privacy charter? (28<sup>th</sup> October 2010)

Secure: The utility HAN should be the place where consumers' private data is auditable. The charter should include the rights of consumers (and their agents), the rights of Suppliers and DNOs, and the rights of any 3<sup>rd</sup> parties such as ESCOs and microgeneration installers/owners/operators.

### Smart Metering System Security

**Question 5:** Do you agree with our approach for ensuring the end-to-end smart metering system is appropriately secure? (28<sup>th</sup> October 2010)

Secure: We support the paramount need for an end-to-end approach to security by design. The security requirements need to extend beyond data retrieval to installation/commissioning/registration/exchange, remote meter management and prepayment/PAYG modes of operation, with real-time vending systems and encrypted payment updates transferred to the target smart meter. We have also proposed the case for use of 2 separate HANs in each smart metering system to permit a separate local access to metering data by the customer and/or their agents without compromising the security of the utility HAN – see Annex A.

The security architecture and implications for security key management and audit require detailed consideration using appropriate expertise. Every smart metering site must be capable of being switched to/from credit/prepayment and



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PAYG modes during installation or at any subsequent time and appropriate operational and security arrangements need to be in place for this.

## 7. Implementation Strategy [for 28 September]

## 8. Rollout Strategy [for 28 September]

## 9. Regulatory and Commercial Framework [for 28 October]

### Smart Metering Regulatory Regime

**Question 1:** Have we identified all of the key elements that you would expect to see as part of the Smart Metering Regulatory Regime? (28<sup>th</sup> October 2010)

Secure: In our view there are several additional key elements to be covered:

- Vending aspects for prepayment and PAYG metering,
- Supplier and consumer aspects with remote disconnection and restoration,
- Implications of separate utility and consumer HANs.

### Smart Energy Code

**Question 2:** Do you agree with the proposal to establish a Smart Energy Code? (28<sup>th</sup> October 2010)

Secure: We agree with the proposed approach.

**Question 3:** Do you have any comments on the indicative table of contents for the Smart Energy Code as set out in Appendix 3? (28<sup>th</sup> October 2010)

Secure: Under item 8 Meter Registration, if there were no national sites and meters database set up from the start of DCC for all smart meters then subsequent migration difficulties and the costs of duplicated databases would arise. Also in our view the necessary security implementations and their management and



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auditing would much better be based on the DCC setting up a national sites and meters database for smart metering systems from the start.

Under item 19 Business Processes, we note that a number of new business processes and change processes will need to be identified for inclusion, such as change of equipment and individual units/modules on site, and changes of permission for use of customers' data types.

See also our response to Q.7 below.

**Question 4:** Do you have any comments on the most appropriate governance arrangements for the Smart Energy Code? (28<sup>th</sup> October 2010)

Secure: No comments.

**Question 5:** Do you agree with the proposals concerning the roles and obligations of suppliers in relation to the WAN communications module? (28<sup>th</sup> October 2010)

Secure: We agree with the proposals, for all the equipment in the utility smart metering system including the WAN module and any antenna. Mixed ownership and maintenance of modules in or on or next to meters in a domestic premises setting is very problematic. However, other arrangements for provision of customer IHDs, or gross generation meters, or data transfer for smart homes or ESCOs will arise.

**Question 6:** We welcome views as to which other additional data items should be included in the mandated HAN data set beyond the list for the IHD. (28<sup>th</sup> October 2010)

Secure: We have proposed that customer access to metering data should only be via the separate customer HAN or RF port – see Annex A. The customer should not be able to access data on the utility HAN except visually on the utility IHD (with its minimum or enhanced functionality). The additional data items for the mandated customer HAN data set need to be considered in this context.

**Question 7:** Do you agree with the proposal that the WAN and the HAN in customer premises should be shared infrastructure, with the installing supplier retaining responsibility for ongoing maintenance? If not, would you prefer to have an



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arrangement by which if the gas supplier is the first to install, responsibilities for the common equipment is transferred to the electricity supplier when the electricity smart meter is installed? (28<sup>th</sup> October 2010)

**Secure:** In our view there are many practical and security and safety issues involved with equipment in premises supplied with both electricity and gas, either or both of which may involve prepayment metering operation from the start. Our conclusion is that the installations should be electricity-led, i.e. there should be no gas-only installs months or years ahead of electricity installs at the same premises. Where separate electricity and gas suppliers are involved at the premises then co-ordination between suppliers is required, as part of the Smart Energy Code.

#### Other regulatory and commercial issues

**Question 8:** Are there additional measures that should be put in place to reduce the risks to the programme generated by early movers? (28<sup>th</sup> October 2010)

**Secure:** In our view the overall situation with roll-out needs a detailed review once the implications revealed by the Consultation and ongoing work become clearer.

**Question 9:** What is needed to help ensure commercial interoperability? (28<sup>th</sup> October 2010)

**Secure:** In our view commercial and technical interoperability are needed together (at the same time, not separately).

**Question 10:** Can current arrangements for delivering technical assurance be developed to gain cost effective technical assurance for the smart metering system? If so, how would these procedures be developed and governed? (28<sup>th</sup> October 2010)

**Secure:** The arrangements for technical assurance of the legal meterology aspects are somewhat different in nature to the technical assurance requirements and possibilities for the additional functionality and communications functionality of the smart meters and WANs/HANs and IHDs. The availability of remote monitoring can assist technical assurance of this additional functionality, but is of very limited assistance with most legal metrology aspects in the domestic metering segment. From this perspective cost-effective technical assurance for



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the smart metering systems should at least partly be based on use of the DCC services.

We note that it is not yet clear who will cover the accreditation of metering units and communications units and utility IHDs, and how the costs of this and any related security requirements will be recovered, whether by the DCC or by another body.

**Question 11:** Are there any other regulatory and commercial issues that the programme should be addressing? (28<sup>th</sup> October 2010)

Secure: No comment for the time being.

Impact on wider industry processes

**Question 12:** What evolution do you expect in the development of innovative time-of-use tariffs? Are there any barriers to their introduction that need to be addressed? (28<sup>th</sup> October 2010)

Secure: There are few actual barriers to TOU tariffs from the metering technology perspective, but there are some practical and system and consumer aspects, apart from any settlements-related aspects. Some hybrid block/TOU tariff structures and calculation methods pose issues with mirroring accurate cost-reflective charges on IHDs and prepayment meters. Also rising block/TOU tariffs with arbitrary thresholds are unlikely to be workable in a fully-competitive energy market. Some tariff structures and calculation methods are unhelpful if clarity of consumption and costs on IHDs and prepayment meters is desired in order to achieve energy awareness and demand reduction through consumer response.

**Question 13:** Are there changes to settlement arrangements in the electricity or gas sectors that are needed to realise the benefits of smart metering? (28<sup>h</sup> October 2010)

Secure: No basic changes appear to be necessary in principle, but detailed use cases for UK smart metering are first needed.



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**Question 14:** What arrangements would need to be put in place to ensure that customers located on independent networks have access to the same benefits of smart metering as all other customers? (28<sup>th</sup> October 2010)

Secure: No comment, other than to note that such customers (and their energy suppliers/resellers) would appear to come under the MID and associated regulations.

**Question 15:** Are there any other industry processes that will be affected by smart metering and which the programme needs to take into account? (28<sup>th</sup> October 2010)

Secure:

- Installation and registration and exchange processes will need to change.
- Prepayment processes will need to be adapted for communicating meters.
- New processes are needed for setting up HANs and consumer equipment.
- New processes for provision of messages on IHDs.
- New processes for end-to-end security management and auditing.

## **10. Non-Domestic Sector [for 28 October]**

Flexibility for installations of advanced and smart meters

**Question 1:** Are there any technical circumstances where only advanced rather than smart metering would be technically feasible? How many smaller non-domestic customers have U16 or CT meters and what scope is there for full smart meter functionality to be added in these cases? (28<sup>th</sup> October 2010)

Secure: No comments.

**Question 2:** Do you agree with our proposed approach to exceptions in the smaller non-domestic sector? (28<sup>th</sup> October 2010)

Secure: We agree with the approach proposed in the Prospectus. We recommend that the "2 HANs" approach in Annex A is also made available for smaller non-domestic customers, without necessarily providing the utility IHD.

**Question 3:** Are there technical circumstances that we have not considered that would justify further flexibility around installation of either smart or advanced meters? (28<sup>h</sup> October 2010)



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Secure: No comments.

Use of DCC to communicate with meters in the smaller non-domestic sector

**Question 4:** Do you agree with the proposed approach that use of DCC should be optional for non-domestic participants in the sector? (28<sup>th</sup> October 2010)

Secure: The proposal is acceptable provided that the interfaces for CoS and/or CoT flow seamlessly between the existing suppliers' services and new DCC services.

**Question 5:** If use of DCC is not mandated for non-domestic customers, do you agree with the proposed approach as to how it offers its services and the controls around such offers? (28<sup>th</sup> October 2010)

Secure: Yes, we agree.

**Question 6** To what extent does our proposed approach to the use of DCC for non-domestic customers present any significant potential limitations for smart grids? (28<sup>th</sup> October 2010)

Secure: In our view a pragmatic approach to the smart grid requirements of metering is required for the roll-out, as covered in our earlier response, and the use of DCC for some non-domestic customers is part of this approach.

In the meantime there should be a plan to introduce metering and recording and communications equipment at most of the distribution transformers so that when the advanced or smart meters are all installed there will also be meaningful transformer data available for proper LV network analysis and planning. Unlike with the situation and type of networks used in the USA we think smart grid at the LV level should still be a secondary consideration in GB at this stage and should not cloud or delay the objectives that Smart Metering needs to achieve here.

**Question 7:** Is a specific licence condition required to ensure that metering data for non-domestic customers can be provided to network operators or DCC, and should any provision be made for charging network operators for the costs of delivering such data? (28<sup>th</sup> October 2010)

Secure: We would note that any provision of data beyond basic minimum data and frequency is likely to involve additional costs.



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**Question 8:** How can interoperability best be secured in the smaller non-domestic sector? (28<sup>th</sup> October 2010)

Secure: We would note that commercial and technical interoperability are needed together (at the same time, not separately).

Other issues related to non-domestic customers

**Question 9:** What steps are needed to ensure that customers can access their data, and should the level of data provision and the means through which it is provided to individual customers or premises be a matter for contract between the customer and the supplier or should minimum requirements be put in place? (28<sup>th</sup> October 2010)

Secure: A variety of arrangements is involved. Where the DCC is used in future we have proposed that customer access to metering data should only be via the separate customer HAN or RF port – see Annex A. The customer should not be able to access data on the utility HAN except visually on the utility IHD (with its minimum or enhanced functionality). The additional data items for the mandated (non-domestic) customer HAN data set and provision of data to non-domestic customers then needs to be considered in this context.

**Question 10:** Do you agree with our approach to data privacy and security for non-domestic customers? (28<sup>th</sup> October 2010)

Secure: We note that this will need to be reviewed when more details on the proposed data privacy and security arrangements for domestic customers are available, along with the differences between these and existing non-domestic requirements and implementations.

**Question 11:** Is the proposed approach to rollout (for example in terms of targets and a requirement for an installation code of practice) appropriate for the non-domestic sector? (28<sup>th</sup> October 2010)

Secure: We agree that a roll-out plan and installation code appropriate to smaller non-domestic consumers and their suppliers is needed.



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## **ANNEX A**

### **The Case for 2 Separate HANs - Response to Q.4 in Design Requirements**

The attached diagram shows smart metering and communication devices in a domestic premises setting. The white boxes may or may not be present, dependent upon the type of premises being considered.

The equipment ownership aspects, operation and maintenance responsibilities, and data security and privacy, are all important in the design and testing and implementation of a utility robust system. The diagram shows 3 domains at the consumer's premises:

- The Energy Utilities' domain,
- The Consumer's domain,
- Third Parties' domain.

In the Energy Utilities' domain the following considerations are likely to be involved if the required data security and privacy requirements for a utility robust system are to be met (including for the WAN and DCC):

- Design and testing of each device type to be used,
- Manufacturing of each device,
- Installation and registration of each device (with a security centre),
- End-to-end integration testing,
- Implementation and ongoing monitoring and management.

From a practical viewpoint the other "smart" equipment in the consumer's premises should not be part of the utility robust system, since it has different ownership aspects and different operation and maintenance requirements. Most importantly the inclusion of customer-provided devices in the utility robust system and HAN poses very significant additional security threats and reduces HAN performance and response times – for there may then be a much larger and unknown number of devices sharing the limited data transmission capacity of the HAN. Also the design, testing, and manufacture of all the devices to be used on the utility robust HAN may well need to be carried out on a certified basis in order to meet adequate security requirements for large-scale utility use.

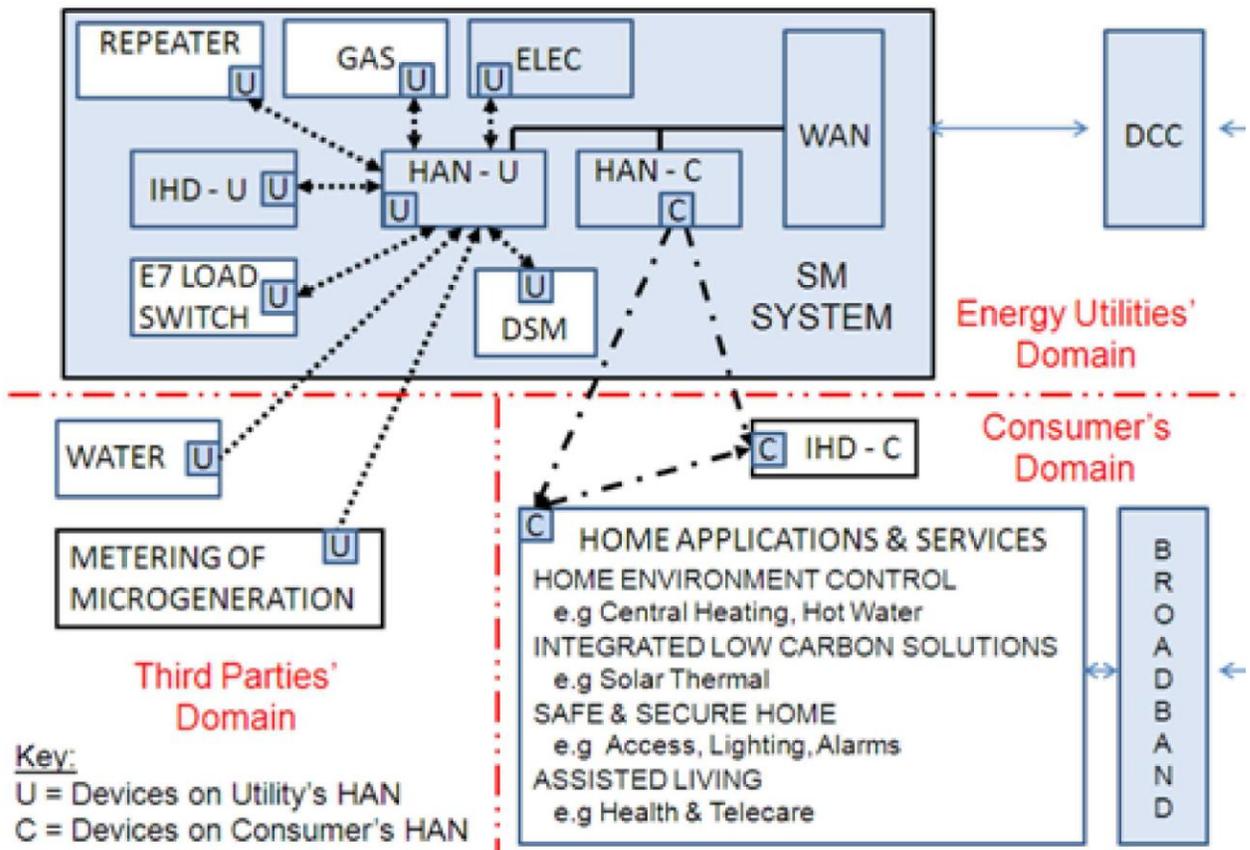
The case for providing support for a second separate HAN in the smart metering system therefore needs further careful consideration. This second or Consumer's HAN has different and much less stringent requirements for operation, maintenance, and data security. It is likely to form part of a home automation or heating control system



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(simple or more extensive) and be managed either by the consumers themselves, or by a home services or energy services contractor. From the viewpoint of additional cost this is likely to be very low compared to the benefits offered – and there are already 3 or 4 HAN wireless devices in an average smart metering installation, so one extra for use by consumers is by no means excessive. Alternatively the information for the consumer's devices and network may be sent by the same physical layer as for the utility HAN, but with logical separation such that there is no access or influence from the consumer's domain into the utility's secure domain.

### SMART METERING COMMUNICATIONS IN DOMESTIC PREMISES





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## ANNEX B

### Dealing with Debt Management at the Back Office

Refer to the Prospectus Q.15.

The following alternative approach to the requirements for Debt Repayment outlined at PC.4 and PC.6 in the Statement of Design Requirements is already in use in smart prepayment metering systems in the UK (NIE) and New Zealand (Genesis). The principle is illustrated in the diagram below. The system provides for change of supplier in competitive energy retail environments.

Link to the NIE eNewsFlash Issue 3 February 2009, on the NIE Energy Keypad:

<http://www.nieenergy.co.uk/enews/enewsissue3.htm>

Link to the Genesis Scheme:

<http://www.genesisenergy.co.nz/genesis/join-us/products-and-services/electricity/en/prepay-electricity.cfm>

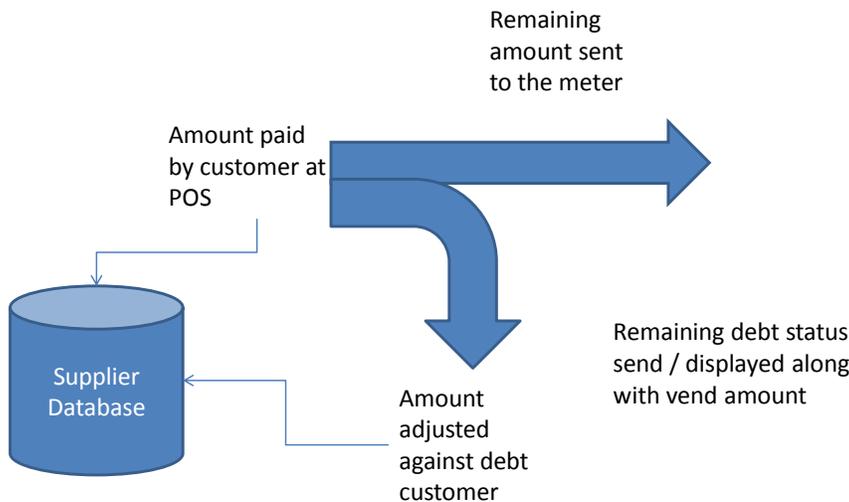


Illustration of the debt management at the back office

1. Display of accurate debt available to the customer
2. Accurate debt status available to the supplier
3. Eliminate misdirected payment problems



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## **ANNEX C – Elster/Landis+Gyr/Secure Press Release, 29 July 2010.**

### **Smart Meter manufacturers agree to develop communication standards for the UK**

Today Elster, Landis+Gyr and Secure reached an agreement to work together to develop common approaches for the development of smart communication standards necessary for the interoperability of equipment for the UK market. The solutions will be based on open standards and available specifications for Smart Meter technologies and will help to dramatically accelerate the roll out of gas and electricity Smart Meters in the UK. Under the initiative, energy suppliers will be able to access a range of smart meters and in-home displays that comply with the Supplier's Requirements for Smart Metering (SRSM) specification which, can operate on today's low cost GPRS networks, and are upgradeable in the field to accommodate other communication standards as they emerge.

Recent announcements from the Department of Energy and Climate Change (DECC) and Ofgem have led the companies to believe there is industry-wide benefit in co-ordinating technology standards to speed the adoption of Smart Meter technologies in the UK.

The three manufacturers will work to develop and demonstrate a roadmap for interchangeable and interoperable command sets to support smart Home Area Networks (HAN's) based on Zigbee's Smart Energy Profile (SEP) and Wide Area Networks (WAN's) based on DLMS protocols, ultimately ensuring that any smart product from any of the three can be installed as part of any given household's smart system. The three companies will continue to compete in all other aspects of meter production, including cost of supply, capability, reliability and durability.

UK consumers will benefit as a result because competition in the supply of meter systems will be accelerated as one of the fundamental barriers to the development and delivery of meter systems has been significantly reduced. It is anticipated that this will in turn help to speed the adoption of smart meters and at the same time reduce the cost of the UK's rollout. The consumer benefits of smart metering include accurate bills, improved industry processes and the ability to reduce consumption. Smart meters are an integral component of the Government's Low Carbon Transition plan for 2020.

The roadmap will comprise a number of complementary steps, the first four milestones being:

- Head end system (HES) interchangeability Oct 2010
- Base level SEP interoperability Feb 2011
- Base level DLMS interoperability May 2011
- Prepayment interoperability Sep 2011

To ensure the approach to openness is maintained the manufacturers will ensure that the proceedings are conducted in full compliance with competition regulations and any resulting specifications will be made available to industry.



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“Smart Metering in the UK is a huge technical and logistical project. Interim solutions jointly developed by industry leaders can only ease the transition to open standards and enable an earlier adoption of Smart Metering solutions.” – Frank Hyldmar – Elster

“We are fully supportive of this initiative and believe it will provide the market with workable solutions far more quickly than current processes and provide a bridge to an enduring interoperable market.” – Babu Babel – Secure

“The UK’s model for smart energy is amongst the most advanced in the world. UK consumers will benefit significantly from accelerated adoption of open standards and a collaborative approach to mass roll-out.” - John Stretch – Landis + Gyr

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