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28th September 2010

Sent via email to 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 find our response below to those questions required by 28th September 2010. We will be providing our response to the remaining questions by 28th October 2010, as requested.

Apart from the detail there are some key points raised in our 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 E),

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 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_2. 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 3, 6, 7, 16, 17, 18, 19, 20 for 28th September]

The Consumer Experience

Question 3: Do you have any comments on the proposed approach to ensuring customers have a positive experience of the smart meter rollout (including the required code of practice on installation and preventing unwelcome sales activity and upfront charging)? (28th September)

Secure: Up front charging would cause an adverse customer reaction to the rollout of Smart Metering particularly those who see it as being forced on them. The needs of prepayment customers in particular need to be considered particularly the 'fuel poor' who would be forced even further into poverty by having to pay up front for a smart metering solution, even though it could help to reduce their consumption in the longer term.

After the installation visit customers should be sent a bill/statement within 5 days giving details of the relevant equipment, serial numbers, readings and settings. This will give transparency and permit any later queries to be resolved easily, either by the customer themselves or by the supplier or an advisor.

Consideration also needs to be given to the fact that if customers are paying up front for their equipment they would in principle own the equipment which would then raise questions regarding warranty and equipment choice.

We feel doorstep selling should not take place as this could dilute and confuse the smart metering message

Based on experiences in other markets (especially the USA and Australia) it is vital for national and local government to take an active part in promoting in advance the benefits of smart metering and energy efficiency for consumer engagement. This needs to be reinforced throughout the rollout period. There is also a significant new requirement for adequate customer interaction and training, before, during and after rollout to maximise benefits and reinforce the Smart Metering message.

Industry Roles & Responsibilities

Question 6: Do you have any comments on the functional requirements for the smart metering system we have set out in the Functional Requirements Catalogue? (28th September 2010)

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Secure: See our comments on 'Statement of Design Requirements', summarised here:
a) Two separate HANs are proposed, one for the utility domain, the other for the consumer domain (see Annex A)
b) Utility HAN module is not necessarily to be exchangeable on site
c) ZigBee and Z-wave HANs are suitable – ZigBee for the Utility-robust HAN
d) DLC is needed for high-rise apartments where wireless range is poor
e) Overall security architecture, key management, and data privacy and security are a critical aspect
f) Prepayment mode needs on-line vending and encrypted codes sent via DCC, separately from remote meter management and configuration tasks
g) Debt repayment is better implemented in prepayment mode by deducting a percentage of the payment received up front, not at the meter
h) A better solution is needed for microgeneration connection and prepayment mode, options need reviewing
i) Daily download of gas CVs needs considering against accuracy of billing calculations. What benefit does it really give?
j) Separate data purge commands are needed for electricity, gas, and IHD data
k) Emergency prepay top-ups via local interface mean account balance is calculated in meter
l) Tariff structures, times, prices and charge calculation methods need to be updated in the meter
m) FITs tariff updates – only applies where FITs are paid to the consumer
n) Mandated IHD – it should also respond to any export power/energy

There are also some additional Smart Grid requirements that should also be reviewed against the DPI Victoria (Australia) Minimum AMI Functionality Specification:
o) Supply quality and alarms
p) Last Gasp needs careful review –- also add remote monitoring of transformers
q) Some smart grid functions should only be added later, by remote upgrade
r) 12 months of HH survey data for 6 channels is excessive – retrieve it weekly

Question 7: Do you see any issues with the proposed approach to developing technical specifications for the smart metering system? (28th September 2010)

Secure: There are a number of detailed considerations around prepayment sites with microgeneration and the rules needed to deal with these and with associated IHD's. For example should a customer with microgeneration be interrupted by a prepayment outage or load limiting, and should any export energy reward be credited onto the prepayment account?

This issue arises because it has been decided in the UK to connect the microgeneration unit (via a generation meter) to the customer's own

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distribution unit, while in some other countries microgeneration is connected to the network ahead of the customer's meter via a second utility generation meter – so it does not get interrupted if a prepayment meter interruption of the supply into the home occurs. This latter approach is adopted in some other European countries, including France, and we believe that this leads to more robust and flexible metering, tariffs and settlements arrangements than will be the case in the current UK approach, including for smart meters in the prepayment mode.

See also our comments on 'Statement of Design Requirements' at Document 3 – Q.4(d) below.

Question 16: Do you have any comments on the proposals for requiring suppliers to deliver the rollout of smart meters (including the use of targets and potential future obligations on local co-ordination)? (28th September 2010)

Secure: Mandatory targets are crucial to achieve the rollout in a timely manner (the DPI in Victoria, Australia mandated specific targets and key milestones throughout the rollout period). Also there is the need to include smart metering systems operated in prepayment mode from an early date. The targets should be set for each year of the rollout.

Again, based on experiences in other markets it is vital for Suppliers marketing campaigns to be coordinated with national and local government campaigns throughout the rollout period.

Implementation and Next Steps

Question 17: Do you have any comments on our implementation strategy? In particular, do you have any comments on the staged approach, with rollout starting before DCC services are available? (28th September 2010)

Secure: We support the DECC/OFGEM implementation strategy with staged rollout. As long as standardised interfaces between WAN modules and metering are used then any subsequent exchange of WAN modules in future would have no interoperability impact.

Question 18: Do you have any other suggestions on how the rollout could be brought forward? If so, do you have any evidence on how such measures would impact on the time, cost and risk associated with the programme? (28th September 2010)

Secure: Agreement on technical specifications could be shortened by taking into account the work underway by industry participants, including the Elster/L+G/Secure work on interoperable standards.

We support the BEAMA response on this. We would also note that there is a possibility of delays in meter procurement due to complex/fragmented processes involving energy suppliers, MAPs, MOPs, vendors, authorities.

Technology and platforms are currently in development and will be subject to change once the technical specifications are frozen. Equipment suppliers in conjunction with energy suppliers will need time to test and validate these before rollout. The negative impact to customers and the cost of escalating the rollout process only then have to carry out large scale changes to cater for issues that arise out or shortened validation and testing would wipe out any short term benefits of bringing the process too far forward.

Validation may require an independent body (e.g. similar to metering CoP compliance carried out by Elexon). A similar requirement is needed both for minimum functionality compliance and for hardware compliance in due course and needs further consideration in conjunction with relevant organisations.

Question 19: The proposed timeline set out for agreement of the technical specifications is very dependent on industry expertise. Do you think that the technical specifications can be agreed more quickly than the plan currently assumes and, if so, how? (28th September 2010)

Secure: Technical specifications that enable development and testing of equipment and systems have to involve experts from equipment manufacturers as well as other stakeholders. Agreement on technical specifications could be shortened by taking into account the work underway by industry participants, including the Elster/L+G/Secure work on interoperable standards – see Annex E. We support the BEAMA response on timescales.

Also, to the extent that some aspects may need aligning with the MID and evolving EN standards and specifications from the SM-CG under Mandate m441 then some risk of delays at the EU approval stage could arise.

Question 20: Do you have any comments on our proposed governance and management principles or on how they can best be delivered in the context of this programme? (28th September 2010)

Secure: Governance should be as wide a body as possible, representation for suppliers, service providers, equipment manufacturers and consumers.

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The Governance guidelines appear to have insufficient focus on the customers themselves. This must be included along with representation from appropriate advocates (e.g. Fuel Poverty). The terms of reference of the Governance Group must be reviewed regularly as rollout advances and new stages of the project evolve or new technology possibilities emerge.

2. Consumer Protection [all for 28 October]

3. Statement of Design Requirements [all Q's for 28 September]

Overview of the Smart Metering System Functional Requirements Catalogue

Question 1: Should the HAN hardware be exchangeable without the need to exchange the meter? (28th September 2010)

Secure: Not necessarily. We think that only one utility HAN standard should be used to achieve a utility robust system for GB for the life of the smart metering system units in the secured utility domain, so no need to change to a different utility HAN type then arises. We have proposed that a separate second customer HAN node is also included in the smart metering system, to provide for information to a consumer's own IHD or home automation system. The utility HAN module should be a fixed part of its main unit, not exchangeable, in order to achieve robust unit registration, identification and security requirements. The second customer HAN module should not require changing in the field either; should the consumer prefer to use a system that supports another home HAN type then the consumer can use an appropriate conversion device, external to the smart metering system.

Question 2: Are suitable HAN technologies available that meet the functional requirements? (28th September 2010)

Secure: Yes. We believe that both ZigBee and Z-wave can meet the functional requirements for low power radio HAN's. However these processes are subject to ratification by relevant bodies. Some of the current requirements (e.g. prepayment) have yet to be ratified. In addition there are situations (e.g. high-rise apartments) where Low Power Radio propagation is unworkable. For these situations another HAN type may be required, such as DLC. Any gas meter communications will then need a repeater (DLC to low power radio).

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ZigBee satisfied the majority of the requirements as specified in the ERA report in 2008 but for the rollout there were changes required and some issues now being resolved:

1. The specification does not cover all the requirements laid out in the Catalogue. This is currently being addressed with extra features being added by the European Special Interest Group comprising the leading metering equipment suppliers together with smaller companies active in the market. The necessary enhancements will be available prior to GB rollout.

2. The ZigBee specification was not considered a standard as it has been developed by an industrial alliance rather than a standards body. A new work item proposal has now been drafted to submit to BSI for the specification to be adopted as a British Standard and this has the support of the UK meter manufacturers. BSI will offer the standard for European acceptance via CEN/CENELEC. Further to this, the CENELEC working group responsible for M441 standards has a work package to include ZigBee within the EN 62056-series of standards for smart metering communications (as 62056-75).

3. ZigBee will not provide reliable communications in all GB housing environments (no single technology is capable of that). In situations where RF communications is problematic, a power line system should be considered. It is feasible to send ZigBee messages over a power line system, the technology already exists. The different issues encountered in apartment blocks will need further consideration, however similar applications exist already elsewhere in the world from where experience can be utilised.

Question 3: How can the costs of switching between different mobile networks be minimised particularly in relation to the use of SIM cards and avoiding the need change out SIMs? (28th September 2010)

Secure: The energy providers require SIM cards to be configured in every device, which connect to the central server and transmit data. Supplying, configuring, and deploying these SIMs is a time consuming and cost-intensive process. There have also been concerns over the constraints of the SIM card, which generally has a one to one relationship with a mobile network operator. SIM cards presently require a field visit to replace if a customer changes energy Supplier, who prefers a different network operator to the one in the meter, but the introduction of roaming SIMs will address this potential physical barrier. Roaming SIMs will not only minimise the cost of switching between different network operators, but they will pick up the strongest available mobile network to transmit data from any location.

However there should also be a commercial solution that avoids the need to change SIMs. The new supplier continues to pay charges in line with those

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paid to the original mobile network by the original supplier – in a similar manner to paying for the metering equipment rental, but based on usage as appropriate. This may need appropriate agreements or obligations.

Question 4: Do you believe that the Catalogue is complete and at the required level of detail to develop the technical specification? (28th September 2010)

Secure: We believe there is still some work to be done as highlighted in our response to other questions, and in particular:

a) The case for 2 separate HANs – see Annex A.

b) The handling of alternative HAN types particularly in high-rise apartments where the range of low power radio is likely to be an issue.

c) The handling of debt recovery in prepayment mode needs further consideration. Requirements PC.4 and PC.6 cover remote configuration of debt recovery down in the SM system, plus storage of debt recovery history in the meter. With an on-line vending system for cash payments the debt repayments can instead be deducted as an agreed percentage of each payment up front when the value is encrypted for transfer via the DCC to the customer's smart metering system. There are pros and cons for each method that need further consideration as part of the clarification of functional requirements, but we believe that with smart metering the central debt recovery process is preferable to the classical approach of time-based debt repayment at the meter. This functionality is already in use with Northern Ireland Electricity and Utilita in the UK.

d) How microgeneration is to be dealt with, particularly in relation to prepayment. When a supply interruption occurs due to the smart prepayment meter running out of credit the microgeneration unit will also be interrupted and is forced to shut down by its loss-of-mains protection relay, loosing FITs payments until the supply is restored. This is because it has been decided in the UK to connect the microgeneration unit (via a generation meter) to the customer's own distribution unit, while in some other countries microgeneration is connected to the network ahead of the customer's meter via a second utility generation meter – so it does not get interrupted if a prepayment meter interruption of the supply into the home occurs. This latter approach is adopted in some other European countries, including France, and we believe that this leads to more robust and flexible metering, tariffs and settlements arrangements than will be the case in the current UK approach, including for smart meters in the prepayment mode.

e) Smart Grid functionality – the Catalogue requirements for significant extra functionality and network load survey data storage right from the start,

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although usage and benefits and overall costs are uncertain - this has to be regarded as unwise. The additional unit and integration testing time will also tend to delay rollout. Some of the smart grid extra functionality should be omitted from the initial mandated rollout, with consideration given to allowing for its introduction in later years by authorised firmware upgrade. 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 smart meters are upgraded 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.

f) For our comments on the Services requirements please see Annex D. In respect of the installation, registration, and commissioning requirements in clause 1.53 it is important to stress that all sites capable of being switched from credit to prepayment mode must be tested for their ability to vend end-to-end during the commissioning procedure (e.g. by receipt of a correctly-targeted dummy value token). In principle this applies to all sites.

Question 5: Do you agree that the additional functionalities beyond the high-level list of functional requirements are justified on a cost benefit basis? (28th September 2010)

Secure: It is not clear that some of the additional smart grid load survey data is justified on a cost-benefit basis. For the extra data to have full value it needs to be retrieved and stored and validated on a regular basis (e.g. weekly) and the costs of using this data also need to be included. See Q.4 (e) above.

Question 6: Is there additional or new evidence that should cause those functional requirements that have been included or omitted to be further considered? (28th September 2010)

Secure: There are a number of requirements which we feel need to be considered further, as indicated in our response to Q.4 above. In addition:

- Daily download of Calorific Values (CV). Currently this is calculated at the end of a billing period taking the average value over gas supplied over the last billing period (e.g. ninety days). The CV has a range of 37.7MJ/m3 to 43.0 MJ/m3 and when used to convert a cubic meter of gas to energy gives a range of 10.65 kWh to 12.22 kWh. An average CV value of 40 which some current smart meters use would give a kilowatt error range of -0.71 to +0.86 and that is assuming that the gas supplied is at the extreme limits of the CV range for the whole period. The acceptance of this type of error

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needs to be weighed against the cost of updating every single gas meter daily with a new CV value, in an attempt to get a closer indication to the eventual billing calculation.

- We foresee a number of technical and cost issues with 'Last Gasp' requirements for Smart Grids. Our view is that last gasp would be more applicable to distribution transformers and substations in the earlier stages of the rollout, where an outage would result in one detailed call. As these transformers often feed a hundred or more consumers the same outage would result in a hundred or more calls from individual smart meters. In the case of major substation or line outages a whole town can lose supply and tens of thousands of meters will then call in around the same time, even though the DNO will already know what the problem is from other systems. We believe it is more important to check when the supply is restored whether some consumers are still off supply which can be done by exception reporting once the supply is restored.

  A further consideration is in rural areas where 11 kV auto re-closers are often used to clear transient overhead line faults. These can have a number of instantaneous trips followed by a delayed trip to enable the fault to clear. If the fault persists the device disconnects the line until the fault can be manually resolved. These devices can have cycle times of up to fifteen seconds which means that the WAN Gateway must be capable of:
  a) Riding through multiple instantaneous trips; and
  b) Storing sufficient power to alert to a supply outage at least fifteen seconds after the supply has actually gone off.
  c) But then waiting and storing sufficient power for at least one minute after any short recloser outage has occurred to see whether a further recloser attempt arises, before sending the outage alert.

HAN Issues (p.29, clause 4.12)

Issue 1: Multiple HANs lead to consumer confusion (Consumer does not know which HAN to use)

Secure: Our proposal for 2 separate wireless HANs to be implemented in the smart metering system (see Annex A) means that consumers do not need to know what utility HAN is used thus avoiding consumer confusion. Consumers will need smart meter information in a second Home Controls and Automation HAN to allow them or their services contractors to add their own Energy Efficiency devices (including heating controls and thermostats) without impacting the security of the Suppliers HAN.

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There may be a need for alternative HAN types in high rise apartments where the electricity and possibly the gas meters are in the basement and will be unable to make use of Low Power Radio (LPR) to link to an In Home Display (IHD). This can be done via Distribution Line Carried (DLC) for the electricity meter.

Issue 2: Supplier 2 uses different HAN to Supplier 1 and cannot economically access Supplier 1 technology on meter install

Secure: This could be resolved by an early decision on the choice of HAN for the utility-robust system. As an equipment manufacturer and supplier we are working with other organisations to produce open interoperable standards.

Issue 3: HAN becomes obsolete

Secure: With reference to Annex A, even if the utility HAN were to become obsolete this is only an issue for existing installations when say the gas meter has to be replaced before the electricity meter and no replacement gas meter is then available for the original HAN. Careful selection of the HAN technologies should minimise this risk.

Issue 4: Suppliers use same HAN but it is not interoperable

Secure: See response to Issue 2.

Achieving Technical Interoperability

Question 7: Do you agree that the proposed approach to developing technical specifications will deliver the necessary technical certainty and interoperability? (28th September 2010)

Secure: Yes, we ourselves are working with other equipment manufactures to produce open interoperable standards – see Annex E. Interoperability must be one of the main considerations when developing the technical specifications. The points raised in our responses to Q.4 and Q.6 above will also need to be addressed.

We believe that there is also a need to consider back-end interoperability, as illustrated by SLiM – the System Level Interoperability Model that we have illustrated in Annex C. In this the back-end systems are not limited by prepayment metering implementations and various providers and payment networks are accommodated. Alternative encryption services can exist. This approach facilitates rapid deployment and innovation and allows existing smart metering deployments to be adopted.

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Question 8: Do you agree it is necessary for the programme to facilitate and provide leadership through the specification development process? Is there a need for an obligation on suppliers to co-operate with this process? (28th September 2010)

Secure: Yes, each interested party will have a different perspective on their own requirements and specifications. Facilitation between all parties will ensure that a balanced specification is produced and will have buy-in from those who contributed to the process and the consultation. From a supplier point of view, having a licensed obligation to roll out interoperable smart equipment which must be compatible with the DCC will encourage the supplier to cooperate. However, consideration must be given to involving suppliers in all aspects of the project process and so obviate the need to force suppliers down this route.

Question 9: Are there any particular technical issues (e.g. associated with the HAN) that could add delay to the timescales? (28th September 2010)

Secure: Overall security architecture along with data security, privacy and key management are critical, including for the HAN and WAN. There is also a risk from fragmented support for HAN technologies that do not become accepted as interoperable standards. Both these aspects require early solutions and decisions if delays are to be minimised.

Prepayment mode operation – this requires a central on-line vending system for cash payments where the value is encrypted for transfer via the DCC to the customer's smart metering system. This also prevents misdirected payments and helps to avoid the fraud attempts that have occurred with current systems - see Annex B also. Overall facilities for handling smart meters operating in the prepayment mode need to be available at an early date so that any existing prepayment meters that are due for exchange at end of certification or policy life can be replaced with smart metering systems. This aspect needs to be resolved with urgency now.

There is also the need with Smart Homes for customers themselves to interact with the customer HAN to add their own equipment (e.g. heating controls, thermostats etc.). We believe this is best facilitated by the inclusion of support for a second Home Controls and Automation HAN in the smart metering system (see Annex A).

Question 10: Are there steps that could be taken which would enable the functional requirements and technical specifications to be agreed more quickly than the plan currently assumes? (28th September 2010)

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Secure: Technical specifications that enable development and testing of equipment and systems have to involve experts from equipment manufacturers as well as other stakeholders. Agreement on technical specifications could be shortened by taking into account the work underway by industry participants, including the Elster/L+G/Secure work on interoperable standards. We support the BEAMA response on timescales.

Also, to the extent that some aspects may need aligning with the MID and evolving EN standards and specifications from the SM-CG under Mandate m441 then some risk of delays at the EU approval stage could arise.

Validation may require an independent body in due course and needs further consideration in conjunction with relevant organisations.

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

5. Communications Business Model [all for 28 October]

6. Data Privacy and Security [all for 28 October]

7. Implementation Strategy

Programme management and governance

Question 1: Do you have any comments on our proposed governance and management principles or on how they can best be delivered in the context of this programme? (28th September 2010)

Secure: Governance should be as wide a body as possible, representation for suppliers, service providers, equipment manufacturers and consumers. The Governance guidelines appear to have insufficient focus on the customers themselves. This must be included along with representation from appropriate advocates (e.g. Fuel Poverty). The terms of reference of the Governance Group must be reviewed regularly as rollout advances and new stages of the project evolve or new technology possibilities emerge.

Programme activities

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Question 2: Are there other cross-cutting activities that the programme should undertake and, if so, why? (28th September 2010)

Secure: Overall security architecture along with data security, privacy and key management are critical, including for the HAN and WAN. See Annex A on this. Overall data security arrangements need to be clear before rollout gets under way so the first meters installed include the agreed security scheme.

We recommend that OFGEM/DECC work up a layered security system for the different functional types and access control requirements, such as:
- HAN to allow for some 3rd Party devices too,
- Real-time vending and encryption for prepayment metering,
- Security and protocols selected for the WAN module.

Arrangements are also needed to ensure that electricity, gas, and WAN module are all installed and registered on a single visit, including where separate Suppliers are involved at a site.

A full review of the RTS-based infrastructure for the metering and control of electric heating is required – the RTS principle still has an important role to play including for heat pumps and electric vehicles as the UK electricity supply becomes decarbonised. The RTS service is the only nationwide service that provides fast and flexible tariff and load switching. Arrangements for Economy 7/8/10 tariffs and 2-Meter tariffs need detailed consideration, as well as load management options.

Implementation plan for regulatory framework changes

Question 3: Do you agree with our proposal for a staged approach to implementation, with the mandated rollout of smart meters starting before the mandated use of DCC for the domestic sector? (28th September 2010)

Secure: There could be issues with this approach if changes are made in the implementation, strategy or even technology which remote firmware upgrades or the current technology platforms are unable to cater for. This needs to be a paramount consideration in the strategy pre and post DCC. There should be processes and procedures in place to cater for large scale changes if such events occur.

Question 4: Do you have any comments on the risks we have identified for staged implementation and our proposals on how these could best be managed? (28th September 2010)

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Secure: There is a need to ensure that early adopters are not unnecessarily disadvantaged as this work is crucial in understanding the issues around smart metering and the rollout, and could put Suppliers at commercial risk..

Question 5: Do you have any other suggestions as to how the rollout could be brought forward, including the work to define technical specifications, which relies on industry input? (28 h September 2010)

Secure: Agreement on technical specifications could be shortened by taking into account the work underway in some organisations, including by the Elster/L+G/Secure work on interoperable standards.

We support the BEAMA response on this. We would also note that there is a possibility of delays in meter procurement due to complex/fragmented processes involving energy suppliers, MAPs, MOPs, vendors, authorities.

Technology and platforms are currently in development and will be subject to change once the technical specifications are frozen. Equipment suppliers in conjunction with suppliers will need time to test and validate these before rollout. The negative impact to customers and the cost of escalating the rollout process only then have to carry out large scale changes to cater for issues that arise out or shortened validation and testing would wipe out any short term benefits of bringing the process too far forward.

Question 6: Do you agree with our planning assumption that a period of six months will be needed between the date when supply licence obligations mandating rollout are implemented and the date when they take effect? (28th September 2010)

Secure: We note that volume contracts for metering and communications equipment are not likely to be agreed before the licence obligations are implemented, and that there is a possibility of delays in meter procurement due to the complex/fragmented processes involving energy suppliers, MAPs, MOPs, vendors, authorities.

Question 7: Do you have any comments on the activities, assumptions, timings and dependencies presented in the high-level implementation plan? (28th September 2010)

Secure: We support the BEAMA comments on this point.

Question 8: Do you have any comments on the outputs identified for each of the phases of the programme? (28th September 2010)

Secure: We support the BEAMA comments on this point.

8. Rollout Strategy

Approaches for Rollout

Question 1: Do you believe that the proposed approach provides the right balance between supplier certainty and flexibility to ensure the successful rollout of smart meters? If not, how should this balance be addressed? (28th September 2010)

Secure: In principle we agree, provided that balanced proportions of all categories of customer/tariff are covered from the start of rollout. In addition the scope for appropriate roles for smaller suppliers needs to be balanced and safeguarded.

Question 2: Would the same approach be appropriate for the non-domestic sector as for the domestic sector? (28 h September 2010)

Secure: Not necessarily, for a significant part of the non-domestic profile classes 3 and 4 market has already embarked on advanced and smart metering by 2012. The non-domestic market may evolve in a different way against different requirements, regulations, and timescales. There is also a larger number of smaller suppliers in the non-domestic market.

Question 3: Is there a case for special arrangements for smaller suppliers? (28th September 2010)

Secure: Yes, since some have already introduced smart metering for their domestic customers, including smart prepayment. The arrangements should not unduly prevent existing and future smaller suppliers from entering the domestic market and having a fair chance of growing and introducing innovative offers. Because some smaller suppliers have already invested in advanced/smart metering, including dual-fuel prepayment, it is important that their investments and way forwards endure beyond 2012. Otherwise there is a significant risk that some smaller retailers may no longer have a sustainable business.

Mechanisms for General Consumer Engagement

Question 4: What is the best way to promote consumer engagement in smart metering? As part of broader efforts, do you believe that a national awareness campaign should be established for smart metering? If so, what do you believe should

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be its scope and what would be the best way to deliver it? (28th September 2010)

Secure: Based on experiences in other markets (especially the USA and Australia) it is vital for national and local government to take an active part in promoting in advance the benefits of smart metering and energy efficiency for consumer engagement. This needs to be reinforced throughout the rollout period.

Question 5: How should a code of practice on providing customer information and support be developed and what mechanisms should be in place for updating it over time? (28th September 2010)

Secure: This is partly covered in our response to Q.13 in this document. It should be reviewed and updated within the first 18 months of rollout.

Obligations on Suppliers to Complete the Rollout

Question 6: Do you agree with the proposed obligation on suppliers to take all reasonable steps to install smart meters for their customers? How should a completed installation be defined? (28th September 2010)

Secure: We believe that it will be necessary to require smart metering installations to be planned on an electricity-led basis. Where a smart gas meter is planned to be fitted ahead of the electricity visit this should normally be followed up by the electricity (and WAN) visit within 5 working days. But it is not clear that a gas-only install could achieve the necessary electrical installation robustness for the WAN power supply connection unless carried out by a meter operator also accredited for electricity and working for the relevant electricity supplier for the premises. In principle arrangements are needed to ensure that electricity, gas, and WAN module are all installed and registered on a single visit, including where separate Suppliers are involved at a site.

Question 7: Do you think that there is a need for interim targets and, if so, at what frequency should they be set? (28th September 2010)

Secure: Mandatory targets are crucial to achieve the rollout in a timely manner (the DPI in Victoria, Australia mandated specific targets and key milestones throughout the rollout period). Also there is the need to include smart metering systems operated in prepayment mode from an early date. The targets should be set for each year of the rollout.

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Question 8: Do you have any views on the form these targets should take and whether they should apply to all suppliers? (28th September 2010)

Secure: Targets should be meaningful, subject to appropriate provisions for smaller suppliers.

Question 9: What rate of installation of smart meters is achievable and what implications would this have? (28th September 2010)

Secure: No specific comment - This is more for Suppliers and their meter operators to consider.

Prioritisation of Specific Consumer Groups

Question 10: Do you have any evidence to show that there are benefits or challenges in prioritising particular consumer groups or meter types? (28th September 2010)

Secure: Following on from our response to Q.7 above, the annual mandated targets and key milestones throughout the rollout period need to include smart metering systems operated in prepayment mode from the beginning of mandated rollout. This should permit prepayment customers to benefit from smart metering as soon as possible.

Reporting Arrangements

Question 11: Do you agree with our proposed approach to requiring suppliers to report on progress with the smart meter rollout? What information should suppliers be obliged to report and how frequently? (28th September 2010)

Secure: We agree that detailed reporting is essential (including breakdown per type of installation/tariff) and should be carried out on a 6-monthly basis and the results published within one month. Such reviews would provide an early opportunity for the industry to take any corrective actions that may be required.

Consumer Issues

Question 12: Do you agree that there is already adequate protection in place dealing with onsite security or are there specific aspects that are not adequately addressed? (28th September 2010)

Secure: Bearing in mind that some 2-man visits may be required, this could pose an additional security weakness for some householders.

Question 13: Do you agree with our proposal to require suppliers to develop a code of practice around the installation process? Are there any other aspects that should be included in this code of practice? (28th September 2010)

Secure: Consideration needs to be given to the following details during the visit:

The readings on the old meters being removed (along with any account balances in the case of prepayment meters, and any debt repayment balances) should be written down or entered into a portable device, and a paper copy handed to the customer to check.

For electricity-heated homes on E7/8/10 and 2-Meter tariffs, operation of the associated controls should be covered.

For customers already on prepayment metering tariffs the transfer arrangements from the old account balance to that shown on the new equipment should be explained. Also instructions on vending arrangements and any new options for payment, as well as any changes in rates that are applicable.

Where microgeneration is installed a leaflet explaining the applicable options under smart metering should be handed over. Ownership and data retrieval options and regulatory requirements should be covered where retrieval of gross generation metering data is to be included.

Confirmation that after the installation visit customers will be sent a bill/statement within 5 days giving details of the relevant equipment, serial numbers, readings, balances, and settings. This will give transparency and permit any later queries to be resolved easily, either by the customer themselves or by the supplier or an advisor.

The Code of Practice should involve all stakeholders, including Suppliers, meter operators, metering services, manufacturers, and consumer bodies.

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

10. Non-Domestic Sector [all for 28 October]

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.

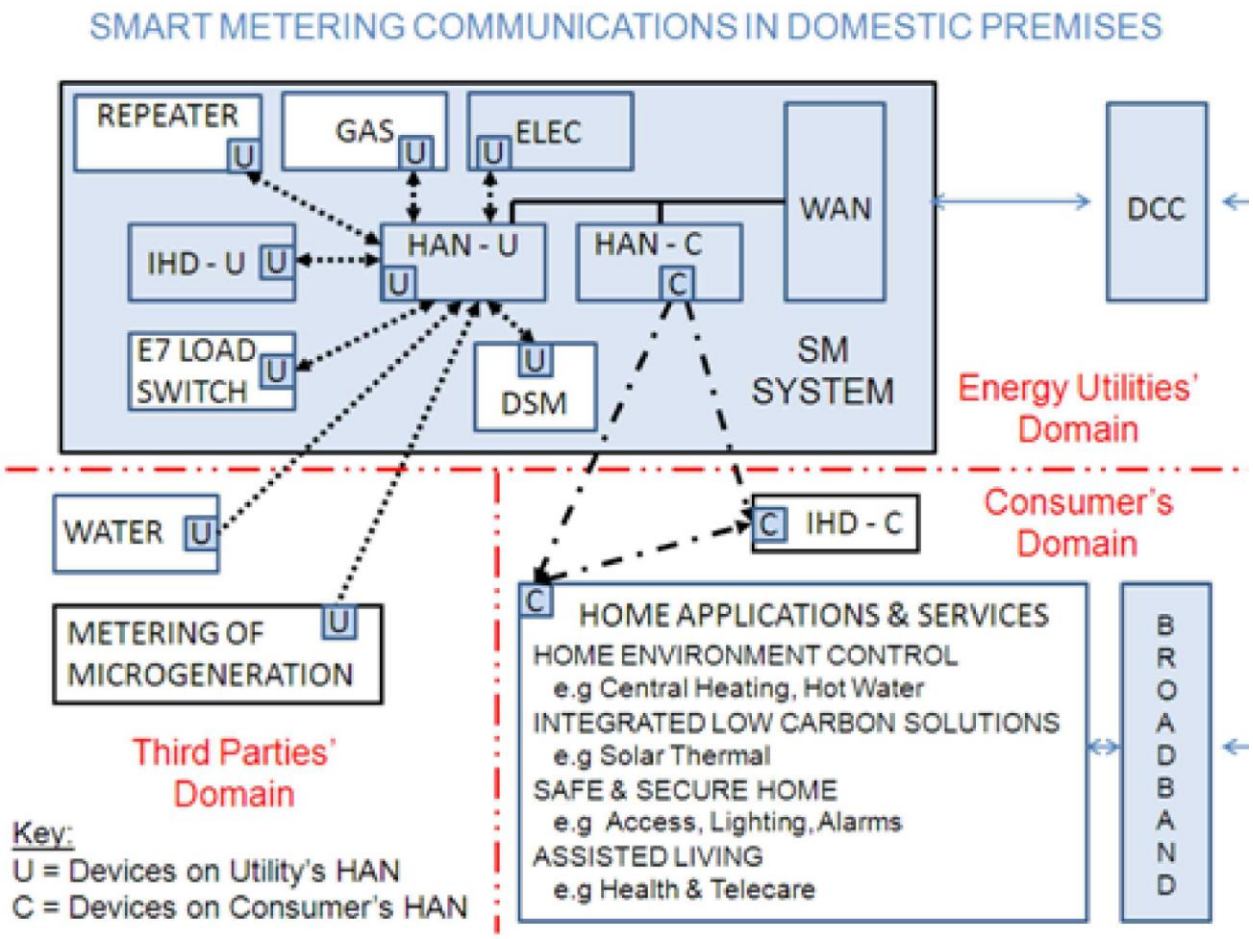
In the Energy Utilities' domain the following considerations are likely to be involved if the required data security and privacy requirements for a utility robust system are to be met (including for the WAN and DCC):

- 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 (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.



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ANNEX B

Dealing with Debt Management at the Back Office

Refer to 3. Statement of Design Requirements, and our response to Q.4 at point (c).

The following alternative approach to the requirements for Debt Repayment outlined at PC.4 and PC.6 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

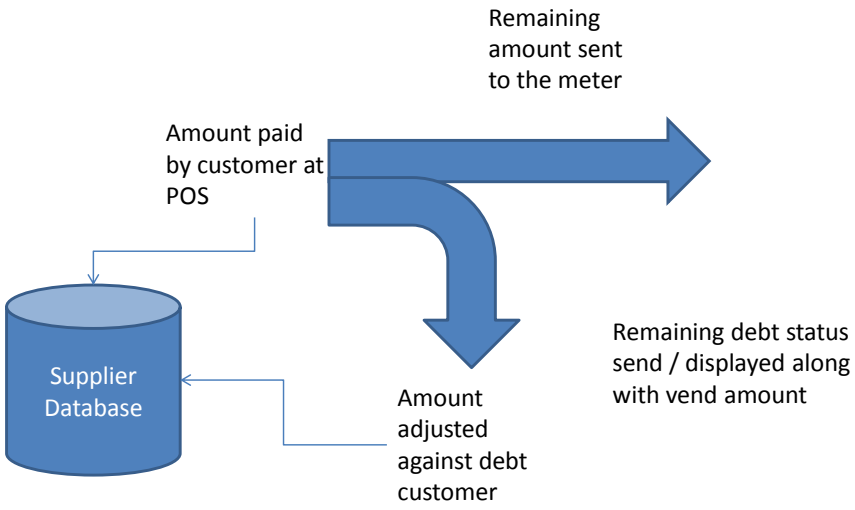

Illustration of the debt management at the back office

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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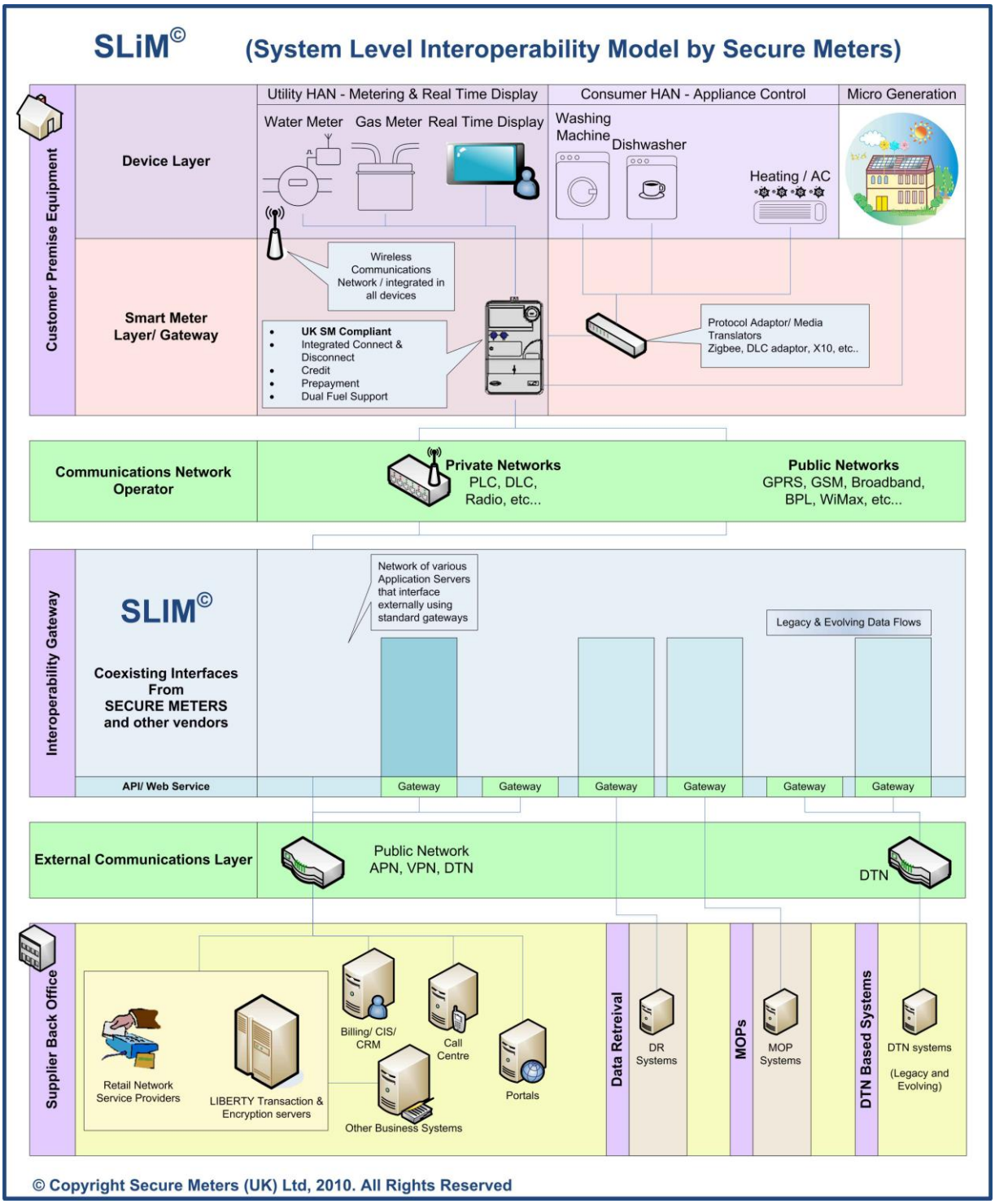
ANNEX C



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ANNEX D

Secure's Comments on Design Requirements, Appendix 2 – Services

	Service	Secure's Comments 28 Sept 2010
1.53	Registration of Meter	Registration should take place during the installation visit and should be within 5 minutes for each SM system device installed in the premises, for 90% of devices, assuming the WAN service has already been connected. See IM.11 also.
1.54	Check accuracy of Master Clock Data	The time/date of SM system clock should normally be checked during scheduled real-time data retrieval sessions.
1.55	Tamper alarm Triggered	Unwanted reverse-running alarms from electricity meters may arise where microgeneration has been connected. An alternative tamper alarm method is needed for such sites.
1.56	Meter Fault Alarm Triggered	No comment.
1.57	Firmware/Software Upgrade	Should it be clarified to read: "Upgrade of any or all of the system devices at one SM site shall be completed within 60 minutes?" [It seems to imply a broadcast mode for sending the update, with repeats later for those sites that did not acknowledge receipt?]
1.58	Diagnostics	No comment.
1.59	Test Meter Communications Line	No comment.
1.60	Service Life Notification	For calibration/accuracy MID meters would stay out until in-service sample testing indicated otherwise. But other functions or devices may have service limits – e.g. from battery life/condition If so then calibration life should be excluded.
1.61	Message to Consumers to the IHD	No comment.
1.62	Download/Clear Existing Data from Meter	Separate purge commands are then needed for Electricity, Gas, Utility IHD, and any Microgeneration and Water data – see also DS.6 and HA.17.
1.63	Remote Configuration Settings	This seems to relate to customer-specific settings and reconfigurations – but bulk

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		tariff changes (including prices) would be under 1.72. See also PC.8.
1.65	Meter Read (import & export)	Clarify with reference to DS.2: i.e. 12 months of HH data for import and also export (but only when export present?).
1.66	Energisation Status	Not clear - Does "energisation status" need to be differentiated from "supply fault/outage" for smart metering sites?
1.67	Remote Enablement/Disablement of Supply	Customer-specific for debt management. May require broadcast groups for smart grids or emergencies.
1.68	Consumer Meter Interaction	Links up with 1.67.
1.69	Switch Between credit and Prepayment	Detailed requirement is dependent upon method of debt recovery employed, see PC.4 and PC.6 and Annex B.
1.70	Prepayment	It appears from the service description that the credit balance could be calculated centrally (by the supplier) and then sent to the meter, but the requirement for a local interface for emergency top-ups means that the balance is calculated in the meter. Only the payment value is communicated to the meter. After the meter calculates and displays the new credit balance the result may also be used to update the IHD – see 1.71.
1.71	Credit Balance Update	There should be a clear requirement to display the credit balance on the electricity or gas meter too. See also IH.2 and DS.4 and 1.70.
1.72	Tariff Update	Clarify that tariff structures including charge calculation methods are required for prepayment metering, as implied by PC.8.
1.73	Supply Fault Alarm Triggered	It is suggested that experience from advanced metering in similar electricity distribution networks should also be taken into consideration – e.g. the DPI, Victoria, Australia specifiication. See also 1.66 above, and OP.3.
1.74	Maximum Demand Read	This does not appear to be related to a functional requirement or an application (unless to GS.9 or DI.1 – exceeding extreme levels). The period for maximum demand assessment needs to be defined - is it the billing period, or a calendar

		month; what happens on change of customer or change of supplier; is storage of and remote access to previous max demands also needed? Are MDs also needed on export and gross generation? [Note that MDs are not currently used for billing with profile classes 1 to 4].
1.75	Notification of Failure to Obtain Reading	The requirement appears to be based on a specific design approach – a gas meter might send a failure notification to the DCC, but may not be able to receive an acknowledgement for more than 10 minutes (if its HAN only wakes up every 30 minutes).
1.77	Gas Calorific Update	Requirement for monthly CV update needs co-ordination with domestic gas billing calculations.
1.79	Read Distributed Generation Data	See also HA.17 – must any microgeneration (and/or water) data be stored in the SM system, or just transported through to the DCC? Noted that there is no other reference to water data or diagnostics in the Functional Requirements tables nor in the services – should there be?
1.80	Feed-in Tariff Update	Clarify whether allowance is needed if Feed-in Tariff Updates will only be required where the consumer is actually claiming the FIT payments – i.e not in cases where the landlord or another organisation is claiming the microgeneration FITs?
1.83	Electricity Quality Read	We suggest that experience from advanced metering in similar electricity distribution networks should also be taken into consideration – e.g. the DPI, Victoria, Australia requirements. See ES.10 also.
1.89	Load Management	This has significant security implications for the WAN and HAN that will affect design options and implementation. See ES.13 also.

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ANNEX E – 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.

"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

ENDS

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