

UK Smart Metering Prospectus

Landis+Gyr Response 27 Sep 2010



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1 Overview

The Prospectus is clearly a critically important document. Whilst Landis+Gyr recognise that Ofgem were forced to apply limitations to the number of organisations involved in the detailed working groups reviewing the content of the Prospectus – in particular the SMDG – we were disappointed as a major contributor to the development of the UK's smart metering landscape not to have been invited to participate directly. To overcome this lack of direct involvement, Landis+Gyr has made every effort to provide a response that offers Ofgem a comprehensive overview of all applicable aspects of the Prospectus.

Accordingly, this document provides Landis+Gyr's response to the Ofgem UK Smart Metering Prospectus and its associated documents. To simplify and accelerate Ofgem's consideration, we have attempted to answer all questions (September and October requirements) in a single response.

1.1 Format

Throughout this response, Landis+Gyr has attempted to keep answers short and clear to support ease of interpretation. Where we consider further debate would be helpful, we have provided appropriate indication. Where Landis+Gyr does not have a specific stance on a point or does not believe it is appropriate for a vendor to comment we have made this view clear.

The document is broken down into sections, with each section representing a chapter or associated document in the Prospectus. Within each section (chapter) individual questions are dealt with as numbered sub sections to improve read/referenceability.

Landis+Gyr would welcome the opportunity of closer engagement with DECC/Ofgem with regard to defining and developing plans for the UK smart metering in the future.

2 Prospectus Chapter 2

2.1 Question 1

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

The proposed minimum functionality for the in home display forms a good base for the mandated UK requirement. Landis+Gyr feels sure that there will be wide ranging development in this area to provide devices to suit varied consumer needs and we anticipate Supplier driven requirements will significantly extend the basic mandated functional requirements.

It is certainly possible to provide an indication of high and low consumption by non-numerical means. Some basic alternatives include:

- *Sequenced green/amber/red 'traffic lights' on the display*
- *Graphical indication of near real time usage (moving line)*
- *Simulated analogue dials*
- *Rising/falling stack/bars*

Landis+Gyr believes that the IHD should be mandated to ensure maximum benefit for consumers and the UK as a whole: the information provided today and in the future by the UK's smart energy system needs to be universally available and universally understood – at least at a basic level - for it to have maximum effect. In this respect, whilst the possibility of consumer opt-out seems an understandable option, it is unlikely that such an opt-out will be practical in reality.

With reference to coordination between billed and displayed information, Landis+Gyr consider that it will be important to ensure that the delay between an IHD-delivered monthly or quarterly billed value and the arrival of any paper-based bill arriving is properly managed and communicated to the consumer. Failure to align the two pieces of information may mean that the consumer is unable to relate the paper bill to the displayed information, leading to the initiation of a customer service call for an explanation.

Landis+Gyr note the requirement for displays in alternative languages (eg Welsh) and also displays for visually impaired consumers. Although alternatives are possible, it is likely that cost implications will apply. We would be happy to work with DECC/Ofgem to explore the best options for alternative IHD solutions.

2.2 Question 2

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

The approach to data privacy appears to be sensible and workable.

2.3 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)?

Landis+Gyr considers that consumer's interests are central to the UK's smart metering programme. Consumers will only see the benefits of the UK's smart metering and smart grid programmes if they understand and can react to/interact with the information provided. Encouraging the overall benefit case for smart metering is key and government must play its part in ensuring that as far as possible, factual information is provided to consumers; the national advertising campaigns created around the digital switch-over, national number changes and so on form the minimum base upon which a UK Smart Energy campaign should be based. Bad press based on poorly conceived, planned or executed campaigns in other geographies or even on initial efforts to deploy Smart in the UK will only hinder the long term roll-out and create reluctance within the UK population to take a proactive part in the roll out.

Specifically, whilst DECC/Ofgem have indicated that it wishes to learn from the early experience gained by suppliers in pre-main roll out deployments, it has so far distanced itself from supporting these critical learning experiences. Landis+Gyr has long advocated that DECC/Ofgem should take a clear and positive stance in supporting and promoting these early stage activities as a basis upon which a wider UK campaign can be based. This support will be vital if the UK Government's desire to accelerate the UK roll out is to be met.

The consumer's main interfaces with smart metering will be:

- a. via the media*
- b. via Government-sponsored information campaigns*
- c. through their own personal experience at installation*
- d. through their personal experience of the clarity and usability of Smart information*
- e. through their experience of what smart provides for them*

It is clear that (a) will happen in an uncontrolled fashion based on press exposure to actual events in the UK and beyond. It is therefore critical that DECC/Ofgem and the broader industry coalition focusing on UK smart metering work hard to optimise communications through (b) – (d). Key areas of focus required to ensure an effective overall communication programme will include:

- (i) Ensuring meter installers are fully and appropriately trained*
- (ii) Simplifying and optimising the consumer experience (eg single visit)*
- (iii) Providing clear and practical advice for consumers with regard to smart metering equipment*

2.4 Question 4

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

Current and planned Landis+Gyr smart metering systems and equipment support the ability to switch between credit and debit operation and the ability to support soft or friendly disconnect. Therefore, at a technical level, the Prospectus would seem to have covered all of the relevant consumer protection issues.

At a combined technical/commercial/service level, we would want to understand more clearly the alternative approaches to debt management. Whilst it is technically possible to support these options, the use and supervision of such a debt management tool creates a number of consumer-facing challenges.

2.5 Question 5

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

Landis+Gyr believes that the approach to non-domestic customers covers all known needs.

3 Prospectus Chapter 3

3.1 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?

The functional requirements form a solid basis from which a 'use case' based approach to defining the UK's smart metering solution set can be developed. Landis+Gyr's point by point response to the functional requirements is as follows:

<i>IM.1/2</i>	<i>OK</i>
<i>IM.3</i>	<i>The SMDG needs to carefully examine the implications of 'swappable' WAN components. Swapping from one WAN technology to another will not be trivial and is likely to take at least as long to perform as a meter swap. It will be key to balance architectural and installation simplicity, component interchangeability across meter variants, field robustness of various in-home components and the cost drivers for the various architectural options in order to arrive at an optimum solution.</i>
<i>IM.4-6</i>	<i>OK</i>
<i>IM.7</i>	<i>Should exclude IHD's</i>
<i>IM.8-10</i>	<i>OK</i>
<i>IM.11</i>	<i>Agree with the HHT approach – should be no need for manual data entry at the meter</i>
<i>IM.12</i>	<i>OK</i>
<i>OP.1/2</i>	<i>OK</i>
<i>OP.3</i>	<i>Last gasp – along with a number of key aspects for grid management - should be a WAN function: the key requirement here for grid management is not the meter reading at loss of power but the fact that power has been lost. From experience in high volume IT applications, any greater level of detail will result in unmanageable 'data storms' when large scale outages occur. All viable WAN solutions should be able to provide a low-level status 'ping' to advise when connection has been lost or re-established.</i>
<i>OP.4</i>	<i>Assume this relates to devices consumer side of the meter – i.e. HAN comms and IHD and not to meter consumption. European standards exist for the power consumption of complex meters (5w) – the 2.6W guidelines would contravene those standards and potentially limit the UK market's ability to source meters.</i>
<i>OP.5/8</i>	<i>OK</i>
<i>DS.1</i>	<i>OK</i>
<i>DS.2</i>	<i>SMDG should examine this requirement to understand the most cost-effective means of providing local data storage if the stated level of local data persistence is a prerequisite. Memory drives cost.</i>
<i>DS.3/6</i>	<i>OK</i>
<i>DS.7/8</i>	<i>Refer to earlier comments on the cost/volume drivers of specialist devices</i>
<i>DS.9</i>	<i>OK</i>
<i>IN.1/3</i>	<i>OK</i>
<i>PC.1/5</i>	<i>OK</i>
<i>PC.6/7</i>	<i>Per DS.2 – memory costs!</i>
<i>PC.8/11</i>	<i>OK</i>
<i>ES.1/9</i>	<i>OK BUT refer to DS.2 – storage costs.</i>
<i>ES.10</i>	<i>There are cost implications here – the SMDG should examine whether per-household data is required or whether this requirement should be met at sub-station level from Smart Grid. Likely to be more effective AND more cost effective at sub-station (need to consider not only per device cost but also WAN and data management costs)</i>

ES.11/13	OK
GS.1/3	OK
GS.4	Landis+Gyr does not understand this requirement
GS.5/8	OK
GS.9	SMDG needs to discuss how and why this data would be captured/provided/used to understand how it would need to be generated and transmitted. Historic peak demand will be broadly derivable for any given geography based on consumption data – 'lag to real time' peak demand seems to have little practical additional value
DI.1/6	OK
SP.1/2	To ensure long-term viability and standardisation, security should be based on the security standards derived via the final choice of HAN and WAN technology, rather than being set independently.
SP.3/6	OK
SP.7/9	See SP.1/2
SP.10	OK
SP.11/12	SMDG needs to define the extent of the 'ring-fenced' HAN/WAN vs. any 'open' consumer accessible local networking environment (consumer WLAN etc)
SP.13	OK at a HAN level, but may have DCC implications – DECC/Ofgem should examine any likely limitations caused by this requirement on the possible use of alternate WAN technologies
SP.14/16	OK
HA.1/3	OK
HA.4	Not a HAN function per se – more a comms hub function. Important not to prescribe limiting demands on the HAN that are unnecessary
HA.5/19	OK
HA.20	Should draw from IT environment – full backwards compatibility may be cost prohibitive – may require some practical limitations given lifetime
HA.21	See SP.11/12
HA.22	OK
WA.1/6	OK
IH.1/2	OK
IH.3	May be prohibitively low – sub 1w would allow a broader range of capabilities. Especially in the context of allowing innovation to drive and deliver larger or more sustainable energy saving on the part of the end user.

3.2 Question 7

Do you see any issues with the proposed approach to developing technical specifications for the smart metering system?

Landis+Gyr believes that DECC/Ofgem would benefit from focusing the UK smart metering technology debate on 2 prime issues:

- *Establishing the viable use cases for UK smart metering*
 - *Key to clarification and expansion of the propose functional specification*
 - *Key to development of a workable technical specification that does not limit innovation*
- *Selecting a viable HAN and WAN interface specification*
 - *Fundamental to driving progress in the use case and technology debate*
 - *Once the functional specification is settled, the choice of interface is suitably narrowed*

Landis+Gyr believes that decisions CAN be made on these 2 aspects rapidly and without negative impact. However, it is clear that, in order to ensure an effective programme outstanding issues must be knocked down quickly and effectively: arriving at an end technical specification in the timescales

required – or even more rapidly if acceleration is to be achieved – will only happen if key technical blocks are agreed early on. Specifically, early agreement on HAN architecture and standards will be vital.

Landis+Gyr – along with its partners Elster and Secure – intends to submit its open specification for HAN and WAN to DECC/Ofgem in order to support this aspect of the development process. We would also be happy to submit our assembled use cases to support this process and would welcome the opportunity to work with DECC/Ofgem to ensure rapid progress with these issues.

3.3 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?

Landis+Gyr agrees that the supplier hub principle is the most appropriate for the UK market. From discussions with senior figures at other European countries embarking on or planning a smart metering deployment, it is clear that the supplier-oriented approach is setting the benchmark consumer centric deployments. We therefore agree that the suggested responsibilities should remain with the supplier in the pre-DCC environment.

However, Landis+Gyr do believe that once the DCC architecture is known, it may be that WAN and communications hub ownership then transfer to DCC. Landis+Gyr believe that this move is quite appropriate and should be easily supportable by any suitable DCC solution.

3.4 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?

Landis+Gyr agree that this is a pragmatic approach. We believe that the SMDG should be included in the work to define the roll and function of the DCC in order to support an accurate assessment of how functionality related to Demand Side Management [DSM] and micro-generation will be delivered within (and without) the scope of the DCC. This is an important bundle of benefits that must be delivered by the proposed smart metering system and it will be important for the DCC and SMDG work to be linked to ensure appropriate feedback systems in both definition and development plans.

3.5 Question 10

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

Landis+Gyr agree that this is the ONLY sensible and viable approach to the DCC service set. Landis+Gyr would go further and argue that DECC/Ofgem should let a contract for the DCC service as a whole, allowing the delivery organisation to be separate from – but responsible to – the regulator.

3.6 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)?

Landis+Gyr agrees that this is a pragmatic approach.

3.7 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?

Landis+Gyr does not believe that this is a practical approach. We believe that all metering data for all UK customers – large or small - should be collected and transported via the uniquely designed and secure DCC system. Any exceptions will weaken the overall DCC architecture and lead to

complications when considering future smart grid applications for businesses. We would strongly advocate the mandated use of the DCC for smaller non-domestic customers.

3.8 Question 13

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

Landis+Gyr has no comments

3.9 Question 14

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

Whilst the majority of the medium term impacts have been identified, Landis+Gyr is concerned that a number of both short and long term impacts have not been fully analysed.

Particularly, we are mindful that the full extent of the impact of the UK's future smart grid infrastructure have not yet been fully included: it will be vitally important for DECC/Ofgem to establish a strong feedback loop between the work being undertaken with regard to smart metering and the work planned around smart grid in order to ensure the two elements of the UK's energy programme are fully aligned.

NOTE: Landis+Gyr does not believe that any of the directional elements being proposed by the Prospectus preclude such an alignment.

In addition, the potential benefits in terms of whole life cycle cost and risk reduction that could be accrued through a proactive, DECC/Ofgem-supported approach to early deployments, for example, appear not to have been fully identified.

At this stage – and until the technical definition of both the smart metering environment and the DCC are better understood – it is unlikely that the wider scope of Smart in the long term (8 years plus) have been fully captured.

NOTE: This is not a criticism of the process – more a by-product of the evolutionary nature of smart energy.

Landis+Gyr considers that the recommendations made in this document and reflected in the BEAMA submission will help to ensure that the 'unknown' elements of the UK's smart metering and smart grid deployments do not compromise the decisions made in the initial smart metering deployment.

3.10 Question 15

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

Landis+Gyr consider that it may be valuable for DECC/Ofgem to arrange for a comparative assessment by a firm specialising in finance sector security systems (or similar) of current on-line/home banking systems and the potential HAN/WAN security solutions being proposed by industry. This would provide DECC/Ofgem with a relatively simple, quantifiable point-by-point argument to support the security credentials of the final system.

3.11 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 coordination)?

Although Landis+Gyr supports all of the proposals in this section, we cannot comment on the commercial aspects of any targets applied to UK Suppliers. However, it would seem sensible that a given Supplier's deployment of smart meters should be monitored against any roll-out targets set.

It would also seem sensible that roll out targets should be related to supplier customer numbers. If properly factored, this should allow a single mechanism to operate across incumbent and new entrant Suppliers without unfair bias. DECC/Ofgem should consider how best to incentivise overachievement of targets and penalise underachievement: these measures will be invaluable in ensuring rapid progress throughout the roll out – especially in both the early and late stages where Suppliers will

incur a disproportionate degree of risk and cost but where effective progress will drive both lower overall cost and greater benefit to the UK.

4 Prospectus Chapter 4

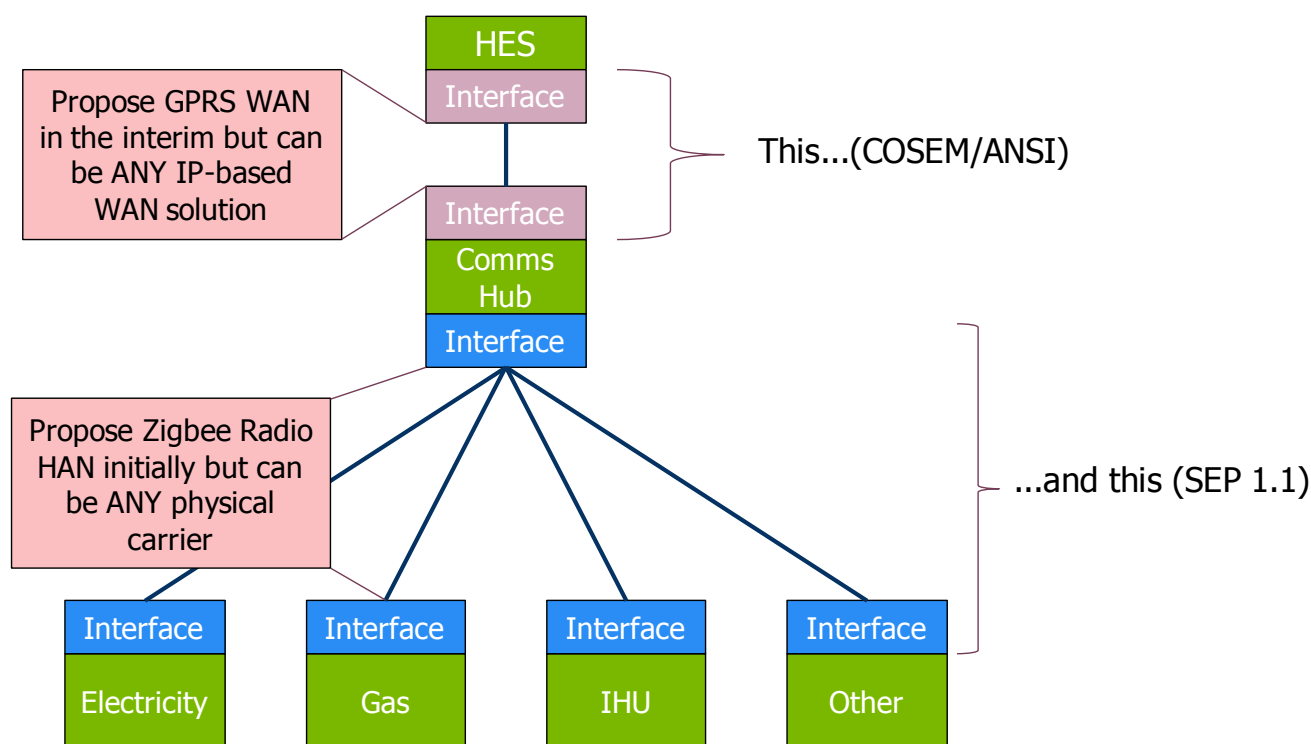
4.1 Question 17

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?

Landis+Gyr agrees with the staged approach to the implementation strategy. Early agreement of a technical specification to meet the functional needs for smart metering equipment within the home will allow those suppliers who wish to move early to do so.

In previous discussion with DECC and Ofgem, Landis+Gyr has commented on the critical nature of the decision points for HAN and (at least interim) WAN solutions. DECC/Ofgem MUST ensure that these areas are agreed early in the definition process if a staged rollout is to be an effective methodology. These steps will ensure that the risk of smart metering equipment not proving to be interoperable because of an early staged roll-out is minimised.

Specifically, it is critical that the interface 'languages' for the HAN and WAN are standardised as early as possible. This will pave the way for a roll-out free from interoperability problems. These interface definitions are the foundation of an interoperable system: the diagram below illustrates the key interface definitions required:



If the UK can achieve these key steps, then it will in turn provide information to the entire smart industry, especially if experience is shared with regard to:

1. *Installation techniques*
2. *The training of installers*
3. *Consumer engagement*
4. *Choice of HAN*
5. *WAN experiences*

Landis+Gyr recognises that there will be many 'vested interest' groups that will argue an early decision on interface language might preclude the selection of their preferred technology choice. We do not believe there is any basis for such claims. The selection process defined above is entirely transport neutral – the choice of language does NOT define the choice of physical layer. If it did, Internet Protocol would never have proliferated as the ONLY language for the Internet.

It should be noted that Landis+Gyr specifically supports the use of Zigbee radio to support the transport of SEP 1.1 commands within the HAN and of DLMS over GPRS – at least in the short term – to support the transport of COSEM objects in the WAN. We believe that these two physical layer options are the ONLY widespread and proven solutions available in the UK market today. As such, they are the only solutions capable of delivering the desired blend of functionality and rollout speed for the UK's planned smart metering deployment.

4.2 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?

Landis+Gyr believes that the most viable approach to accelerating the entire roll out is to achieve a substantial pull-in in the first part of the programme – the development period between 2010 and 2013. Time saved here will have a compound effect throughout the roll out programme that will far outweigh efforts to accelerate the rate of deployment later in the programme.

However, in trying to achieve this early pull-in, Landis+Gyr would counsel against choosing from proprietary smart metering system designs already available as they will undoubtedly be less open than is required by EU, government and the wider industry. Landis+Gyr believes that the best approach to achieving an accelerated roll-out is to work to drive industry to solve the problems of accelerating the roll out. A concentrated effort by SMDG members in providing the technical specs with interface information will provide a means of providing a rapid start to roll-out.

Specific time saving options for delivery of a viable technical smart metering solution include the following:

- *DECC/Ofgem MUST give an interim set of guidance on acceptable HAN and WAN solutions for the interim (pre-DCC) period – potential time saving 2 months*
- *DECC/Ofgem should work to consolidate around emerging industry plans for openness. It should be possible to consolidate around a set of end-to-end options for UK Smart by the end of November – potential saving 2-3 months*
- *DECC/Ofgem should consider early smart deployment as 'pre-standard': i.e. allow industry to operate to a common set of specifications for meter set functionality, preferred early-deployment HAN and WAN solutions and so on, and proactively accept those solutions as pre-standard **subject to** parties being prepared to contribute their ideas/direction/IP to the appropriate standards bodies.*

4.3 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?

Landis+Gyr agrees there will be a great dependency on industry expertise to produce the technical specification in the time suggested, especially as the translation of the functional specification into an exhaustive set of use cases is not yet complete.

Landis+Gyr believes that the best means of driving to an earlier technical specification is through DECC/Ofgem working with a group of meter manufacturers such as Landis+Gyr and its partners Elster and Secure, possibly in conjunction with a group of suppliers in order to bring an already open technical solution meeting all UK Prospectus smart metering requirements to the wider UK market.

As mentioned earlier in this document, the provision of full interoperability requires three agreed interfaces:

- 1. The interface between devices and the HAN*
- 2. The interface between the devices and the WAN*
- 3. The interface between the devices and the Consumer*

Agreement on functionality and interfaces will allow meter manufacturers to design devices using their own methodology and IPR whilst ensuring that the devices work openly together in any mixed home deployment. It is this aspect that will have the most profound impact on the acceleration of the UK roll out.

To support this acceleration, Landis+Gyr is prepared to submit the Open Specifications that it has shared with Elster, Secure, Trilliant and others, as the basis for the UK's smart metering programme. We would welcome further discussion with DECC and Ofgem on this subject.

4.4 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?

Landis+Gyr sees the proposal as well thought out and would suggest a firm and robust approach to ensure the programme is delivered on time and to budget. However, we are concerned regarding the possible delay that may be caused due to the need for the required submission of technical specifications to EU for approval. Landis+Gyr, as principle members of ESMIG and founders of the IDIS and UK Open Specifications Working Group (L+G, Elster + Secure), would wish to assist in ensuring that any possible delay in this area is kept to the minimum. See answer to Question 18 above for more detail of proposed approach.

5 Supporting Document 94a/10 Consumer Protection Chapter 2

5.1 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?

Consumer reaction to more complex tariffs is uncertain. Historically, UK domestic consumers have been slow to take up tariffs that may well be more appropriate to their needs simply because of the lack of information regarding how the tariff would apply to their personal circumstances. This behaviour is unlikely to change unless the benefits to the wider consumer community are absolutely clear and well defined.

It is clear from examples in the telecommunications and finance sector that without proper control, unethical or improperly controlled sales techniques may well lead to consumers being coerced into taking tariffs unsuitable for their needs. Landis+Gyr believes that an illustrative case approach similar to that introduced to regulate companies selling services in the financial sector might be appropriate. At its optimum, this approach would allow Suppliers to show customers a graphical example of the impact of any new tariff on, for example, their previous month's consumption via the customer's own IHD, allowing the customer to make an informed choice on whether the tariff really offers a benefit or not. This would meet with the suggested requirement that "no consumers are offered tariffs that are inappropriate for their circumstances".

5.2 Question 2

Do you agree with our proposed approach for addressing unwelcome sales activities during visits for meter installation?

Landis+Gyr believes the approach is likely to be appropriate.

5.3 Question 3

What do you consider as acceptable and unacceptable uses of the installation visit and why?

Landis+Gyr see the benefit of a post installation visit for all consumers, following installation of their new smart metering system. It would be appropriate if this visit were carried out by an "Energy Advisor" to ensure understanding of the new installation and to give further advice on energy savings methods.

Landis+Gyr does, however, believe that a well developed IHD programme could allow an interactive Energy Advisor communication with consumers – potentially on an ongoing basis. The additional cost of implementing this solution may well prove to be cost-optimal when compared with the one-off cost of a follow up visit whilst also providing a long term relationship between consumers and UK government, suppliers, consumer groups and more.

5.4 Question 4

Do you agree with our proposed approach to ensuring that the IHD is not used to transmit unwelcome marketing messages?

As mentioned in our response to Question 3 above, Landis+Gyr considers that messaging by means of IHD could well be a very positive addition to the UK's smart programme. The IHD can be an ideal vehicle for offering energy savings tips and advising consumers on the types of equipment that could help to achieve those savings.

Whilst Landis+Gyr believes that a degree of direct consumer advice should be ensured for all consumers, we also consider that maximum levels and a clear charter for these messages should be set. Beyond this level, for those who do not want messages from their supplier an 'opt out' button should be provided with an effect similar to opting out of sales emails on contracts or websites.

5.5 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?

Landis+Gyr agrees that consumers should have access to their consumption data in a useful level of detail and range of formats and that this data should be free of charge. Landis+Gyr believe that any such historical data should be retained by the metering devices in the consumer's home and should be accessed by the IHD as required. Any export of data to local processing equipment should be provided as a one-way, firewalled export service, either via the IHD or the consumer's communications hub.

It is theoretically possible for the IHD to display any level of information stored by the home's metering devices. However, as highlighted in the response to Question 6 above, the extent and detail of the information stored in the meters drives the underlying cost of the solution and it will be important to consider this factor when setting storage limits.

Where the IHD or communications hub has a facility to export data to the consumer's PC or other local storage solution and where such an export of data has been agreed, Landis+Gyr consider that it is most appropriate for the data to be provided on a real time (or near real time) streaming basis only to avoid security and access issues. Streaming of data to an authorised device, rather than supplying data to any device that can connect to the IHD or communications hub, minimises the likelihood of unauthorised access and reduces the cost and complexity of securing the HAN environment.

6 Supporting Document 94a/10 Consumer Protection Chapter 3

6.1 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?

Landis+Gyr considers that, provided existing protections can be extended as part of a Smart Metering Code they would seem to be sufficient. Some areas where there might be consideration for change might be:

- The need to ensure that a consumer is capable of visiting a local top-up point to purchase credit. There may be facilities to enable top-up via internet, telephone, mobile phone*
- For the same reason; the limit of 2 miles for a consumer to travel for top-up.*

6.2 Question 7

Could provision of an appropriate IHD help overcome meter accessibility issues to facilitate prepayment usage?

Landis+Gyr considers that it is possible to provide prepayment functionality via the IHD. Indeed, we believe that provision of consumer information with regard to credit and debt situation plus the ability to enable emergency credit and credit enablement following total loss of supply due to lack of credit should be a standard capability for mandated displays – these displays will, after all, be the standard for the segment of the population most likely to want to consumer energy in a prepayment environment. Current and planned Landis+Gyr smart metering systems for the UK support this capability.

Landis+Gyr would, however, highlight that fact that remote operation in prepayment mode may give rise to safety issues where the IHD is remote from the meter. Although switches and valves on Meters are not safety isolators, it is common 'safe practice' to switch the service on or off at the meter. Landis+Gyr consider that, whilst there are no specific technical issues that would prevent remote reconnection where the IHD is distant from the meter concerned, clear safety rules would need to be agreed to ensure that consumers remain adequately protected from accidental misuse and operator error.

6.3 Question 8

What notification should suppliers be required to provide before switching a customer to prepayment mode?

Landis+Gyr believe that this is a matter for consumer groups and DECC/Ofgem.

6.4 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?

Landis+Gyr believes that the move to smart metering should be used as an opportunity to debate these issues further. There are a number of issues to consider for each application, as follows:

Emergency Credit (EC)

When PPMs were coin operated and therefore tokens (coins) were easily obtainable, there was no offering of EC to customers. EC was only offered when prepayment tokens became commonplace and yet were not necessarily readily available (due to shop opening hours, for example). The move to smart metering will create or facilitate the use of a much wider range of options for consumer credit top-ups.

Text (SMS), IHD, Digital TV, Internet and more offer a number of alternatives to tokens that may well mean that EC can be made completely – or at least largely – a redundant issue. However, it is clear that pure cash payers will always need the facility of EC unless an alternative approach to managing debt is found.

Friendly Credit (FC) or No-disconnect periods

FC provides a convenient way of not disturbing the consumer if and when the credit is exhausted during the evening or night time or in periods where a cash top up may not be possible for pure cash payers. Again, with the ability to credit by telephone the provision of this service may be reconsidered since FC does, by nature, force the consumer into some kind of debt. This may need to be compared with the consumer benefit of not waking to a cold and dark house. There is of course another side to this situation. Suppliers may wish to offer FC during holiday periods such as Christmas and Easter and possibly reduce their call out staff obligations. Perhaps this benefit could be shared by both supplier and consumer as part of the many tariffs that may be on offer.

6.5 Question 10

Do you consider that an obligation similar to Prepayment Meter Infrastructure Provision (PPMIP) may be required?

See response to Question 9: Landis+Gyr considers that a full review of the EC/FC environment is warranted under the smart metering programme. However, this activity does not need to impact the main rollout as the options for top-up – including cash top-up – and the infrastructure and obligations surrounding the UK's prepayment environment can run separately to the development of the smart metering infrastructure.

6.6 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?

Whilst Landis+Gyr believes that this is an issue best addressed by suppliers and consumer groups, we do consider that the capabilities specified in the Prospectus would allow suitably designed Supplier systems to take advantage of the planned smart meter deployment to improve the service offered to vulnerable consumers.

6.7 Question 12

What notification should suppliers be required to provide before disconnecting a customer?

Landis+Gyr has no comment – we believe this is an issue best addressed by suppliers and consumer groups.

6.8 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?

Landis+Gyr considers this to one of the most challenging areas to be faced by the UK's smart metering programme. Partial disconnection (or load limiting – LL) is not a trivial action and requires significant investment and planning to deliver a workable solution.

At the core of the problem, the UK needs to decide how it wishes to treat poor paying/non paying consumers. Given the UK's extensive gas consumer base and the fact that gas cannot safely be load limited, then there will be a disparity between the treatment of gas and electricity debt: gas will always be an absolute disconnection at the point that debt reaches the cut-off threshold whereas electricity might conceivably be load limited. So consumers will receive a potentially confusing message from suppliers – particularly if they take energy services from different suppliers.

6.9 Question 14

Do you agree with our approach for addressing issues related to remote disconnection and switching to prepayment?

Landis+Gyr note that, from the comments given in 3.35 of the supporting document, the consideration here is with regard to reconnection rather than disconnection.

Remote reconnection of supply is a difficult issue. However, provided the consumer can clearly and unequivocally offer an authenticated response from the property to the supplier and that the consumer can be considered legally competent to vouch for the safety of the home ahead of reconnection, it seems reasonable that the supplier could then issue a 'reconnect' instruction to the meter(s) if the meters are remote from the consumer.

6.10 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.

Landis+Gyr believe an appropriate range has been considered. However, we would recommend a full review with the appropriate consumer safety organisations.

7 Supporting Document 94a/10 Consumer Protection Chapter 4

7.1 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?

Landis+Gyr considers that suppliers and consumer groups will have the greatest experience in providing energy to vulnerable groups and so should be best placed to comment on the potential applicability of information and advice.

8 Supporting Document 94a/10 Consumer Protection Chapter 5

8.1 Question 17

Do you have any comments on our proposals to prevent upfront charging for the basic model of smart meters and IHDs?

Landis+Gyr agrees with the proposals made.

9 Supporting Document 94b/10 Statement of Design Requirements Chapter 3

9.1 Question 1

Should the HAN hardware be exchangeable without the need to exchange the meter?

As DECC/Ofgem surmise, because of the large variety of premises type in the UK, Landis+Gyr consider that no single HAN solution exists that will serve all UK homes. However, Landis+Gyr are certain that a SINGLE UTILITY HAN per home can be achieved. Indeed, it is essential that this is the case if volume cost reduction is to be achieved for the UK's smart metering components and if future technical interoperability issues and problems with 3rd party device compatibility are to be avoided. Accordingly, we believe that there will be a single HAN type per home.

It is clear that the HAN choice will be made at the point of installation. The majority of HAN components currently available to the UK market appear to be both robust and relatively standard. These two aspects suggest that the HAN will be a stable and pre-defined part of the smart installation. This being the case, Landis+Gyr sees little value in making the HAN components contained in individual meters/IHD's/Communications Hubs in-field exchangeable: we consider that the cost and complexity of HAN component exchangeability offers little gain and merely creates an additional interface layer that can cause device failures and interoperability issues.

Landis+Gyr believes that its chosen strategy of building completed device variants with HAN components suited to different HAN variants offers the most robust, reliable and economical means of meeting the UK's smart metering plans.

9.2 Question 2

Are suitable HAN technologies available that meet the functional requirements?

In developing its approach to the UK smart metering roll out, Landis+Gyr has developed a full use case map for UK smart metering as defined by the SRSM+, ERA and – more recently - Prospectus specifications. Having established the use case map, our R&D teams invested in a thorough review and gap analysis of the available HAN and local Mesh solutions, including WMBUS, Z-Wave and Zigbee and concluded that Zigbee SEP 1.1 was the only HAN technology that remotely approached the UK's needs in terms of:

- *Cost*
- *Flexibility*
- *Power consumption*
- *Adaptability*
- *Existing functionality*

Accordingly, we believe that at least ONE HAN technology exists that can meet the requirements of UK smart metering.

9.3 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?

Landis+Gyr is aware of several alternative approaches to this issue. Given that all of the major MNO's have created roaming options in order to support UK smart, we believe that the balance of commercial, technical and operational factors that affect the use of SIM cards in meters is best addressed by discussion with these organisations. Our Open Specification approach is designed to be fully independent of the final choice of direction with regard to SIM choice – and in fact, with regard to the nature of the WAN itself.

9.4 Question 4

Do you believe that the Catalogue is complete and at the required level of detail to develop the technical specification?

Landis+Gyr believes that the Catalogue is a solid starting point. However, to be sure that the scope and content is appropriate, the SMDG should either adopt a pre-defined set of use cases – such as that proposed in the Landis+Gyr Open Specification Working Group or it should work to establish an alternative set use-cases that describe the use of the target functionality in defining the specific capability of the UK smart metering solution set.

This set of use cases will be critical both to ensure that the functional specification is complete and that the industry's expectation with regard to what the specification is intended to deliver is appropriately aligned and managed.

9.5 Question 5

Do you agree that the additional functionalities beyond the high-level list of functional requirements are justified on a cost benefit basis?

Landis+Gyr believes that DECC/Ofgem should complete a re-costing exercise for all core and additional functionality options once the use cases in Question 4 above have been fully defined.

It is critical that this re-costing exercise is completed to ensure that the original theoretical cost base for UK Smart Metering is fully optimised and that full advantage is taken of any volume/timing linkages.

Key areas of concern would include the provision and operation of last gasp communications on loss of supply, the volume and duration of locally-retained meter readings and the measuring and monitoring of sags and swells.

As a major contributor to industry on these subjects, Landis+Gyr would welcome the opportunity to discuss the points further within the SMDG.

9.6 Question 6

Is there additional or new evidence that should cause those functional requirements that have been included or omitted to be further considered?

Landis+Gyr is concerned at the underlying cost imposed by a number of areas of the functional requirement specification (see response to [Prospectus Chapter 3 Question 6](#) for details). Specifically, the following will be important to review in detail:

- Data for planning purposes: There will be a need for good and acceptable definition of what is required and what is meant in this area especially with regard to power quality information*
- Last Gasp Communications: A clear specification of requirements will need to be given*
- Power Quality Management: The specification with regard to sags and swells in power quality must not react negatively with regard to last gasp communications*

Landis+Gyr assume that this detail will be covered within the working of the SMDG.

We agree with the exclusions referred to in 3.38

10 Supporting Document 94b/10 Statement of Design Requirements Chapter 5

10.1 Question 7

Do you agree that the proposed approach to developing technical specifications will deliver the necessary technical certainty and interoperability?

Landis+Gyr believes that the proposed Option 2 enabling the mandated Functional and Technical specs to be finalised by the SMDG supported by industry technical groups will provide the technical certainty and interoperability required.

Landis+Gyr is confident that the work being done by the Open Specification Working Group that it has established with Elster and Secure offers a clear and viable route to closing out this aspect of the UK smart metering programme.

10.2 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?

Landis+Gyr agrees.

10.3 Question 9

Are there any particular technical issues (e.g. associated with the HAN) that could add delay to the timescales?

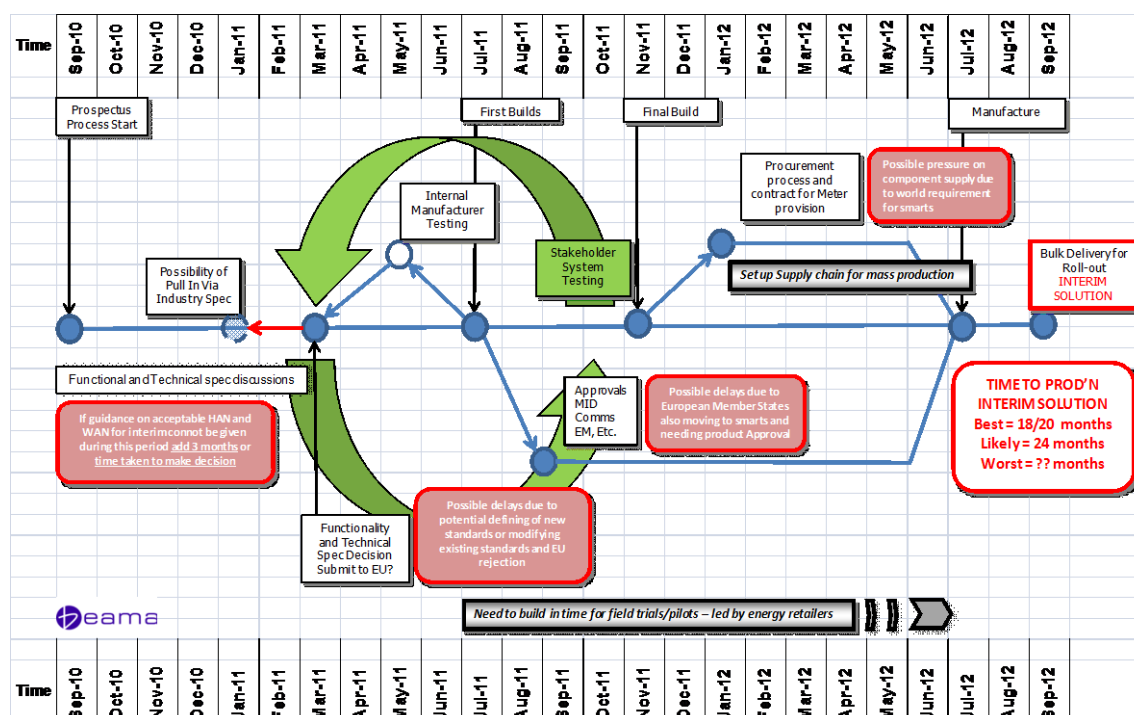
Landis+Gyr has made a number of references in its response to the Prospectus to the critical need to reach a rapid conclusion on HAN and WAN interfaces. A number of other fundamental aspects of architecture also need to be resolved early on in the debate: specifically the debate with regard to the following aspects must be closed out as priority tasks within the SMDG:

- HAN and WAN basic architecture*
- HAN comms hub or comms module*
- Location/physical architecture of comms hub or comms module*
- Single WAN or separate WAN connection per metering device*
- Service level ownership – specifically within the HAN (WAN will be defined within DCC debate)*
- Primacy of ownership of meter functionality 'in life': who (DNO, Supplier etc) gets last call*

10.4 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?

Landis+Gyr believe that the diagram below – developed in conjunction with wider industry and the BEAMA membership – represents a comprehensive view of the steps required to develop a UK smart metering supply chain:



It is our belief that the open specification working group established by Landis+Gyr and including Elster and Secure is capable of dramatically shortening this cycle. Our contention is that if UK industry is prepared to accept – post review – both the interface specifications and use case model developed by the Group, a full functional and technical specification could be agreed by the end of 2010, with a viable and varied product supply capability being established by mid 2011.

Landis+Gyr would welcome further discussion with DECC/Ofgem on this subject.

11 Supporting Document 94c/10 In Home Display Chapter 2

11.1 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.

The actual data being collected from smart meters by the IHD is recorded at near real time for electricity and every 15 mins for gas and accurately reflects the actual data generated by the meters. In this respect, the level of accuracy of the IHD will be that of the meter provided that the correct tariff is downloaded into the meter. However, Supplier-created volume discount programmes, other discount offers and so on complicate the picture somewhat. Landis+Gyr believes that it is these variances that will create any disconnect between meter readings, IHD displayed values and actual billed values. Careful management and consumer communication will be required to ensure variances are minimised.

11.2 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.

Landis+Gyr has no specific evidence to support the use of CO₂ emission levels to encourage behavioural change. However, it IS clear from our deployments in other geographies that – regardless of the metric – when a specific consumer incentive is applied to a given measure, the effect of that measure is invariably greater than that of a non-incentivised measure. So – if CO₂ emissions are targeted through a package of measures they will likely prove an effective consumer incentive. In this respect, the indication of CO₂ emissions remains a worthwhile display feature.

11.3 Question 3

We welcome views on the issues with establishing the settings for ambient feedback.

Landis+Gyr would expect this area to be an area for significant development over the life of the UK smart metering and smart grid programme. We consider the programme to be at too early a stage at this point to make a definitive judgement on the subject.

11.4 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?

Landis+Gyr has regularly called for a carrot and stick approach to supporting suppliers in the pre-main roll out phase of the UK smart metering programme. IHD's and their use are a critical case in point. Landis+Gyr believes that DECC/Ofgem should take a strong, opinionated and supportive stance on pre-mainstream Supplier deployments in order to gain the maximum possible benefit from these activities.

11.5 Question 5

We welcome evidence on whether portability of IHDs has a significant impact on consumer behavioural change.

Landis+Gyr has no specific evidence to support this view.

11.6 Question 6

Do you agree with the proposed minimum functional requirements for the IHD?

Landis+Gyr is in broad agreement but would refer to our answers to the following questions:

Prospectus Chapter 3 Question 6

Supporting Document 94a/10 Consumer Protection Chapter 3 Questions 7, 9 and 14

12 Supporting Document 94c/10 In Home Display Chapter 3

12.1 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?

Landis+Gyr believes that there is good evidence to show that well displayed basic consumption information has a marked information on consumption. Specifically, evidence from pay-as-you-go deployments in other regions have shown that both gas and electricity consumption are impacted to a relatively equal degree by the provision of effective real-time cost information. Having a mandated display that DOES NOT offer a good, minimum level of information would be more likely to hamper innovation.

12.2 Question 8

Do you agree with the proposals covering the roles of and obligations on suppliers in relation to the IHD?

In common with our response to [Supporting Document 94b/10 Statement of Design Requirements Chapter 3 Question 5](#), Landis+Gyr recommend an appropriate review once a full set of use cases has been defined and agreed.

13 Supporting Document 94d/10 Communications Business Model Chapter 2

13.1 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?

The remit of the DCC is a complex area. Landis+Gyr would certainly agree that it should be responsible for centrally-coordinated communications and for scheduled data retrieval. However, we are convinced that, provided the UK establishes appropriate standards for the interfaces to both HAN and WAN, the DCC should NOT have any requirement to provide translation services.

Landis+Gyr believes that the DCC should both receive standards based information from the UK's smart metering devices and provide a standards based interface to organisations wishing to interact with it: no translation is required if the UK adopts its target interoperable architecture. The only area where translation MAY be required, at least in the interim, is for the connection of pre-technical specification smart meters.

13.2 Question 2

Do you agree that meter registration should be included within DCC's scope and, if so, when?

Landis+Gyr believe this is an appropriate task but consider that it does not need to be a day 1 function PROVIDED that it is able to complete a centralised retrospective take-on of existing smart meters. This should be a relatively simple process provided that an appropriate registration data schema is agreed at the outset of the rollout.

13.3 Question 3

Should data processing, aggregation and storage be included in DCC's scope and, if so, when?

Landis+Gyr believe that the DCC should be responsible for indexing and storing persistent data and acting as a central hub for both connecting external parties (suppliers, DNO's, generators etc) to that repository and to authorising each and every request made by such a party for access to that data.

In terms of data aggregation and processing, in common with our response to Question 1 in this section, Landis+Gyr believes that a properly defined interface architecture should obviate the need for an additional data processing overhead – aggregation then becomes an indexing function.

13.4 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?

Landis+Gyr believes that a 'take on or replace at no cost to Supplier' obligation should exist – subject to existing WAN contracts meeting minimum commercial standards. This would ensure that early Supplier deployments could proceed without undue risk but would also allow the provider of the DCC solution to replace existing communications contracts provided the costs for such a replacement (including new in home communications hub where appropriate) is fully covered by the DCC and is not passed on to the Supplier or end consumer. This allows maximum flexibility for both early, pre-main rollout deployments and for the DCC-based main deployment.

14 Supporting Document 94d/10 Communications Business Model Chapter 3

14.1 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?

Whilst we agree with the broad premise of the proposal, Landis+Gyr consider it to be vital that the 3rd party components (communication links, data centres etc) should be true commercial procurement exercises: the DCC itself should be regulated, the services it procures should remain unregulated provided that they meet the specified functionality.

14.2 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?

Landis+Gyr believes that the DCC should be a stand-alone commercially-oriented business (i.e. not a government structure), commercially and legally separate from any other business involved in the UK's smart metering environment.

However, this does not and should not mean that the DCC cannot include companies already engaged in or planning to enter the UK energy market. It simply means that the commercial and legal governance of the DCC legal entity should be distinct from any other actions undertaken by its constituent parents.

Landis+Gyr would point out that typically, Defence, Health and other Government programmes employ either consortia-based or JV-based structures to achieve this independence and separation. We believe that such a structure would be appropriate in the case of the DCC.

14.3 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?

Typically, an organisation of the size and complexity of the DCC would itself take considerable effort to define and implement before it could begin to deliver services to its customers. Government will first need to create a tenderable remit for the DCC, defining its scope, technical deliverables, service levels, charging structure and accountability. Once this work is complete, it will be able to call for appropriate submissions, select a suitable individual or consortium and then appoint that body to deliver the DCC. First service delivery is rarely better than 6 months from this point: in practice, evidence suggests that the end-to-end process is likely to take close to 18 months to deliver.

14.4 Question 8

Do you have any comments on the proposed approach to cost recovery and incentivisation for DCC?

Landis+Gyr believes that once the form and specification of the DCC's initial service has been agreed, a maximum profit for this base capability should be set and managed for (for example) an initial 5 year period. HOWEVER, the DCC should be allowed to improve the underlying cost of any services it buys in during that period by further negotiation with its suppliers – in which case benefit should be split between the users of the DCC and the DCC itself. Finally, the DCC should be free to offer any additional commercial services it believes are commercially viable and to retain all net (i.e. after paying for any other aspect of the DCC used to support the services) profits associated exclusively with those services. This approach should provide an effective set of measurement, control and incentive parameters for the DCC.

15 Supporting Document 94e/10 Data Privacy and Security Chapter 3

15.1 Question 1

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

Landis+Gyr agrees with the core of government's approach to data privacy.

15.2 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.

Landis+Gyr consider that it will be important to ensure that an appropriate level of information is available at the right extraction levels to ensure the UK can run an effective smart energy environment. Managing this issue in and amongst wider consumer privacy concerns will be a complex but critical exercise. Just as with the majority of data-rich networks, it will be important to adopt a tiered aggregation approach, providing filtered or striated views of data at different levels in the system.

Development of the information sets required at/from each level in the smart network needs to be resolved in conversation with the UK's suppliers, network operators, generators and associated functional bodies (settlement agencies etc) and then vetted for compliance with the proposed privacy strategy.

15.3 Question 3

Do you support the proposal to develop a privacy charter?

Yes

15.4 Question 4

What issues should be covered in a privacy charter?

BEAMA believe that this subject should form the basis of a specific working sub-group.

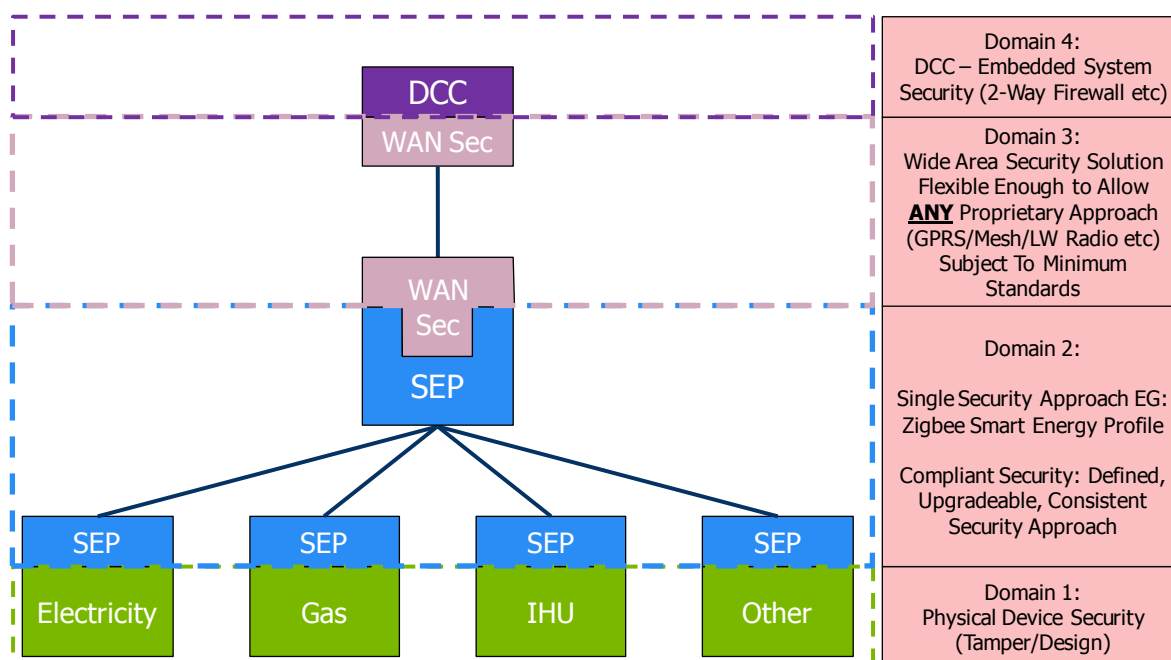
16 Supporting Document 94e/10 Data Privacy and Security Chapter 4

16.1 Question 5

Do you agree with our approach for ensuring the end-to-end smart metering system is appropriately secure?

Landis+Gyr considers that the proposed approach shows a thorough and complete approach to information and system security. In our work with the Open Specification Working Group, Landis+Gyr has developed an approach to the security of HAN and WAN systems that segregates security approaches into distinct and manageable areas that, together, create an end-to-end security architecture. It is our belief that this approach is significantly more manageable than the creation of a single, end-to-end solution. Landis+Gyr and its partners Elster and Secure believe that the proposed domain-based solution meets all of the key requirements of the Prospectus at an architectural level and allows maximum flexibility with regard to future upgrades to the security of any individual domain.

The diagram below illustrates Landis+Gyr's proposed domain-based approach:



17 Supporting Document 94f/10 Implementation Strategy Chapter 2

17.1 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?

Landis+Gyr feels that the proposed governance and management principles fit the needs of this implementation. There is a need for the programme to deliver on time and to budget which calls for a strong and solid approach at all levels and with all groups involved in the design of this massive change in energy awareness.

18 Supporting Document 94f/10 Implementation Strategy Chapter 3

18.1 Question 2

Are there other cross-cutting activities that the programme should undertake and, if so, why?

Landis+Gyr would recommend the following areas should be reviewed – although we do not believe that their consideration should delay the start of the roll out or impact the processes required to achieve the acceleration sought by Government:

1. *Green investment bank initiative*
2. *The unification of Gas and Electricity industry procedures to ensure simpler understanding of energy by consumers and better linkage between the UK's primary energy sources*
3. *Smart Grid issues and associated LCNF initiatives*
4. *CERT and CESP – including how best to baseline energy efficiency improvement investment plans*
5. *Feed in Tariffs*
6. *Micro-generation*
7. *Other forms of renewable energy*

19 Supporting Document 94f/10 Implementation Strategy Chapter 5

19.1 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?

Landis+Gyr agrees with the staged approach to the implementation strategy.

As explained at various points throughout this response, we consider that early agreement of a technical specification to meet the functional needs for smart metering equipment within the home will allow those suppliers who wish to move early to do so. Specifically, the critical nature of the decision points for HAN and (at least interim) WAN solutions mean that they must receive priority focus. DECC/Ofgem MUST ensure that these areas are agreed early in the definition process if a staged rollout is to be an effective methodology. See our response to [Prospectus Chapter 4 Question 17](#) for further details.

19.2 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?

Landis+Gyr believes that, if the acceleration options described in our response to this document are adopted, the risk associated with the deployment of non-compliant or non-interoperable smart meters rolled out in the interim (prior to the establishment of a fully detailed UK smart metering specification) should be minimal. Landis+Gyr believes it understand the scale and scope of the majority of pre-Prospectus specification meter deployments likely to be delivered in the UK and considers that, if the plan proposed by the Open Standards Working Group are followed, the worst case base of non-compliant meters could be limited to no more than 400,000 meters.

19.3 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?

Please see our response to [Prospectus Chapter 4 Question 17](#) for further details.

19.4 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?

Landis+Gyr does not believe it is in a position to comment here.

19.5 Question 7

Do you have any comments on the activities, assumptions, timings and dependencies presented in the high-level implementation plan?

Landis+Gyr agrees in general terms with the activities, assumptions, timings and dependencies and would add as follows:

- 1. The ramp up period for Suppliers is likely to also be required for meter manufacturers to attain peak output of the required meters.*

2. *There is no mention of recruitment and training for meter installers and the possible need for some form of licensing/standards/code of practice for those approved to carry out the more complex job of installing dual fuel meter sets with communications.*

19.6 Question 8

Do you have any comments on the outputs identified for each of the phases of the programme?

Landis+Gyr agrees with the output identified for each of the programme phases.

20 Supporting Document 94g/10 Rollout Strategy Chapter 2

20.1 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?

Landis+Gyr agrees that the overall approach provides a good balance.

One area not covered in this chapter is the issue of meter change in a dual fuel home with two suppliers. This builds on the situation above. It would seem incongruous to fit a single smart meter for one energy, leaving a dumb meter for the other – possibly for 5 years. Landis+Gyr feels this would send a negative message regarding smart metering and especially so for those who have not volunteered to take a smart meter. If a regulatory or commercial approach can be taken with regard to the sharing of a comms hub, it would seem sensible to suggest a similar approach could be taken here.

20.2 Question 2

Would the same approach be appropriate for the non-domestic sector as for the domestic sector?

Obviously the approach to non-domestics with single phase 100 amp or U6 meters would have to be the same for meters that have come to the end of their certified or policy life. In this case the smart equipment fitted to replace should be the same as for domestic customers except the IHD would not be mandated. Not to do so would miss an opportunity to encourage non-domestic customers to reduce their energy consumption save costs and reduce carbon emissions. Data from suppliers to show consumers without IHDs should we feel be mandated otherwise an opportunity is lost.

For 3 phase supplies or those above 100 amps per phase then advanced metering is mandated to be fitted and these will be B2B contracts. Never the less usage information from Suppliers to Consumers should be mandated.

20.3 Question 3

Is there a case for special arrangements for smaller suppliers?

Whilst acknowledging that this is a matter for debate with the Supplier community, Landis+Gyr feels it would be difficult to mandate a specific roll-out proposal based on anything but Approach 1 for smaller suppliers. Landis+Gyr believes that annual roll out targets should be set for all suppliers based upon the size of their existing customer base in the quarter prior to target setting. A staggered scale of targets could be used as required to reflect the dilution of operating costs as base size increases. Smaller suppliers would then be obliged to meet roll out targets in the same way. Larger suppliers could be given further obligations based on the reviews of the supplier led roll-out as suggested in the 'Proposed approach'.

21 Supporting Document 94g/10 Rollout Strategy Chapter 3

21.1 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 be its scope and what would be the best way to deliver it?

Landis+Gyr believes that a blend of the two identified approaches will be required to ensure the optimum customer response. At the start of the programme, to ensure wide-spread 'background' awareness, a national multi-media (TV/radio/press) campaign of the sort used for National Number Change or the recent digital switch over will be required. However, the outline costs identified in the Prospectus could and should be mitigated by extending and reinforcing the value of this high level campaign with a Supplier-led regional and/or customer segment targeted campaign.

This two stage approach will be a fundamental prerequisite for the long term success of UK smart metering. Development of the message set will need significant work with the appropriate consumer groups, but should obviously be kept extremely simple. In feedback from its supplier customers, Landis+Gyr understands that smart meter installations are being driven very effectively by personal recommendation from those customers who have already received a smart meter set: whilst it would be impractical to suggest that pure 1-2-1 marketing could achieve the required results, it may be that a campaign based on real-life experience gained during the pre-main roll out phase could act as an extremely useful tool.

As DECC and Ofgem will be aware from previous meetings, Landis+Gyr is also a strong supporter of the use of the CESP initiative as a means of establishing community-driven smart metering demand programmes, with smart forming the datum from which a given CESP scheme's efficacy is measured.

21.2 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?

BEAMA believe this is a matter for the Supplier community and the relevant consumer groups.

22 Supporting Document 94g/10 Rollout Strategy Chapter 4

22.1 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?

Landis+Gyr believe this is an important step to creating a compelling driver for Suppliers to act both responsibly and effectively during the rollout. The 'reasonable steps' need to be simple and standardised – set rules for minimum allowable space, registration of issues affecting making the space safe, recording WAN signal strength and so on will be key: once logged, these records will provide a basis for both assessing 'reasonable efforts' and then deciding how best to proceed with the installation concerned.

In terms of logging completed installations, Landis+Gyr consider that a standard 'acceptance check' of the sort used in many internet-based order completion checks could be delivered to each consumer who's meter installation has allegedly been completed. This should be a standardised set of check questions that can be delivered via any IHD or alternative display and should be delivered to the customer separately to the installation process: 12-24 hours after the installing engineer signs the job off as complete would make sense. This process would act not only to confirm that the installation had been properly completed but also that the consumer had properly understood the information provided. Where improvements to an aspect of the system are needed, the feedback from this process would provide a solid basis for the whole industry to benefit from.

22.2 Question 7

Do you think that there is a need for interim targets and, if so, at what frequency should they be set?

It would seem sensible to employ on-going targets rather than 'whole rollout' targets given the difficulty of recovering progress late in the deployment if one or more suppliers miss an end goal. Landis+Gyr understand that the task of reporting and reviewing target achievement for an exercise as large as the UK smart metering deployment will be a sizeable task. However, the impact of not doing so is likely to carry a far more significant commercial and operational penalty. To make interim target management a proportionate task, it would seem sensible to limit frequency to half-yearly progress assessments.

22.3 Question 8

Do you have any views on the form these targets should take and whether they should apply to all suppliers?

Whilst this matter will of course be subject to much debate within the supplier community, Landis+Gyr considers that it would be sensible to set targets that incentivise both high quality and high volume of installations, whilst penalising poorer quality installations and failure to meet indicated rollout volumes. A direct linkage between a notional achievement and possibly banking (where not required of a supplier in-year) of CERT or CESP points and success or failure in hitting targets would seem to be the simplest and most directly relevant metric for established suppliers and would also create an appropriate go-forward mechanism for new entrants.

22.4 Question 9

What rate of installation of smart meters is achievable and what implications would this have?

Installation Capability:

The UK has historically been able to sustain installation peak installation levels of 3m homes per year and there is no reason to suspect that this could not be achieved with smart meters. Practically, however, the UK is currently installing at approximately 2m homes per year (total 3m meters). Landis+Gyr believes that the industry is entering a period where the future demands of the smart roll out may conflict with the current cutting back of installation workforces taking place as suppliers sweat assets and reduce fit rates in the run in to smart. DECC/Ofgem needs to consider this aspect carefully in planning the lead in to smart – ensuring the period between 2010 and 2013 does not become an installation wasteland will be vital if the roll out is not to be limited by major resource and cost limitations

A steady-state deployment would require 64K homes to be fitted with smart meters per week for every week between the start of 2013 and the end of 2020 – an increase of more than 50% over the current rate of fit in the UK for meter sets (full dual fuel) that take on average 2.5 times as long to install as conventional meters (80 minutes vs 30 minutes). This indicates the need for a workforce growth of more than 4x, in addition to the growth in incremental skills required to support the much more complex fitting of a smart meter system. Obviously, pull in can be achieved by increasing fit rates. Improving by 2 years, for example, drives the weekly fit rate to 85K homes per week, driving the implied workforce multiplier to 5.5x – with training and employment costs to match. It is important to note that at some point, scarce resource metrics may well begin to impact the UK deployment, creating an undesirable cost base for smart meter fitment.

Production Capability:

With proper notice and suitable supply chain management, the rate of production of smart meters can be driven to high, sustainable levels. Given appropriate adoption of industry-driven solutions such as that proposed by Landis+Gyr and its partners Elster and Secure for various elements of the development process, it should be possible to reduce timescales to circa 12 months for volume production. Landis+Gyr considers that, if the UK smart metering deployment is to accelerate to the rates required, with 80% of all homes deployed by 2018, then this degree of pull in – and the assumed adoption of proposed solutions – is vital. There are two drivers for the critical nature of this phase of the programme:

- 1. Basic supply chain management – the earlier industry can ramp, the earlier full deployment volume can be achieved and the more likely the programme will be to succeed*
- 2. Management of UK-generated material/component demand in the light of both a global shortage of electronic components AND of the wave of mainland European deployments which look set to hit at or before the currently-planned start of the UK roll out.*

Landis+Gyr believes that the maximisation/optimisation of the UK rollout should be the subject of a specific focus during the assessment work for the Prospectus. The output of that work should be used to guide and inform all other aspects of the Prospectus consultation.

23 Supporting Document 94g/10 Rollout Strategy Chapter 5

23.1 Question 10

Do you have any evidence to show that there are benefits or challenges in prioritising particular consumer groups or meter types?

Landis+Gyr believes that current smart deployments in the UK confirm that a strong focus on dual fuel installations helps to optimise the cost and time per installation, as well as improving the overall consumer experience of the installation process.

24 Supporting Document 94g/10 Rollout Strategy Chapter 6

24.1 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?

Landis+Gyr agrees that this is a sensible approach. Previous answers to [Supporting Document 94g/10 Rollout Strategy Chapter 4 questions 6, 7 and 8](#) suggest appropriate reporting criteria and periodicity. As a minimum, suppliers should report at least half yearly on basic statistics to show number, nature (DF/SF, PP, customer option or meter replacement) and location of successful installations, number of failed best-efforts installations, number and nature (grouped) of fail-on-fit and fail-in-field system components, number of consumers who successfully completed the post installation survey and grouping of consumer survey responses.

Based on previous experience of large scale deployments, Landis+Gyr considers that requiring suppliers to report on roll out costs will be challenging and may not deliver any practical benefit.

Landis+Gyr considers that a net (fully aggregated) smart metering energy reduction and bill reduction report should be provided by each supplier on a quarterly basis.

25 Supporting Document 94g/10 Rollout Strategy Chapter 7

25.1 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?

Landis+Gyr has no specific experience to offer.

25.2 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?

Landis+Gyr considers that a code of practice – including potential NVQ or similar training and qualification levels – will be extremely important to ensure the success of the UK roll out is optimised.

26 Supporting Document 94h/10 Regulatory and Commercial Framework Chapter 2

26.1 Question 1

Have we identified all of the key elements that you would expect to see as part of the Smart Metering Regulatory Regime?

Landis+Gyr anticipate that this will be an area for significant debate but that it does NOT need to hinder or delay the progress outlined by the Prospectus towards the UK's smart metering roll out. Landis+Gyr believes that the high level objectives identified are sufficient to guide the debate. We would however comment that every effort should be made to ensure that the smart metering regulatory regime is both dramatically simplified when compared to today's regulatory environment and that – as far as is possible – the gas and electricity regimes are fully aligned.

27 Supporting Document 94h/10 Regulatory and Commercial Framework Chapter 3

27.1 Question 2

Do you agree with the proposal to establish a Smart Energy Code?

Yes – but harmonisation MUST be a priority.

27.2 Question 3

Do you have any comments on the indicative table of contents for the Smart Energy Code as set out in Appendix 3?

Landis+Gyr considers the list to be comprehensive at this stage

27.3 Question 4

Do you have any comments on the most appropriate governance arrangements for the Smart Energy Code?

No

28 Supporting Document 94h/10 Regulatory and Commercial Framework Chapter 4

28.1 Question 5

Do you agree with the proposals concerning the roles and obligations of suppliers in relation to the WAN communications module?

Whilst we are supportive of the vast majority of the Prospectus, Landis+Gyr finds the approach to the WAN communications model at odds with a long term viable solution. We believe that the Prospectus should only define the WAN interface(s) required by the DCC and even then, only make the definition once the DCC has tendered for (or has accepted in the case of pre-smart WAN connections) a given 'last mile' solution. The DCC should have the option to own and define the specification of WAN components but to FORCE the DCC to take on such a role would be to drastically and unnecessarily limit the DCC's immediate and future freedom. The DCC should be perfectly entitled to accept a 'black box' solution from potential last mile providers as long as that black box solution meets the service level and cost parameters desired by the DCC.

Whilst Landis+Gyr anticipate that responsibility for procuring the in-home WAN connection device and the associated WAN service contract will sit with the suppliers in the pre-DCC environment, it would seem to be unnecessarily cumbersome and dilutive to allow Suppliers to continue to procure these elements once the DCC is in place: if the DCC is not able to take a fully aggregated view of the market that it serves, it will not be able to achieve the optimum cost base for universal access provision. This is a potential dead end for the DCC that must be avoided at all costs.

28.2 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.

Landis+Gyr note that the Prospectus does not ask for feedback on section 4.12. We agree with the majority of this section but do not agree with the following point:

- *Where a household has two energy suppliers, the second supplier will also be required to provide an IHD except in cases where they can satisfy themselves that the minimum information set for their fuel is accessible to the consumer on an existing display*
- *Landis+Gyr believes that a standard should be set for HAN communications such that any IHD installed under the main smart rollout can provide ALL information delivered by compatible devices in the home. Consumers should not be forced to manually marry data provided by 2 devices simply because they have chosen to take their energy supply from 2 different suppliers. Thus this obligation should be rewritten as:*
 - *Where a household has two energy suppliers, the first supplier will be required to provide an IHD that is capable of displaying all consumption information provided by any subsequently installed metering device that is compliant with the relevant HAN communications standard*

In terms of the actual data to be provided by the IHD, the high level list seems to be broadly appropriate for a generic IHD. Landis+Gyr would comment that, whilst such a capability will inevitably drive cost, it may prove cost effective for the overall programme to ensure that all IHD's also support:

- *Prepayment top up via button press and pre-registered card/account*
 - *A free text screen allowing suppliers to deliver text based information and advice to consumers*
- All other 'higher level' functions can be catered for by suppliers offering enhanced IHD's in place of the mandated basic unit.*

28.3 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 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?

Landis+Gyr agrees that the WAN and HAN should be shared and also agrees with the analysis of the options considered in the Prospectus. We also agree the Option 2 provides the basis for the most commercially and technically viable solution.

Landis+Gyr would make the following points:

- Responsibility for end-to-end WAN management and maintenance should sit with the DCC once WAN devices have migrated to its control*
- The DCC should make its own commercial arrangements for supporting/maintaining/replacing WAN devices*
- The DCC should take responsibility for remotely diagnosing HAN failures and passing the appropriate fault information to suppliers*
- Suppliers (at the time of failure/maintenance requirement) should then take the appropriate commercial responsibility for HAN device or meter replacement as appropriate.*

Without this approach, it is likely that WAN and HAN maintenance will be suboptimal in terms of cost and quality.

29 Supporting Document 94h/10 Regulatory and Commercial Framework Chapter 5

29.1 Question 8

Are there additional measures that should be put in place to reduce the risks to the programme generated by early movers?

Landis+Gyr has consistently maintained – and lobbied DECC and Ofgem to support the fact - that early movers in the supply space should be supported for the learning and information that they will bring to the UK smart metering programme. We believe that a more proactive stance should be taken to ensure early deployments are aligned with the future direction of the UK roll out. If the recommendations in Q9 below are implemented then the steps suggested earlier in this response with regard to:

- Locking interface specifications and defining use cases for UK smart in the next 3-4 months; and to*
- Allowing suppliers to deploy meters compliant with those set specifications/use cases without risk of forced meter replacement provided that appropriate information is shared,*

would ensure that the overall programme is fully and adequately both accelerated and protected.

29.2 Question 9

What is needed to help ensure commercial interoperability?

Landis+Gyr believes that – assuming technical interoperability can be agreed by the end of 2010 (a goal we believe is fully achievable based on the work we have undertaken as part of the UK Open Specification Working Group) then commercial interoperability ahead of the DCC can be achieved subject to a relatively small set of high level requirements:

- WAN communications contracts being fully and openly transferrable on a per consumer basis*
- Meters or meter rental agreements being transferrable on an open, banded basis:*
- In-going price band for smart meters, IHD's etc*
- In-going rental price band*
- Fully transferrable meter/IHD warranty terms (with warranty terms to an agreed minimum level)*

There is clearly a level of detail implied by these requirements, but Landis+Gyr believes that industry is capable of resolving the major elements in line with an end 2010 deadline for pre-main roll out deployments.

29.3 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?

It would seem sensible that a set of appropriate load, network performance, tamper and other similar 'events' could be agreed for both gas and electricity meters that, if not breached, would allow an extended 'no inspection' period. Landis+Gyr believe that this is a further value achieved by pre-main roll out deployments: with the initial 'condition set' established but a large meter reading force still in situ and prior to the high levels of resource demanded by the main roll out, suppliers will be able to take advantage of meters deployed early, completing sample-based 2, 3 and possibly 4 yearly checks on the base of meters deployed.

By looking at the condition of a comparatively large population of smart meters comparing their condition with any default against the 'condition set', it should be possible to:

- Assess whether the condition set provides for an effective measure of a likely safe/unsafe meter*
- Propose any tightening of the condition set required by field evidence*
- Agree an initial 'safe life' inspection period that could be applied for by the suppliers on a block exemption basis*
- Agree appropriate review cycles and sample information rates for future extensions*

Based on field experience with dumb meters, BEAMA believe that an initial 'safe life' subject to no breach of the agreed condition set could easily be set at 4 years with this approach.

29.4 Question 11

Are there any other regulatory and commercial issues that the programme should be addressing?

Given the scope of the various responses that Landis+Gyr anticipate will have been provided to the Prospectus, we would recommend reviewing this question post initial review of feedback from industry and any proposed revisions to the Prospectus document.

30 Supporting Document 94h/10 Regulatory and Commercial Framework Chapter 6

30.1 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?

Landis+Gyr does not consider there to be any major technical barriers to the introduction of innovative tariffs. The key challenge to introduction will centre on how easily and effectively the value of such tariff structures can be communicated to consumers and how easily consumers can then take advantage of the tariffs.

30.2 Question 13

Are there changes to settlement arrangements in the electricity or gas sectors that are needed to realise the benefits of smart metering?

Landis+Gyr believes that the settlement process should be fully revised based on the information that is likely to be available on day 1 from the UK's smart metering system. We also believe that any new or revised system should be designed to cope with further revision and simplification over time as the system – including the DCC – evolves and the quality and quantity of information it provides improves. Settlement needs to be a dynamic process that can be reviewed and improved with the advance of smart.

30.3 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?

Landis+Gyr strongly believes that the iDNO/iGT's should be required to adopt the same DCC-based approach as all other suppliers. An integrated smart energy system cannot function effectively if pockets of supply are excluded – there should be no difference in the way that smart is delivered for iDNO/IGT customers and those customers of the core DNO/GT's.

30.4 Question 15

Are there any other industry processes that will be affected by smart metering and which the programme needs to take into account?

Given the scope of the various responses that Landis+Gyr anticipate will have been provided to the Prospectus, we would recommend reviewing this question post initial review of feedback from industry and any proposed revisions to the Prospectus document.