

CAPGEMINI RESPONSE TO OFGEM AND DECC SMART METER PROSPECTUS



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1 INTRODUCTION

This document is response of Capgemini to the Smart Metering Implementation Programme Prospectus published by Ofgem and the Department of Energy and Climate Change (DECC) on the 27th July 2010.

Capgemini has substantial experience in all matters relating to Smart Metering, Smart Grid, and Home Energy Management, making our company a leading provider of Smart Energy Services. We support smart energy programs across North America, Europe, and Asia Pacific.

Customers supported by our Smart Energy Services Division represent a rapidly growing global market of over 200 million utility customers. Some key facts about our Smart Energy Services include:

- Capgemini currently supports the implementation of smart metering programs for over 28M meters across the globe
- We directly manage and support the mass deployment of over 15M electricity and gas meters and their related advanced meter infrastructure across North America and Europe
- Capgemini supports the largest active gas smart meter implementations in the world with over 7M meters across North America and Europe.
- We have provided smart meter, smart grid, and home energy management services to over 24M electricity and gas utility customers in North America
- Capgemini manages 50% of the active smart meter implementation programs in Canada
- We have supported over 70% of all European electricity and gas smart meter implementation pilots and programs
- Capgemini provides meter operation services for over 1.2M meters in the Nordic region, including 25% of the Swedish market

We are more than happy to discuss our observations and the underlying experience that gave rise to them. Our position in Smart Metering programmes world-wide gives us access to a large pool of data on those programmes; however, that data is often confidential to our clients. We could not share this data in a public domain document such as this, but are happy to discuss with our clients what data we can make available to Ofgem and DECC on a confidential basis.

2 PROSPECTUS

2.1 CHAPTER 2 – The Consumer Experience

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

Capgemini is broadly supportive of the minimum functional requirements laid out in the supporting document. Capgemini would like to make three specific points:

- For ease of standards creation, bandwidth conservation and to minimise customer confusion as to what data is delivered when (especially in dual fuel situations), consider 15 minute incremental reads for both gas and electric. (Section 2.31).
- Consider using a “screen saver” type default screen that would display decided upon minimum details. Date/Time/Usage Graph/TOU pricing, etc. (Section 2.33)
- Other information for example ambient temperature or comparative consumption for households with similar characteristics may be valuable but there is no conclusive evidence to support this.

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

We have made some suggestions in our response to Data Privacy & Security 94e/10. In particular we think you should:

- Define the personal data sets now.
- Define a common consumer consent framework.

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

We have no comment on this subject.

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)?*

Capgemini believe that Ofgem and DECC have an important role in ensuring that customers have a positive experience of the smart meter rollout. This should encompass providing householders with information about the overall programme and the necessity for it. This is particularly important in an era of austerity where other government initiatives are being curtailed. Reassurance should be given that what may appear like a new means of gathering information about the behavior of UK citizens (the meter as the latest manifestation of “big brother”) will only be accessible to organisations that have a legitimate reason for having it and that it will be carefully protected. Finally we believe that Ofgem should be instrumental in ensuring that the individual consumer is treated with courtesy during the installation process and that the installation is carried out both professionally and timeously. Obviously this is going to be a lengthy process (potentially taking until 2020) and that any national campaigns would need to carefully set expectations so that consumers that who may be enthusiastic adopters of the capabilities are not disappointed if they have to wait some time for the meter and IHD to be implemented under the programme.

It is probably in practice unnecessary for great emphasis to be given to reacting to concerns about Suppliers using installation visits as sales opportunities (even though the concern is genuine). The installation of a meter is a technical task and requires skilled installers to complete within a given time. In Sweden our experience of the rate at which installations can be completed was up to 12 per day (on average) per installer. We don't believe this target can be achieved in the UK but perhaps with an optimised rollout plan (see our response to Question 16) 6 installations will be feasible per installer per day (mainly because of the need to speak to the householder about the IHD and to test that the HAN is working). The installations are usually carried out in a garage, a closet or in the case of flats in a room dedicated to ancillary equipment. It will probably only be practical for the installers to give consumers an overview of the functions of the IHD as otherwise the time they will take to satisfy the consumers questions could vary considerably and the next visit will be for a pre-set time. A strong parallel can be drawn with Satellite box installations for Sky Television. While Sky has a strong commercial incentive to "up sell" their clients (and devotes a huge marketing budget to doing so) it is not done as part of the installation process because the installer has a quota of installations to fulfill. They do provide basic instruction on the use of the remote control and this is probably equivalent to all that the meter installer will be able to do with regard to the IHD. We do however think that a code of practice is needed and would expect suppliers to be self regulating in this matter.

We fully endorse the inclusion of a basic In Home Device (IHD) in the programme. We know that the inclusion of the In Home Device (IHD) is extremely important in both changing consumer behaviors and in making the programme attractive to a large section of the population.

It is the visible sign of both the benefit and the change and we think consumers will be easily convinced that it is a betterment (rather than going and watching the spinning disc!). Based on our North American experience, we further believe that the use of easy to use programmable devices is the mechanism that will ultimately lead the reduction in energy consumption that supports the benefits expected by the Government.

We believe there is no need for an upfront charge for the Smart Meter or the IHD. There are a number of organisations that provide capital financing for this type of project (Macquarie and National Grid both offer this facility). Energy retailers are able to make use of such facilities if they do not wish to incur the expenditure themselves. A number of Suppliers are already offering the provision of an IHD to their customers (Scottish and Southern Energy, EDF and British Gas). They all offer the unit for "free". However some of them expect their customers to either sign up for a fixed term contract for the (revised) service or sign up for other products (which themselves have a fixed term) in return. Suppliers may be willing not to do this for the basic device but we think they will certainly want to if a higher functionality device (for example one with appliance control functions) is requested by the customer. We think Ofgem should carefully consider the extent to which it is willing to accept Suppliers requiring consumers to make contract commitments in return for waiving charges (as it is potentially contrary to the objective of enabling supplier switching).

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

We agree with the elective use of DCC services with a potential mandated date in the future once the DCC is in a position to support all the needs of non-domestic customers.

2.2 CHAPTER 3 – Industry Roles and Responsibilities

Question 6: Do you have any comments on the functional requirements for the smart metering system we have set out in the Functional Requirements Catalogue?*

We think it is comprehensive with regard to the meter. We see a need for change management and a collaborative review process during the development of the Technical Specifications, to acknowledge that further clarification of Functional Requirements can be accommodated by Ofgem if required. We do believe there are a number of areas where more work is needed.

Whilst we are comfortable that the existing functional definitions for smart metering will accommodate the UK market, we remained concerned at the potential direction of the communication and security standards. We believe that more thought needs to be given to the communication transactions that will be involved especially if the HAN is to have a direct link to the DCC given the need for device identification keys to be able to be fully authenticated in this scenario. We have considerable experience in this field should Ofgem wish to explore this with us further.

Question 7: Do you see any issues with the proposed approach to developing technical specifications for the smart metering system?*

Yes, we are worried that there is a presumption that the creation of a technical specification for the UK will drive smart meter equipment suppliers to develop and offer products which meet those specifications in an acceptable timescale to meet the deployment plan. The suppliers take a Global view and the need to develop a UK “variant” may not be at the top of their priority list if other regions show greater potential to accept their standard products. The technical specification development should have a strong presumption that a function or feature which is not presently available in the market or planned for the near term should only be included if there is a compelling reason for it.

The effect on the deployment timeframe and future support costs should be considered. Put bluntly we think you need to concentrate on those technologies that are either demonstrable now or are highly likely to become widely available and deployed in the near future rather than design a technical future which will take time to develop and be unproven at the scale required by the UK implementation. We think you should work with an organisation that has real experience of implementing a smart metering solutions and providing a large scale meter reading service.

We have this experience both from North America and from our contract in Sweden where we took over provision of the smart meter operational service for Fortum from a Telenor subsidiary. Our Swedish experience showed clearly that pre-empting technology is ultimately very expensive to support. We would be more than happy to expand on our experience if Ofgem wish.

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?

No we think that it is very encouraging that the energy suppliers are convinced of the benefits of Smart Meter implementation to the extent that they are willing to make the multi-billion pound investment that this programme will entail.

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?

Yes we think that in order to achieve a sufficient level of certification of the devices installed and their relationship to the data provided there is a need for the DCC to hold some of the data records associated with the equipments deployed. Further information is provided in our answer to Regulatory & Commercial Framework 94h/10, Chapter 6, Question 13.

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

We think that the License holder and the system integrator/provider typically require different skills and experience. We don't think there is a single company which can fulfil the role of being able to oversee the changes in industry processes flows from a licence holder standpoint and at the same time be responsible for overseeing the many thousands of judgements that will be needed to implement the DCC. The two can and should be separated in our view and there is no reason why the competition to select the System Integrator cannot be bought forward to precede the selection of the licence holder.

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)?

We expect that Government would naturally mandate that the license holder should employ the same procurement standards that are required by European Government bodies. This means that following the licence holder selection competition the successful company would then have to embark upon its own open competitive process which in our view cannot be completed in less than 10 months.

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?

We don't think this causes substantive problems that cannot be resolved.

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

Yes we strongly agree with the proposal for the creation of a Smart Energy Code, but note that it will not be the only mechanism needed to ensure the successful deployment of Smart Meters for the UK.

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

We think so.

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

Basically we think until such time as the architecture of the end-to-end system is understood and questions answered such as who owns the WAN gateway and where is it to be located, consideration of the security of the system cannot progress much further.

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)?*

We understand why energy Suppliers have been chosen to be responsible for the deployment of smart meters. However we think that their objectives for the deployment may not naturally align with the best interest of Ofgem or consumers. In our response to the DECC Consultation Paper on Smart Metering in May 2009 we noted that;

“The full development of the market model needs to acknowledge this legitimate potential for conflicting objectives, and seek to align objectives through appropriate incentives and obligations.

In the absence of measures to align incentives, we would expect commercial retailers of energy to segment their customer base to identify where smart meters would have most value for example:

- Through increased retention – targeting those customers that are likely to value any value added services (e.g. energy efficiency advice) that Suppliers may be able to offer once a smart meter is installed.
- Through reduced cost to serve – for example targeting those where it is costly to get meter readings, or where there are significant bad debt issues.
- Pre-Payment replacement
- Avoiding those customers where multiple visits are required to find the customer “at home” to allow access for a meter to be changed”

We still think that within the targets that can be sensibly set by Ofgem (such as achieve a 10% implementation by mid 2012) these will be the criteria by which they design their deployment plans. So for example the first 10% of installations can all meet the above criteria and the rollout will proceed with these criteria being predominant in decreasing proportion until at the end only the least attractive installations are left. These commercial drivers are fundamental for the Suppliers and they can, in our view, not be countered by non-binding commitments to take into account the need for local co-ordination.

With the six major suppliers each designing a separate plan based on these commercial drivers the resulting deployment could only be described as ‘scattergun’.

There would be limited or no local co-ordination, neighbours may receive their meters and IHD’s years apart from one another, the installation of meters in ancillary equipment rooms in blocks of flats may require 6 or more independent visits by installers (over many years) and customers who contract with different suppliers for Gas and Electricity may need 2 visits.

The most efficient approach would be for a single company or a number of nationally co-ordinated companies to deliver the rollout in a given geography so that the utilisation of the installer teams can be maximised and the deployment carried out on a street by street (or block of flats) basis. However seeking to impose such a rigid structure could remove the supplier’s ability to modify the rollout so that they couldn’t prioritise consumers who are keen to be early adopters for example.

We think there could be a way to solve this. We do believe that it is appropriate for Ofgem to set targets for deployment. We think that strong penalty regimes are appropriate certainly in the later stages (as the implementations become less commercially attractive to suppliers they will need a bigger incentive). Whilst not necessarily appropriate to the UK market, in Sweden for example, the incentive was that if accurate customer meter reads were not able to be provided on a specific date and time then a low wholesale tariff was not available and the Supplier has to pay a premium price for the energy consumed (a very effective penalty). We think a strong penalty scheme will be needed to ensure that the Ofgem objective of a 100% rollout is achieved. In addition the issue of how to deal with customers who change Supplier late in the process needs to be dealt with so that Suppliers cannot claim that they didn’t achieve the deployment targets because that customer has only been theirs for (n) months.

A further measure we recommend is that Ofgem actively encourage the Supplier community to create something like a National Rollout Coordination Authority to collaborate on both the rollout planning and the selection of sub-contractor organisations. A competition could be held to choose a subcontractor (and a reserve) able to carry out installations by geographic region for example who would then work on behalf of multiple suppliers within a plan that provides for a deployment that as far as possible optimises the installations on a geographic basis. This Authority (which could have both Ofgem and Supplier representation) will be able to work with local organisations to set priorities. Clearly there will still be the possibility of unitary installations to meet specific circumstances but the goal should be that the majority are carried out according to the pre-defined plan. This will allow local authorities for example to expect that the implementations will occur in the pre-planned areas and they can inform the residents to expect the appointment call and visit (reducing the likelihood of bogus installer calls by allowing co-ordination with the local police for example).

This body could (optionally) be made responsible for making the installation appointments. It would require funding by the Suppliers but should be more efficient than the suppliers each establishing their own processes and facility and therefore be attractive to them. This client contact roll could be included in the responsibilities of the interim DCC supplier if our recommendation of bringing this forward (see later) is followed. Our experience in Sweden is that the Suppliers are generally happy that the customer contact is carried out by a third party because establishing the call centre capacity is transient. In this scenario the call centre operatives can represent each of the energy suppliers to make the appointments in a logical co-ordinated sequence.

We have a good understanding of the commercial parameters surrounding smart meter implementation from both our North American and European experience and would be more than happy to help Ofgem develop a workable model.

2.3 CHAPTER 4 – Implementation and Next Steps

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

The DCC timescale for implementation is much too short. Other projects have taken at least eighteen months from the time that the sub-contractors (suppliers) of the DCC components are appointed to carry out the development of the system, implementation of facilities, testing of the communications between the meter/head-end communication and the interfacing of the MDM to the supplier system. There will be a need for Pilot implementations to prove the end-to-end functions and business process integrity. For the implementation in Ontario Canada (which is one of the few examples of a centrally provided MDM facility) the plan was to for this process to take 18 months for 4.6 million meters. It was to have been complete by the end of 2010 and is, at present, running considerably behind schedule.

As suppliers will have needed to invest in creating a system which is used as an interim measure they will not have a commercial incentive (unless Ofgem applies a financial sanction) to move to the new facility. The testing effort and the modifications to the systems (DCC or retailer) involved are considerable and will need the attention of supplier staff engaged in delivering the service day to day. The degree of focus they will therefore apply is likely to be circumscribed. This will mean that the DCC implementation may take longer or possibly even fail if there is insufficient take-up to sustain the commercial model for the DCC supplier.

We would recommend that the plan is changed so that the procurement of an interim DCC supplier (or consortium of suppliers) is bought forward (to be completed by the middle of 2010). An interim facility could be implemented quickly (as it will have a relatively small population of meters to support to begin with). It can have a term which expires when the full facility is ready to transfer the meter readings from the meters then in place prior to the go-live of the mandated service (say until the end of 2013). It can be de-coupled from the procurement of the licence owner who will provide the service. The disadvantage is that the potential licence holder may be required to conduct a transition from the interim facility (which of course can be included in the terms for the competition) to their preferred providers of the DCC service but we strongly believe the advantages outweigh this.

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?*

Once the rollout is underway the limiting factor is the development of some of the technologies required (our suggestion is not to try and drive the technology development but to adopt that which becomes available and proven quickly) and the parallelism that can be achieved for the rollout. This is a function of available trained field service capacity.

We recommend Ofgem sponsor a Smart Meter installer training programme in the UK to accelerate the training and availability of installer staff and to control the quality of the training. This will be able to be done in a more meaningful way if an early competition to select installation partners is carried out early (as per our response to Question 16).

Our experience from Sweden is that the installer teams are able to be much faster at installing meters once they have gained some experience. While perhaps an obvious statement the rate of installations ranged from an average of 2 to begin with up to 12 a day. It is partly dependant on having a short travel distance between each job and the ease of access of the new meter location but the biggest factor was that the teams had met and overcome the challenges that they faced and were confident about the installation. It should be possible to provide training including simulated installation exercises to anticipate different circumstances that will make the installation teams effective straight away.

The main factor in the time taken is the number of teams that will be working at the same time. In order to achieve a rollout to 27 million homes if each one was visited once at the rate of 6 installations per team per day 4.5 million installer days are needed. We think installations at weekends will be needed but teams will only work 5 day weeks so there will be approximately 212 available days per year for each team. This gives rise to 21,226 installer team years for the rollout. With 2,000 installer teams the rollout would take around 10 years and 7 months as long as the teams were effective immediately. This would be halved if double the number of teams were used.

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?*

We agree that the specification is heavily dependant on industry expertise but we question whether the creation of a fully comprehensive specification is necessary. The availability of products to meet the functional needs is the pre-condition to being able to execute the programme. The most important consideration in our view is to avoid following technical blind alleys through the adoption of products that don't prove to have long term availability and widespread adoption. Clearly product suppliers (who may claim to have the most expertise) will be influenced by what they consider to be the virtues of their own products and this programme is so large that it will attract very strong lobbying in the next phase from both product and network vendors.

We think it is important that industry expertise should come from a genuinely independent source which has the experience of working with many vendors to implement smart meter and smart grid solutions.

In our experience an extensive take-up and long support cycles are achieved by products that are inexpensive (compared to the current market), easy to acquire and install, and are provided (or adopted) by large corporations in the supply chain. Setting detailed technical requirements often militates against these parameters and leads to high support costs in the longer term. We believe it is the selection of those products which are likely to be the most widely adopted that will ensure that this is not the case rather than specifying something which may then become unique to the UK implementation.

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?*

Yes we have two comments; first we think there is a need for a stronger overall architectural ownership in the broader sense which should be reflected in the governance arrangements and secondly we thank that a stronger emphasis should be given to both planning and executing the rollout.

Capgemini recommends using an Enterprise Architecture (EA) led approach to guide the successful rollout and operation of a smart metering system. An EA approach offers recognised frameworks and methods that bind together Business and IT strategies to enable and drive each other. The Open Group Architecture Framework (TOGAF) defines Enterprise Architecture as:

“The structure of components, their inter-relationships, and the principles and guidelines governing their design and evolution over time.”

For smart metering to be successful it is not only about how to rollout millions of meters to UK households. It is a complex eco-system that will be constantly evolving. Enterprise Architects are analogous to the more widely understood concept of City Planners. They control how a system evolves over time ensuring that the bigger picture is understood and that short term decisions are not taken that will constrain future development. The following highlight some of the thinking that an enterprise architecture approach would bring:

- Considering the requirements in the context of the bigger picture - the Smart Meter Design, Data and Communications, and Smart Metering Rollout workstreams are highly interdependent. As an example the technical design of the network, processes, meter selection is highly dependent on the regulatory framework and the design of the delivery and implementation.
- Considering the solution from multiple stakeholder viewpoints - if all stakeholder's viewpoints are not considered, then the solution may not be fit for purpose for that stakeholder community. This programme will require large scale stakeholder engagement due to the subject matter, the complexity of the problem and the number of organisations involved. By gathering all viewpoints you can ensure buy-in from all on day one.
- Consider both the current 'as is' and future 'to be' architectures – we cannot implement day one requirements only and expect that these requirements will not lead to technical obsolescence or, conversely, lead to future constraints. Therefore we need to build future considerations in from day one. For instance:
 - Is the WAN gateway on the consumer premise equipment simply a means to communicate with a smart meter, or is it a channel into the home for smart energy services?
 - If it is the latter the channel must have the capability to support many devices in addition to smart meters, e.g. lights, heaters, fridges.

- Future services may be offered over this channel such as demand response services that turn equipment off on at certain times of the day. Constraints that would limit this or other services need to be avoided.

Ofgem should be realistic about the speed of implementation and plan the transition in steps that move from the current situation to the target in stages that are integral in their own right. We recommend not trying to reach too far especially early on. However, solution areas such as end-to-end security need to be built-in from day one rather than be part of a transition architecture.

Other solution areas that are more volatile to change should have their specifications baselined now so that rollout can begin, with a transition architecture or roadmap in place to show how these solutions can be upgraded once requirements become more stable. The ownership and maintenance of this overall programme thinking should be encapsulated into a strong programme office.

3 CONSUMER PROTECTION 94A/10

3.1 CHAPTER 2 - Developing Services for Consumers

Question 1: Do you have any views on our proposed approach for addressing potential tariff confusion? What specific steps can be taken to safeguard the consumer from tariff confusion while maintaining the benefit of tariff choices?

We have no comment to make on the subject of Tariff setting.

Question 2: Do you agree with our proposed approach for addressing unwelcome sales activities during visits for meter installation?

Capgemini agree with the proposed approach but note that it is probably in practice unnecessary for great emphasis to be given to reacting to concerns about Suppliers using installation visits as sales opportunities (even though the concern is genuine). The installation of a meter is a technical task and requires skilled installers to complete within a given time. It will probably only be practical for the installers to give consumers an overview of the functions of the IHD as otherwise the time they will take to satisfy the consumers questions could vary considerably and the next visit will be for a pre-set time. A strong parallel can be draw with Satellite box installations for Sky Television. While Sky has a strong commercial incentive to “up sell” their clients (and devotes a huge marketing budget to doing so) it is not done as part of the installation process because the installer has a quota of installations to fulfil. They do provide basic instruction on the use of the remote control and this is probably equivalent to all that the meter installer will be able to do with regard to the IHD. We do however think that a code of practice is needed and would expect suppliers to be self-regulating in this matter.

Question 3: What do you consider as acceptable and unacceptable uses of the installation visit and why?

Please refer to the answer to question 2.

Question 4: Do you agree with our proposed approach to ensuring that the IHD is not used to transmit unwelcome marketing messages?

Capgemini agree with the proposed approach. The IHD should only carry information relating to consumption and cost of energy, especially during rollout. It could display hints and tips such as “electricity is cheapest during the hours 2AM-5AM, but shouldn’t encourage the use of alternative products.

Marketing and sales activity should be initially limited to existing channels such as mail or email.

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?

The Government has produced a consumer-led policy to enable households to reduce their energy consumption by improving energy efficiency. This policy can only be enacted if the consumer has the tools to manage and control their energy use. Charging a levy to use energy consumption information will provide a barrier to this goal, and therefore the consumer absolutely must be able to obtain consumption information free of charge at a useful level of detail and format.

Making this data available via the HAN in a common industry format will be vital in satisfying this requirement. Additionally this data may be made available via the DCC to a third-party user. However careful consideration would be required regarding consumer consent, the scope of the data that the third-party can view, their frequency of access (one-off perhaps) and the commercialisation of any service, including DCC costs that such a service may entail.

3.2 CHAPTER 3 – Prepayment and Remote Disconnection

Question 6: Do you consider that existing protections in the licence are sufficient to ensure that consumers are not remotely switched to prepayment mode inappropriately?

We have no comment.

Question 7: Could provision of an appropriate IHD help overcome meter accessibility issues to facilitate prepayment usage?

Yes, provision of an appropriate IHD could enable prepayment top-ups to be carried out using similar channels such as those available for mobile phone top-ups. For instance the following methods are available for mobile phones:

1. Using a voucher
A one-off voucher is purchased from a retail outlet.
2. Using a registered card
Credit is added onto a registered payment card, which is topped up from a retail outlet or from a cash machine with top-up facilities.
3. Via credit or debit card
Payment is made via telephone or the web, and credit is added to your mobile directly.

The first two methods rely on the mobile user keying in either a one-off code or their registered code into their phone, which is then credited with the payment amount.

In a similar way, the IHD could act as the keypad to meter, negating the need to access the meter directly.

Question 8: What notification should suppliers be required to provide before switching a customer to prepayment mode?

We have no comment to make regarding switching a customer to prepayment mode.

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?

Yes we do. Parallels can be drawn with the mobile phone industry where the major network provides all offer an emergency credit service. 02 have their 'lend us a quid' scheme; Orange their 'Reserve Tank' scheme and Vodafone with their 'IOU' scheme.

Question 10: Do you consider that an obligation similar to Prepayment Meter Infrastructure Provision (PPMIP) may be required?

We have no comment to make on the need for an obligation similar to PPMIP.

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?

Much more detail on 'reasonable steps' is required to ensure that suppliers carry out this process in a consistent manner. Site visits may be avoided if greater sharing of this type of consumer information between suppliers (subject to DPA guidelines) can be established.

Question 12: What notification should suppliers be required to provide before disconnecting a customer?

We have no comment to make on the customer disconnection process.

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?

We have no comment to make on partial disconnection.

Question 14: Do you agree with our approach for addressing issues related to remote disconnection and switching to prepayment?

We have no comment to make on remote disconnection.

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.

We have no further comment to make on consumer protection issues.

3.3 CHAPTER 4 – Vulnerable Consumers and Fuel Poverty

Question 16: What information, advice and support might be provided for vulnerable consumers (e.g. a dedicated help scheme)? Who should it be provided to?

We have no comment to make on what information, advice and support might be provided for vulnerable consumers.

3.4 CHAPTER 5 – Cost Recovery and Monitoring of Costs

Question 17: Do you have any comments on our proposals to prevent upfront charging for the basic model of smart meters and IHDs?

We believe there is no need for an upfront charge for the Smart Meter or the IHD. There are a number of organisations that provide capital financing for this type of project (Macquarie and National Grid both offer this facility). Energy retailers are able to make use of such facilities if they do not wish to incur the expenditure themselves. A number of Suppliers are already offering the provision of an IHD to their customers (Scottish and Southern Energy, EDF and British Gas). They all offer the unit for “free”. Some of these suppliers expect their customers to either sign up for a fixed term contract for the (revised) service or sign up for other products (which themselves have a fixed term) in return. Suppliers may be willing not to do this for the basic device but we think they will certainly want to if a higher functionality device (for example one with appliance control functions) is requested by the customer. We think Ofgem should carefully consider the extent to which it is willing to accept Suppliers requiring consumers to make contract commitments in return for waiving charges (as it is potentially contrary to the objective of enabling supplier switching).

4 STATEMENT OF DESIGN REQUIREMENTS 94B/10

4.1 CHAPTER 3 - Overview of the Smart Metering Functional Requirements Catalogue

Question 1: Should the HAN hardware be exchangeable without the need to exchange the meter?*

On balance Capgemini believes that the HAN hardware should be exchangeable without the need to exchange the meter for several reasons.

The most compelling is that devices which will provide energy consumption information to customers may have a different lifespan from meters and may need to be replaced more frequently. It should be noted that standards will always evolve over time. This is often desirable as technology advances make new services possible. As home energy management gets smarter, new and better ways of device communication will emerge which may not be compatible with the chosen smart meter HAN protocol. To prevent the proliferation of in home protocols the HAN must also keep up to date with these developments. Otherwise customer confusion over multiple HANs may lead to increased support costs.

With regard to the WAN module itself (which is also situated in the customer premises), this is a more difficult question. First we assume that the question implies that communication from the HAN and the meter are going to come through a single route (in other words there will not be a telecommunications link established between both the meter and the HAN/WAN gateway it will be one or the other). One advantage of routing the WAN communication via the smart meter communication module is that the meter is, relatively speaking, tamper proof compared to a WAN gateway module which will be located on a wall in the consumer's premises. If it is wall mounted and provided with power from the a consumers ring main then there may be a temptation to disrupt the supply or damage the unit so it is no longer able to pass the meter readings (the consumer may believe that this will stop them being billed).

The Supplier will not know why the communication had stopped and would need to send a field engineer to verify the status of the module. In addition having a separate gateway may introduce installation and operational difficulties if the WAN gateway is not within range of the smart meter (and able to talk to it without interruption) although this applies equally vice versa.

One advantage of a separate WAN gateway is that if it is physically independent of the meter the possibility exists of gas meters being rolled out in advance of electricity meters. Once in steady-state operation, the independence of the meter will enable it to continue functioning for the gas meter if the electricity meter is disconnected either for repair or because of non-payment of an electricity bill.

It could be possible to arrange a scheme whereby the meter itself has an "emergency" means of communication with the DCC. We could envisage the use of GSM to transmit SMS messages if that was required in the event that the HAN/WAN gateway stopped working. This would allow the meter reads to be downloaded and in extremis if the client didn't restore the gateway it could be used to switch off the supply. This could avoid the need for a physical visit.

This arrangement is analogous to that used by Sky which verifies that the customer has the registered viewing card inserted in the unit and if they do not the signal is disabled from the satellite.

The requirement that HAN components have a lifetime of 15 years are not presently achieved by SIM cards, the manufacturers believe that 10 years is the maximum life that can be expected.

Question 2: Are suitable HAN technologies available that meet the functional requirements?*

The Home Area Network is an evolving domain. While there are technologies able to meet the functional requirements a product which is sustainable for 15 years (as a supported item which doesn't require modification/exchange during that time) is not yet clear. The US National Institute of Standards and Technology in January 2010 published Framework and Roadmap for Smart Grid Interoperability Standards (Release 1 NSIT Special Publication 1108). In it are set out the standards that NSIT recommend manufacturers adopt for the various layers in the Smart Grid communication stack. The recommended standard for Home Area Networks is Zigbee 2.0 and so this will probably become ubiquitous. This standard is not yet finalised but will probably start to be available in products during mid to late 2011. We know of products using the current Zigbee 1.0 standard that provide HAN interconnection and WAN gateway capabilities (via an IP internet 10BaseT (Ethernet) connection to a pre-existing customer supplied broadband router). These are the only smart meter oriented HAN/WAN gateway products that we know of which are presently widely available.

From a commercial perspective we observe that groups of suppliers are collaborating to bring together groups of technology products (the Zigbee Alliance and the Wireless Alliance are holding talks designed to allow the Zigbee network and the wireless broadband network to interwork) but this is still an area of great flux.

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?*

Capgemini considers the interoperability of SIM cards to be primarily a commercial issue between the network providers. Network suppliers realise this and have already initiated discussions (referring to the process as inter-network roaming). We also assume that the DCC will have a mandate to state that suppliers must be able to transfer customers from one telecommunications carrier to another. From a technical perspective, we are aware that mobile phone users can already change Telco supplier without physically changing the SIM cards, and we believe it is inevitable that smart metering will pursue this avenue, given the high cost of manual SIM replacement.

Question 4: Do you believe that the Catalogue is complete and at the required level of detail to develop the technical specification?*

While higher-level questions remain over the end-to-end solution the Catalog cannot be deemed complete. Additionally there are omissions and ambiguity in requirements in a number of places. However these considerations should not delay developing a technical specification. The Catalog provides good all round coverage of the functional requirements and is an excellent start point.

The development of the technical specification is also likely to throw up further challenges to the functional requirements. For these reasons it is recommended that an iterative approach is adopted to allow development of the technical specification to proceed whilst the functional requirements are finalised.

Question 5: Do you agree that the additional functionalities beyond the high-level list of functional requirements are justified on a cost benefit basis?*

Capgemini is not aware of additional (rejected) functionality being justified on a cost benefit basis.

Question 6: Is there additional or new evidence that should cause those functional requirements that have been included or omitted to be further considered?*

Capgemini is not aware of additional evidence that would cause those functional requirements that have been included or omitted to be further considered.

4.2 CHAPTER 5 - Achieving Technical Interoperability

Question 7: Do you agree that the proposed approach to developing technical specifications will deliver the necessary technical certainty and interoperability?*

The proposed approach follows a traditional waterfall lifecycle to specification delivery. This approach will therefore deliver a common meter standard, but not necessarily the technical certainty and interoperability required by the programme. There are bigger questions that require answering before we can be sure of these goals. Functional requirements and technical specifications should not be developed in isolation from an end-to-end enterprise architecture. The approach at present appears to be siloed and does not take into consideration these outside influences. For example, how is the development of these requirements influenced by the need to preserve security throughout the system? Without this knowledge technical certainty cannot be provided as we may not be building the right system. Interoperability is also a true end-to-end question that involves the change of supplier process.

Interoperability will only be achieved once there is a broad understanding of how this process will work and what the migration roadmap looks like.

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?*

Capgemini agree that the programme should provide leadership of the specification process. It is in the interest of Suppliers to be part of this process as their end systems will ultimately need to communicate with the specifications that are agreed. If their requirements are not captured at an early stage, or if Suppliers are not fully aware of the specifications, then the risk of non-conformance will be high resulting in costly change.

It is further recommended that subject matter experts experienced in building large-scale, highly secure data networks are included in this development process at the earliest opportunity.

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

Vital to the specification of the HAN is ensuring that the cornerstones are in place for home energy management services, without delaying its implementation because of uncertainty over what these future services may be and the full technical requirements required to support them.

One way to minimise specification delay would be to separate out the volatile solution elements from those requirements required for basic smart meter HAN operation. If the HAN is not interchangeable then an alternative approach could be achieved through the use of an integration device to, for example, ensure integration of future smart appliances to the HAN. The consumer electronics market is very capable of responding to this type of need. An integration device could convert between in home protocols, shifting the point of integration to the integration device itself, and not the smart meter system HAN.

This means that the HAN implementation can be baselined, and only requirements necessary to support this future channel operation will need specifying and not the detail. Typically these 'cornerstone' requirements that need to be defined now are, as an example, the ability to uniquely address X number of devices. The mechanics of the protocol used become immaterial as the integration device is now responsible for that element of the solution, isolating the HAN from change demanded by future devices. This will speed up the finalisation of the HAN specification and avoid timescale delays.

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?*

As articulated in the response to question 6, adopting an iterative approach is recommended. This would enable the functional requirements and technical specifications to be developed more quickly than the waterfall led approach proposed.

There is also significant consideration going into the future proofing of requirements. As a result specifications are being delayed whilst future scenarios are considered.

It should be noted that standards will always evolve over time. This is often desirable as technology advances make new services possible. Therefore to accelerate a rollout a common standard should be agreed now, baselined and issued to all stakeholders as the starting point. As new requirements emerge standards can be updated. As noted in the Prospectus, backwards compatibility then becomes key to system operation. Thought therefore needs to be given as how to govern the emergence of new standards and managing this change. Secondary to this is concern about what that change is. By putting effort into the right place has the potential to arrive at a set of agreed specifications at a rate quicker than the current plan suggests.

5 IN-HOME DISPLAY 94C/10

5.1 CHAPTER 2 – Functional Requirements of the IHD

Question 1: We welcome views on the level of accuracy which can be achieved and which customers would expect, in particular in relation to consumption in pounds and pence.

Paragraph 2.14 of the In-Home Display supporting document states that, “in terms of accuracy providing information on current usage in pounds and pence that reconciles with a consumer’s bill presents challenges because of the existence of standing charges, discounts and ad hoc charges.”

Capgemini would put it even more strongly – it will not be possible for the meter to produce a figure in pounds and pence that aligns with the bill.

We expect the customer to consider their view of consumption, and especially the value of consumption, to be the “master” information in the same way their bill is. We anticipate the customer will expect the utility to have the exact same information to hand if they are speaking on the phone. If the presentation of historical information is based on the information provided directly from meter to IHD, Capgemini expects that this will be a source of confusion between customer and utility.

In our experience, pilots of hourly reading systems have provided the IHD information via either the billing system or the Meter Data Management system in order to assure accuracy, even if that information is not available instantly. The best solution may be a hybrid approach where “indicative” information is provided in near real-time, and accurate information is sent from the back-end systems after it has been aligned with the bill, soon afterwards.

That said, giving customers a kWh consumed * cost = X , removing standing charges, discounts and ad hoc charges should give them the clearest picture of their usage month over month. We would suggest that bill layouts should be arranged, such that the consumer can reconcile bills with IHD information.

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.

Studies suggest it is savings in pounds and pence that drive consumer action. That said, they also suggest that reducing carbon emissions in the household is a nice side benefit for “green minded” consumers, albeit a secondary one.

If a CO2 indicator were to be included within the IHD functionality, it is important to make it visually impactful.

Also, Ofgem could consider offering an informational tab on the IHD with latest findings/statistics/literature on carbon emissions instead of a possibly confusing estimate of CO2 generation based on generation mix.

CO2 emission indicators, or green energy indicators have proven to be a powerful tool for behavioural change and it would provide context for the future vision for 2-way generation of energy.

Question 3: We welcome views on the issues with establishing the settings for ambient feedback.

The research highlighted in the Ofgem “Consumers’ views of Smart Metering Report” by FDS International (J7781/ad/sl) suggests that ambient feedback is a useful function for the IHD. There were, however, concerns that a red/amber/green (RAG) approach may scare some people into turning heating off or down at the expense of their own health.

One approach would be to grade gas and electric consumption according to an A-F scale, which is easy to correlate with good and bad behaviour, without alarming someone into immediate action. It may shame people into smarter choices moving forward, whereas a red light says “stop what you are doing right now!” Of course, to be appropriate, grades would need to be based on expected consumption given the season (or outside temperature) and the household profile. Research would need to be undertaken to determine the thresholds between grades.

Another possible approach would be to show expected usage versus actual usage – again, based on the season/temperature and household profile.

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?

Capgemini supports the obligation for appropriately designed IHDs for customers with special needs. Our market experts agree that the technology certainly exists to accommodate special needs consumers and this should therefore not be a showstopper for any energy supplier or IHD vendor.

We would encourage UK suppliers to include special needs customers in their IHD pilot projects. It will be important for suppliers to work with IHD vendors to incorporate the findings into their next generation products for the UK market.

Question 5: We welcome evidence on whether portability of IHDs has a significant impact on consumer behavioural change.

There is little specific research available to determine whether portability has an effect on behavioural change. Whilst the research cited – for example the report by FDS International – seems to indicate that consumers would prefer a mobile device (at least in the early days), it does not provide evidence that this would cause a clear impact on behavioural change.

In the absence of significant research findings, Capgemini would like to offer the following views and considerations:

- **Battery life** - The cost of a disposable/rechargeable battery, as well as the CO2 cost of requiring batteries should provide a strong case for a stationary or for the most part stationary device. Disposable batteries further come at an additional cost to the environment.
- **Signal Strength** – Signal strength might not be adequate in every part of a household. This might lead to frustration with the device and an increase in calls to the product help desk.
- **Mobile devices get lost** – Mobile devices in the home – such as portable phones and remote controls – can often be hard to find. How often do people have to “ping” their portable handset to find it? The benefits for a mobile device should therefore be further investigated before this option is considered. Smart home research that Capgemini has undertaken supports the installation of an IHD in centres of household activity, such as the entrance hall, the kitchen or the lounge. Should a portable solution be envisaged, we would recommend some simple mechanism by which it could be “pinged” – perhaps from a cradle.
- **Mobile devices have a higher risk of being broken** – the implications of the higher risk of breakage and repair/replacement would need to be addressed.

Question 6: Do you agree with the proposed minimum functional requirements for the IHD?

Capgemini is broadly supportive of the minimum functional requirements laid out in the supporting document. Capgemini would like to make three specific points:

- For ease of standards creation, bandwidth conservation and to minimize customer confusion as to what data is delivered when (especially in dual fuel situations), consider 15 minute incremental reads for both gas and electric. (Section 2.31).
- Consider using a “screen saver” type default screen that would display decided upon minimum details. Date/Time/Usage Graph/TOU pricing, etc. (Section 2.33)
- The value of ambient information for the shift in behavioural changes if gas & energy consumption can be correlated to temperature information. Research suggests that most savings derive from lowering the thermostat settings, easy programming of holidays or periods where households are unoccupied to ensure minimum temperature, but not over-heating.

5.2 CHAPTER 3 – Nature of the Mandate on Suppliers in Relation to the IHD

Question 7: Do you have any views or evidence relating to whether innovation could be hampered by requiring all displays to be capable of displaying the minimum information set for both fuels?

Two thirds of households are on dual fuel contracts, so suppliers will naturally want to put functionality for gas and electricity onto a single IHD to avoid the cost of having to provide two different devices. This should have the effect of helping to drive standards to ensure gas and electricity meters can both communicate with IHDs. Utilizing a modular solution similar to the Utility Smart Network Access Port, either supplier can either be held as the liable party to supply the IHD or act as secondary supplier. Having minimum requirements for both fuels will also drive innovation in helping the consumer to understand total consumption and cost across both fuels, as opposed to simply consumption for each fuel individually.

Where customers have different suppliers for gas and electricity, the fact that each supplier’s IHD supports both fuels means they do not need to introduce new hardware into the home in order to convert the customer to dual fuel. Indeed, a more innovative IHD may be a source of competitive advantage in this sense.

We therefore see no reason why the requirement to display the minimum set of information for both fuels would hamper innovation.

Question 8: Do you agree with the proposals covering the roles of and obligations on suppliers in relation to the IHD?

Capgemini agrees that there is little evidence to suggest that IHDs have an enduring impact on consumer behaviours. We also agree that consumer preferences are likely to change as technology develops. The whole concept of “consumerisation” suggests that people want to use the same devices for new applications as they already use for existing applications for example, the rise in use of “apps” on smartphones, iPads etc.

On this basis, it would seem reasonable to place an obligation on suppliers to maintain IHDs for a period of 12 months after installation. This is consistent with the usual warranty period for consumer electronics devices. The exception where the IHD is being used as the primary interface for a prepayment customer also seems appropriate. We would recommend, however, that Ofgem keep an eye on the actual longevity of devices to ensure they are not manufactured at lowest cost to last only just beyond the warranty period.

We share Ofgem’s concerns about the situation where the consumer refuses the IHD, but later wants to have one. Again, it seems reasonable to expect the supplier to provide one through a mechanism of their own choice to reduce their own costs.

It is, of course, up to the supplier to determine what services they wish to put around the IHD product. Looking at the consumer electronics market would suggest suppliers will include a basic 12 months service, but also innovate around additional services at different costs to the consumer – different levels of remote and onsite support, warranty extensions, product upgrades etc. These will all be part of building the customer relationship and generating new revenue streams as energy consumption is reduced.

We believe there should, however, be minimum requirements placed on the suppliers during the 12 month period. There should be a clear process for when the device does not work or the customer cannot reconcile the IHD data with the bill. Equally, there should be rules governing product breakage, especially for mobile devices where blame can be difficult to ascertain.

One question that we have not seen considered is the question of stewardship – does the device belong to the consumer or to the house/building, and how would a move be handled? If it belongs to the consumer, can first time buyers, for example, get a free new IHD. If it belongs to the house/building, previous owner information will need to be wiped on the date of the move (which will require an additional statement in the minimum functional requirements).

6 COMMUNICATIONS BUSINESS MODEL 94D/10

6.1 CHAPTER 2 - The Scope of DCC

Question 1: Do you agree that access control to secure centrally-coordinated communications, translation services and scheduled data retrieval are essential as part of the initial scope of DCC?

All of these services are critical to the success of smart metering. Without access control the network and more importantly consumers' data, will be open to attack by unauthorised users. There is a high risk of compromise and subsequent consumer unrest, regulatory fines and other legal action that will inevitably result. Not to mention the lack of consumer confidence and goodwill, without which the rollout may not succeed.

Translation services are also essentially to ensure that costs are kept to a minimum. The DCC, acting as a message broker, is the naturally place to perform this function. Otherwise translation functionality would need to be implemented by each Authorised User separately, significantly increasing the cost to implement smart metering for GB plc.

Scheduled data retrieval is another essential DCC function. If the DCC is not given control over the communications traffic on the WAN network then SLAs cannot be guaranteed. This will lead to increased deployment costs, as the DCC will need to cost the WAN based on worst-case network loading, assuming that all users are trying to connect at the same time. This will lead to an over specified (and therefore more costly WAN) that is largely under utilised.

Question 2: Do you agree that meter registration should be included within DCC's scope and, if so, when?

Meter registration to support industry flows is not an essential day one programme requirement. However, a directory of devices allowed to connect to the WAN is an essential requirement for securing the DCC network. The overlap between information held in the current industry meter registration database and that held by a DCC device directory suggest that a single DCC meter registration system could satisfy the dual information needs of meter registration and access control.

Therefore it is suggested that meter registration should be included over time. An enterprise architecture led approach is considered by Capgemini as the best way to manage the transition to a common industry meter registration system. Such an approach will help answer the when question by breaking the problem statement down into its component parts.

Arguments presented in the Prospectus regarding meter registration, both for and against initial conclusion are both missing a vital point - adoption does not have to be big bang. We have a current (baseline) industry architecture and we have a target architecture (DCC responsible for meter registration). In order to get from one place to another we would plan transition steps, biting off a piece at time and reducing risk as we go. So to answer the 'when' question we first need to break down the debate over inclusion into more granular chunks.

Consider the following questions:

- What is the absolute minimum amount of meter registration functionality required by the DCC on day one?
- What is the advisable amount of meter registration functionality required by the DCC on day one? (capex vs. risk)
- How do we reduce architectural risk over the life of the implementation?
- What is the roadmap that will take us from the baseline to the target architecture?
- What does the transition architecture look like?

This questioning helps us to identify distinct functions of a meter registration system that we can explore in greater detail, e.g. functionality to support:

1. The preservation of security in the DCC network
2. The registration of smart meters
3. The registration of legacy meters
4. The change of supplier process

We can then attribute timelines to the more granular functionality.

Preserving security is a day one function and an absolute minimum for the DCC. Therefore the DCC must maintain a list of authorised smart meters connecting to the DCC network. It is a thin registration function - the registry would need to hold just enough data to ensure that end-point devices can be identified. No other details need be held. For a meter the data set required is a unique meter identifier, the network address of its location and security credentials that are relevant for access control. Other data can be mastered on alternative systems if required, with a forwarding reference to where that data is held.

Next up is the full registration of smart meters by a DCC system. If we are installing a new meter we make a clean start with the data held on that smart meter. That is we avoid taking on legacy data into the new system, avoiding concerns over poor quality legacy data. The meter registration function expands to hold more information than that required for access control. Legacy records would remain on legacy systems.

We then consider the DCC taking on the registration of legacy meters. This can be a migration from the current service suppliers or even not at all. As the population of active meters on this database diminishes over time to 0 after 10 years, there is a potential case not to migrate the registration of legacy meters to the DCC at all.

The change of supplier process requires more detailed consideration. There is a strong business case to overhaul the current industry process. One idea might be to run a new smart change of supplier process via the DCC, whilst utilising existing supplier integration into the legacy change of supplier process for legacy meters. This would avoid the majority of the cost of changing current systems as legacy data flows remain as is.

There may be underlying constraints that prevent some of the initiatives identified above from being realised, but the point is that we have identified a transition architecture that allows the energy industry to move towards its target architecture in manageable steps whilst reducing risk along the way.

Question 3: Should data processing, aggregation and storage be included in DCC's scope and, if so, when?

'Buffering' (which is a form of storage) of meter readings is essentially in order to reduce network traffic, as multiple authorised parties may need access to the identical data, e.g. supplier, DNO and generator. Initially data does not have to be stored in a highly structured way, i.e. the data does not have to be dissected beyond its initial payload.

As time increases further intelligence can be built into the system to support structured data needs, data processing and aggregation. For example a data warehouse could be added to add business intelligence capability to the solution and improve reporting. A data pass through solution however, will result in smart meters being queried for identical information, increasing the throughput requirements of the network and therefore increasing cost.

The take on of data processing and aggregation, whilst costly to implement, will deliver significantly lower operational costs. It is not recommended that these functions are included in the initial scope of the DCC, but their inclusion is planned in transition steps.

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?

Critical areas of the DCC solution, such as security, will need defining to a sufficient level of detail to allow early adopters to proceed with minimal risk of stranded assets.

The DCC should not, under any circumstances, take on an early adopter solution that does not meet the minimum security requirements of the full DCC solution. Security is an end-to-end consideration. The DCC taking on communications contracts meeting certain pre-defined criteria is not enough on its own to ensure that security can be preserved throughout the DCC solution.

6.2 CHAPTER 3 – The Structure and Realisation of DCC

Question 5: Do you agree that the licensable activity for DCC should cover procurement and management of contracts for the provision of central services for the communication and management of smart metering data?

No we think that the License holder and the system integrator/provider typically require different skills and experience. We don't think there is a single company that can fulfil the role of being able to implement the legislation and at the same time be responsible for overseeing the many thousands of judgements that will be needed to implement the DCC. The two can and should be separated in our view and there is no reason why the competition to select the System Integrator cannot be bought forward to precede the selection of the licence holder.

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?

The DCC should be a separate independent company from the energy suppliers. A company should be selected that either has no affiliation or ownership interest from energy companies or is owned jointly by them.

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?

We expect that Government would naturally mandate that the license holder should employ the same procurement standards that are required by European Government bodies. This means that following the selection competition the successful company would then have to embark upon its own open competitive process which in our view cannot be completed in less than 10 months. Similar projects have typically taken eighteen months to implement giving a total elapsed time of two years four months from the selection of the licence holder to a full “go live”.

Question 8: Do you have any comments on the proposed approach to cost recovery and incentivisation for DCC?

We expect that the DCC would receive its remuneration from the services it provides to the Suppliers primarily for the delivery of meter reading and other services.

7 DATA PRIVACY & SECURITY 94E/10

7.1 CHAPTER 3 – Data Privacy

Question 1: Do you have any comments on our overall approach to data privacy?

Capgemini support the principles as detailed in the Prospectus.

Putting the consumer at the heart of the process is key to the success of the programme. To this end the following comments are offered to support the Privacy by Design principle.

- Define the personal data sets now.
By being clear on the data available to each stakeholder will help to prevent issues downstream that data has been collected for purposes other than for what it is intended. This will additionally help to allay consumer privacy fears.
- Define a common consumer consent framework.
Having a common easily understood consent model will aid supplier switching and help the vulnerable in making informed choices. Otherwise a consumer may have to interpret each supplier's terms and conditions potentially lead to misunderstandings about who can access their personal data.

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.

The level of data aggregation and frequency of access to smart metering data necessary to fulfil regulated duties is not expected to change (at least initially).

However, the timeliness and accuracy of smart meter data presents a significant opportunity to create better legislation and compliance. Better reporting will result in earlier action and ultimately a better service for consumers.

The pace of change is best decided by industry and government working together.

Question 3: Do you support the proposal to develop a privacy charter?

Capgemini fully support the development of a privacy charter. The principles defined in the DPA need to be developed into specific responsibilities related to the collection, handling and processing of smart metering data. This will help to reassure consumers that their data is being handled safely and not in ways that could be exploited for other means. Handling of any kind of personal information is a very sensitive issue that will quickly attract publicity and accusations of 'big brother' intrusions.

All industry participants must sign up to this charter, and a body must be established to monitor breaches of this charter and quickly react to remedying issues. Breaches of the charter resulting in, for example, information loss will undermine public confidence in the programme and threaten the very success of the programme.

Question 4: What issues should be covered in a privacy charter?

A privacy charter should include the following issues as a minimum:

- A clear definition on what personal data comprises
- Who will be able to access personal data
- The specific purposes for which the data can be used
- Clear guidelines on how long data items are held on to
- Defined accountabilities for anyone processing or handling data, including responsibilities in case of a breach
- Principles on how data is secured, copied or passed to third party organisations
- A common consumer consent framework for all participants, where the consumer is able to choose who has access to their data items in a uniform way
- Guidelines for audit so that changes to customer information can be tracked
- Standards for ensuring that data is checked for accuracy and procedures for correcting inaccurate data in a prompt manner
- Consumer rights, including the ability to obtain any data held about themselves and to request changes to inaccurate data

7.2 CHAPTER 4 – Smart Meter System Security

Question 5: Do you agree with our approach for ensuring the end-to-end smart metering system is appropriately secure?

Capgemini believe that a number of additional measures are required to secure the end-to-end smart metering system.

- Appoint a central security governance body.
Early adopters have the potential to threaten the security by design model. The Prospectus states:
“The security requirements will inform the design of the system, where data is stored and the obligations that government will place upon participants in the end-to-end system.”
Therefore security requirements and design of the system needs to be in place before early adopters begin to rollout implementations, otherwise the risk of non-compliance of early adopters to the overall security design will be high, increasing the likelihood of stranded assets. A central body needs to be appointed with haste to ensure that security governance is in place to avoid these unnecessary costs.
- Widen the scope of the security compliance framework.
The measures as stated in 4.13 are technical measures, appropriate consideration needs to be given to aspects such as physical security and people issues, e.g. social engineering.
- Define additional security measures for ‘special’ consumers.
As pointed out in the Prospectus, the level of available information may lead to patterns of consumer behaviour being revealed. Passing knowledge of when a person is home (determined by their energy consumption) to an unauthorised party is a distinct risk, especially to high profile individuals. For example providing the Prime Minister’s whereabouts to a terrorist organisation by a rogue employee of an energy company could pose a significant threat. Special measures may need to be introduced on any system that holds this data so that access to these records can be further restricted to only a restricted few. This type of arrangement exists on other national databases such as the NHS Spine Demographics system.

8 IMPLEMENTATION STRATEGY 94F/10

8.1 CHAPTER 2 – Programme Management and Governance

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

Capgemini believes there could be substantial benefit from Ofgem and DECC engaging with Governments or Companies from other geographies who have already executed similar or related exercises.

Large scale and successful rollouts of Smart Meters and associated infrastructure have been implemented in Canada (Ontario); Sweden; Italy and the USA.

We think there could be considerable benefit from:

- Reviewing the Governance structures employed;
- Reviewing the programme planning and lessons learnt;
- Looking at the business cases and how accurate these proved to be post implementation;
- Reviewing how the consumers were engaged throughout the process;
- Reviewing how the media were engaged throughout the process.

Capgemini would be happy to assist Ofgem E-serve and DECC by enabling information exchange and collaboration with its Energy and Communications clients across the globe, many of whom have faced similar challenges.

8.2 CHAPTER 3 – Programme Activities

Question 2: Are there other cross-cutting activities that the programme should undertake and, if so, why?*

Capgemini agree with the cross-cutting activities outlined in chapter 3, but would suggest the inclusion of these additional areas:

- Media Engagement.
 - Although a communications and marketing plan is included as part of the planned activities, the support and effects of mass media reporting in the run-up to the deployment and beyond should be carefully considered. We recommend that one or more UK media organisations be invited to take part in the stakeholder expert groups to allow for maximum support of this almost unprecedented undertaking.
 - Experience can be gained from looking at the media management and media impact for other major infrastructure projects, events and rollouts for example the Natural Gas conversion project and the London 2012 Olympics.
- Meter Deployment – coordinated planning
 - Capgemini recommend a workstream to look at how Smart Meter deployment activity can best be centrally coordinated and planned.
 - The purpose of this coordination is to ensure that there is a logical and systematic rollout of infrastructure and meters by the various Energy companies and their contractors.
- Capgemini recommends the inclusion of data from similar rollouts in other geographies into the Business Case review and also the Risk Management Register and planning activity.

8.3 CHAPTER 5 – Implementation Plan for Regulatory Framework Changes

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

Capgemini agrees with this phased approach, with the additional considerations as outlined in our responses to the questions below.

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?*

We recommend that consideration should be given to how consumers can change supplier with ease and still retain a smart meter (interoperability), prior to the go-live date for DCC procured central communications infrastructure. This may reinforce the need for an interim communications infrastructure and additional non-regulated cooperation between suppliers, some of whom will be more advanced in their initial rollout plans than others.

Further consideration should be given to the fact that some Energy Retailers are already rolling out Smart Meters now, ahead of any agreed standards. Although this activity is clearly at the Retailer's own risk in financial terms, if a change of smart meter is required then this may have a negative effect on the consumer and indeed on the perceived management of the entire programme.

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?*

Our main suggestion is to include measures that provide for the implementation of an interim DCC able to satisfy the communications requirements of an accelerated rollout and to create a central planning forum so the rollout can proceed in an efficient manner.

In addition Capgemini suggest that the way to bring forward the rollout and better manage the additional risk is to use the experience, process and systems developed for similar rollouts elsewhere in the world.

Some countries have already rolled out smart meters or AMR infrastructure to their entire domestic market for example Italy and Sweden. Other countries have also rolled out central communications infrastructure and Smart Grid to support their meters for example the province of Ontario, Canada.

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?*

Capgemini believe that this part of the overall timetable is probably the hardest to achieve. There are significant challenges to implementing such a major UK wide infrastructure in such a relatively short period.

Perhaps one of the greatest challenges would be faced by a “big bang” type switchover to the central communications facility for those meters already rolled out at that point. However that risk could be mitigated in part by allowing those early rollout meters to continue to use their initial means of communication to run in parallel or as back-up to the new central communications facility for a period of time post go-live.

Another way to mitigate this risk is to have an interim central communications solution up and running prior to the awarding of the DCC licence. Infrastructure and Service providers would then be bidding to take over the running of the interim solution and increase the capability of that base infrastructure as opposed to building it from scratch over a 6 month period.

Question 7: Do you have any comments on the activities, assumptions, timings and dependencies presented in the high-level implementation plan?*

We would suggest the addition of the following assumptions:

- The roll out plan needs to be defined and able to be communicated in a manner that allows consumers to see where they fit within it
- If the implementation is accelerated the transition of the meters implemented prior to the mandatory DCC availability must as far as possible be able to be compliant with the implementation potentially through the support of a “legacy” communications architecture
- The roll out plan should include measures to ensure the competence and security credentials of the personnel carrying it out

Question 8: Do you have any comments on the outputs identified for each of the phases of the programme?*

We believe that some of the activities need to be bought forward (as we have outlined elsewhere). While these implementations may be regarded as a vanguard or volume pilot stage in each case we believe they should be recognised in the phase-by-phase planning.

9 ROLL OUT STRATEGY 94G/10

9.1 CHAPTER 2 – Approaches for Rollout

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

Capgemini believes that the proposed approach can provide the right balance between supplier certainty and flexibility to ensure the successful rollout but needs to be adapted. Fundamentally the energy retailers are the companies being asked to bear the cost of the deployment including the installation and they should have the right to control these costs within the targets that the Government wishes to set. We agree the initial phase will be characterised by consumer pull as the Prospectus describes and that there may be a need to move to a different approach (Approach 3) in the later stages. But we believe a much more active co-operation between the suppliers is needed to make the rollout seem to be logically planned and not a random exercise based on the individual suppliers view of the order in which customers should be implemented. We could call this a highly collaborative Approach 1.

We are strongly of the view that a governance and legislative framework must exist around the rollout to make it proceed in a way which will be seen by consumers and the public generally as a planned orderly deployment and not a “muddle”. The contact with the public at the point of installation is the most visible aspect of the whole programme and the issue of multiple visits and a seemingly uncoordinated deployment plan (“they can’t even tell me when my street is to be done”) we think will lead to public dissatisfaction and adverse publicity. We have outlined a proposal to address this issue in our response to the Prospectus Question 3 which we reproduce here for ease of reference.

We recommend that Ofgem actively encourage the Supplier community to create something like a National Rollout Coordination Authority to collaborate on both the rollout planning and the selection of sub-contractor organisations. A competition could be held to choose a subcontractor (and a reserve) able to carry out installations by geographic region for example who would then work on behalf of multiple suppliers within a plan that provides a deployment that as far as possible optimises the installations on a geographic basis. This Authority (which could have Ofgem and Supplier representation) will be able to work with local organisations to set priorities. Clearly there will still be the possibility of unitary installations to meet specific circumstances but the goal should be that the majority is according to a defined plan. This will allow local authorities for example to expect that the implementations will occur in the pre-planned areas and they can inform the residents to expect the appointment call and visit (reducing the likelihood of bogus installers for example).

This body could (optionally) be made responsible for making the installation appointments. It would require funding by the Suppliers but should be more efficient than the suppliers each establishing their own processes and facility and therefore should be attractive to them. This client contact role could be included in the responsibilities of the interim DCC supplier if our recommendation of bringing this forward (see later) is followed.

Our experience in Sweden is that the Suppliers are generally happy that the customer contact is carried out by a third party because establishing the call centre capacity is transient. In this scenario the call centre operatives can represent each of the energy suppliers to make the appointments in a logical co-ordinated sequence.

Question 2: Would the same approach be appropriate for the non-domestic sector as for the domestic sector?*

Yes for the same reasons. The setting of targets for the non-domestic sector is likely to be more difficult. This sector, as noted, already has Automatic Meter Reading (AMR) installed in a considerable percentage of cases. Small and medium enterprises may already manage energy consumption, again as noted, possibly through third parties and they may therefore be more resistant to changing these arrangements. We (like you) think more work is needed to plan the rollout for this sector.

Question 3: Is there a case for special arrangements for smaller suppliers?*

No they should be included in exactly the same way as the larger suppliers and may benefit greatly from the mutualised investment that we recommend.

9.2 CHAPTER 3 – Mechanisms for General Consumer Engagement

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

We believe that a national awareness campaign with a consistent branding is necessary. A good example of an effective National Campaign which encouraged take-up was the HMRC on-line filling campaign. Its scope should be as you have set out in your document.

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?*

We believe that Ofgem should establish a working group to engage with the “big 6” suppliers. This group should define the best practice for the code of practice. Be provided with draft versions for review and provide a conduit for each of the suppliers to exchange ideas.

9.3 CHAPTER 4 - Obligations on Suppliers to complete the roll out

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?*

Yes we agree with the proposed obligation. A completed installation is one in which a meter is connected to the mains electricity supply, is activated and has successfully transmitted its first reading to the DCC.

Question 7: Do you think that there is a need for interim targets and, if so, at what frequency should they be set?*

Yes, we suggest annual targets to give suppliers flexibility within year.

Question 8: Do you have any views on the form these targets should take and whether they should apply to all suppliers?*

A percentage of current installed customer base is a good overall measure. If you accept our collaborative Approach 1 recommendation, subsidiary targets can be agreed as part of the planning process involving local organisations and interest groups.

Question 9: What rate of installation of smart meters is achievable and what implications would this have?*

As noted in the prospectus the present supplier capacity to carry out installations is established to be able to service the demand for traditional meter replacements (at the rate of 10,000 meters per day nationally). 10,000 meters per day for a pure replacement process implies a dedicated workforce of perhaps 2-3000 installers. This seemingly high number is because the replacement process is triggered mainly by age or failure conditions and therefore the geographic spread is not able to be optimised (installers can travel a long way between jobs). For a Smart Meter roll out the geographic progression (street by street) should be able to be better optimised (see our proposals above) but this is counterbalanced by the fact that a Smart Meter installation is significantly more complex especially as it involves fitting a separate wide area network/home area network communications gateway device(s) and an IHD all of which needs to be tested. The existing Supplier workforce will need to continue to support the population of electromechanical meters until they are replaced and therefore cannot be considered to be available although some will be able to be retrained as the rollout progresses. We think an additional workforce of between 2,000 and 4,000 installer teams would be appropriate and believe an installation rate of 6 per team per day is a reasonable working figure if the deployment proceeds on a geographically optimised basis.

9.4 CHAPTER 5 – Prioritisation of Specific Customer Groups

Question 10: Do you have any evidence to show that there are benefits or challenges in prioritising particular consumer groups or meter types?*

We do not have any evidence to suggest that prioritising particular consumer groups benefits the roll out. It may, of course, benefit the consumer groups but it does complicate the roll out task. The justification for doing this has to come from elsewhere. We think that in the main the rollout should proceed geographically.

9.5 CHAPTER 6 - Reporting Arrangements

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

We agree with the proposed approach and believe suppliers should provide at least the following information:

- Number of meters planned to be installed
- Actual number achieved
- Geographic breakdown of installations
- Breakdown of installations which were carried out because of a specific request from a local organisation or interest group
- Number of installations carried out as a result of customer request
- Breakdown of the reasons for failed installations
- Number of successful installations that failed to result in a successful message test to the DCC

The information should be provided monthly.

9.6 CHAPTER 7 – Consumer Issues

Question 12: Do you agree that there is already adequate protection in place dealing with onsite security or are there specific aspects that are not adequately addressed?*

No we believe that installer personnel should have been subject to and have passed a verification regarding UK residency status and a check against the criminal records database sometimes called a basic check.

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?*

In order to achieve a high standard of installation practice we believe there should be a national qualification process possibly using the NVQ route or an industry sponsored course leading to a competence standard similar to CORGI certification for gas installers.

The comparison between this programme and the Digital Television Switchover is in our view not very helpful. The digital switchover didn't require any external agency to implement devices in consumer's homes and television owners had no choice because the existing analogue channels were being switched off on a certain date. A better comparison would be to the switchover to the use of Natural Gas in the late 60's and 1970's. This programme did entail customer visits with a physical installation, required consumer acceptance and agreed access to premises and indeed helped to improve the standard for gas installers in the UK. We believe that Ofgem should be concerned to implement a training and certification scheme and should be directly involved in its establishment rather than leaving it to industry.

The scheme should improve standards and ensure compliance because the risk of faulty work giving rise to either unsafe installations or multiple visits to rectify aspects of the installation that don't work will give rise to a poor public perception of the programme (and quickly generate adverse publicity).

10 REGULATORY & COMMERCIAL FRAMEWORK 94H/10

10.1 CHAPTER 2 – Smart Metering Regulatory Regime

Question 1: *Have we identified all of the key elements that you would expect to see as part of the Smart Metering Regulatory Regime?*

The key elements are there, but we have a few comments on the introductory statements:
In 2.8 “empowering them to better manage” should surely be “enabling them...”

Regarding “Customers will benefit from streamlining the change of supplier process in terms of enhanced competition and improved experience”, streamlining will not occur until the old processes are completely removed, until that time they will actually be complex because old and new processes have to co-exist.

We would also expect to see some reference to:

- Statutory meter change process
- Regulatory-driven infrastructure upgrades
- Who pays for obsolescent infra mandated by Ofgem e.g. dead SIM cards
- SLA between DNO and DCC regarding meter operations and delivery of readings.

10.2 CHAPTER 3 – Smart Energy Code

Question 2: *Do you agree with the proposal to establish a Smart Energy Code?*

We agree a Code is needed and we agree with much of the content but in certain areas we differ in our opinion about the best way forward.

For example, remote disconnect is a process with many exceptional situations which can stop a consumer from being eligible for disconnection. For example they might pay their bill after the DCC was instructed to cut them off. How will the regulator validate supplier business process, to protect customers from being cut off by bad business process from the supplier?

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

It seems quite comprehensive. There may need to be more emphasis put on rollout process services as these are especially complicated and require a lot of Head End interaction with supplier systems. Our concern is that when everyone is doing it the DCC service level may not have the capacity to deal with all of the rapidly changing requirements.

We are of the opinion that the process for dealing with manual readings should be left as untouched as possible.

Question 4: *Do you have any comments on the most appropriate governance arrangements for the Smart Energy Code?*

Our only comment is this is a huge subject that we could not do justice to here. We have an excellent understanding of the industry structures and legislative framework and would be more than pleased to provide Ofgem with a full recommendation of the most appropriate governance arrangements at our usual commercial terms.

10.3 CHAPTER 4 - Roles and Responsibilities at Customer Premises

Question 5: Do you agree with the proposals concerning the roles and obligations of suppliers in relation to the WAN communications module?

Broadly yes but we have some questions:

If suppliers own the WAN module and the customer has a different supplier for gas and electricity, how will the supplier know if they need to put in a WAN module or not when it comes to planning the deployment? The DCC will need have to have an asset register to enable suppliers to find out what is already in the home.

We understand why the tariff is required on the meter to give pounds and pence. But doubt it will be possible to give an account balance (for non-PP customers) since packages include other factors more than just consumption. It will in our view be impossible to keep the meter in step with suppliers billing systems.

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.

“...to support this, we propose that suppliers will have an enduring obligation to ensure that the data set can be accessed by the consumer via the HAN.”, “may include historical half hourly data stored in the meter, MPAN number, as well as a list of devices connected to the HAN.”

We think this is an excellent opportunity to ensure that the current situation whereby suppliers sometimes lose contact with the deployed hardware in the home can be mitigated effectively. The HAN should not just have a list of devices connected, but should contain an industry-standard catalogue of configurations of all devices including vendor make model software level, configuration level. This way it will always be possible for suppliers to synchronise their databases with the reality, and enable customers to give new suppliers the facts in the COS process.

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?

We think the appropriate owner is the DCC but recognise that Ofgem does not favour this. In general we do not believe that the WAN element should be part of the physical electricity meter, and therefore by default we agree with the proposal. That said, such a unit is not currently widely provided as off-the-shelf infrastructure, therefore there is no market yet, and the price of such a unit could end up being artificially high.

10.4 CHAPTER 5 – Other Regulatory and Commercial Issues

Question 8: Are there additional measures that should be put in place to reduce the risks to the programme generated by early movers?

Conflict between the standards and the implementations adopted by early movers could weaken the code or create resistance to moving to the DCC. We believe that early movers should be obliged to comply with the code and this should apply retrospectively, meaning that customers who have been equipped by early moving suppliers should be retrofitted with compliant equipment once the standards are finalised – at the early moving suppliers cost.

Question 9: What is needed to help ensure commercial interoperability?

We see risks in the following technical aspects:

- The telecommunications supplier for the GPRS service (or whatever the communications mechanism is) must not be able to demand that meter equipment such as a SIM card must be changed in order to provide the service for a meter.
- The DCC must be able to change the configuration on the Meter/WAN gateway to enable it to transfer from the old supplier head end to the new supplier head end.
- The HAN data set must be updated and the code must make it clear by whom.
- The new equivalent of “D-flows” must be careful to co-ordinate the timing such that Asset Register systems have the meters deleted from the old supplier and added to the new supplier in a timely manner, enabling the new supplier to carry out diagnostic work from Day 1.

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?

In other countries where Smart Meters have been implemented, the Supplier is wholly responsible for the health of the metering points. Where the DCC is responsible for a fault, there must be prompt and effective arbitration of the cause of failures. In the circumstance that readings are not delivered, Suppliers should not suffer any financial penalty due to a fault occurring in the DCC domain.

Question 11: Are there any other regulatory and commercial issues that the programme should be addressing?

Capgemini proposes that an interim body is established to provide the necessary governance and development of pilot initiatives. This will ensure greater levels of interoperability and market consensus for the “to be” architecture and technical landscape. We also recommend that a phased transition and simplification approach to streamline existing industry processes is adopted which will deliver large cost savings over the longer-term and a more flexible market environment enabling easier customer switching and the delivery of the smart grid vision.

10.5 CHAPTER 6 – Impact on Wider Industry Processes

Question 12: What evolution do you expect in the development of innovative time-of-use tariffs? Are there any barriers to their introduction that need to be addressed?

The expected evolution of tariffs’ is a question that should be able to be answered by Suppliers.

Question 13: Are there changes to settlement arrangements in the electricity or gas sectors that are needed to realise the benefits of smart metering?

Capgemini believes that the deployment of the smart meter infrastructure provides the basis to fundamentally re-engineer existing industry processes. We recognise that this is a significant challenge and we do not estimate the amount of effort required to undertake such a change, however we do believe that this will be required to deliver the DECC vision for the future UK utilities and energy industries in the UK. Simplified industry process will create a more flexible and simpler market platform to allow consumers to benefit from a wide range of products and services.

However Capgemini recommends that the DCC should not assume responsibility for the management of the current meter infrastructure and associated industry processes and flows, as this will create program complexities and costs which will decelerate the pace at which benefits and cost savings can be created and in fact potentially create the opposite effect of spiralling costs due to increased business process and system complexity during the transition. Through the deployment of the new smart meter infrastructure we have concluded that the optimal solution will be to embark upon a phased and systemic business process reengineering approach alongside the smart meter roll out which will result in a simplified market and industry environment, supported by fewer and simpler data flows enabled through the deployment of the associated digital technologies. Therefore, retiring the old set of industry processes at the same pace as migrating away from meter infrastructure, referred to as the “withering on the vine” approach, is our firm recommendation.

There is a clear correlation between the depth of the process reengineering, the simplification of core industry systems and processes under the new DCC and the business benefits and cost reductions delivered to consumers and retailers. The greater the degree of centralisation of these activities the wider the remit for the DCC and the complexity of change required and costs to the smart meter implementation program. This is why we believe that a “thinner scoped” DCC represents the best initial option in terms of delivering rapid benefits to the program whilst managing program complexity and cost.

This approach allows for accelerated industry rollout on a largely ‘as is’ basis regarding industry arrangements. The vision is that existing arrangements are utilised as much as possible negating the need for change to business processes at the same time as establishing the DCC. This allows risk of change to be reduced, albeit the benefits associated with process optimisation will not be realised. With this option the DCC becomes a hub for meter readings: connections are provided for network operators, suppliers and their agents. The role of the Data Collector or Meter Reading Agent role will remain the same, with the exception that the Data Collector will use the DCC to remotely read the meter rather than manually visiting the premise. The Data Collector sends meter read data at the same frequency to other industry recipients as before.

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?

The prospectus rightly regards these suppliers as a part of the mandated DCC metering community. As long as they are subject to the Smart Energy Code then we would expect that commercial pressure will encourage them to exploit the features available to them and their customers.

Question 15: Are there any other industry processes that will be affected by smart metering and which the programme needs to take into account?

There should be a plan for bringing water metering into the code.

11 NON-DOMESTIC SECTOR 94I/10

11.1 CHAPTER 3 – Flexibility for Installations of Advanced and Smart Meters

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

There are no technical constraints preventing any feature that is available in an advanced meter from being made available in a smart meter. The constraints will be commercial, such as the manufacturing cost associated with producing such a low volume meter. Manufacturers may also be slow to cater for this additional functionality in their products, endangering any timelines laid down for smart meter implementation.

We have no comment to make on non-domestic customer numbers.

Question 2: Do you agree with our proposed approach to exceptions in the smaller non-domestic sector?

We have no comment to make on the industry approach to exceptions.

Question 3: Are there technical circumstances that we have not considered that would justify further flexibility around installation of either smart or advanced meters?

We have no comment to make regarding the need for further flexibility around installation.

11.2 CHAPTER 4 – Use of DCC to Communicate with Meters in the Smaller Non-domestic Sector

Question 4: Do you agree with the proposed approach that use of DCC should be optional for non-domestic participants in the sector?

Mandating the use of the DCC is likely to give an advantage to those industry participants who operate in the domestic sector and are therefore already planning to amend their systems to operate in a DCC world.

It may not be economically feasible for the participants with only a handful of customers who operate only in the non-domestic sector to build new systems in time to take advantage of DCC services.

Additionally non-domestic suppliers often offer specialised services and/or advanced meters that the DCC may be unable to support. Customers will not want to accept a new service that is unable to provide them with at least the same level of functionality than they already have.

However, over time DCC services should evolve to support the additional functionality required by non-domestic suppliers. At this time it would make commercial sense for those suppliers to switch to DCC services.

In summary, mandating the use of DCC is likely to reduce competition (at least initially) in this sector and stifle the innovation provided by some of the specialist suppliers in this marketplace. We therefore recommend an elective use of DCC services with a potential mandated date in the future once the DCC is in a position to support all the need of non-domestic customers.

Question 5: If use of DCC is not mandated for non-domestic customers, do you agree with the proposed approach as to how it offers its services and the controls around such offers?

We have no comment on this question.

Question 6 To what extent does our proposed approach to the use of DCC for non-domestic customers present any significant potential limitations for smart grids?

If non-domestic customers do not use DCC services then some of the benefits associated with a smart grid may be diminished. Smart grid is about intelligently sharing data between devices on the network to deliver benefits to that network. If we don't have information from 7% (2m in 29m) of smart meters on that grid then we are missing a useful chunk of information on the status on those devices. This will reduce the effectiveness of the grid, and associated grid benefits will also reduce.

However, as a large proportion of non-domestic customers will have similar requirements to that of domestic customers, it is envisaged that the use of DCC services will be widespread, as it is likely to provide the most cost effective option for these customers.

Question 7: Is a specific licence condition required to ensure that metering data for non-domestic customers can be provided to network operators or DCC, and should any provision be made for charging network operators for the costs of delivering such data?

We have no comment on this question.

Question 8: How can interoperability best be secured in the smaller non-domestic sector?

Technical interoperability is best secured by using open, international standards. Meter manufacturers best drive standardisation. It is important that UK standards do not diverge significantly from international standards. As the market for specialised non-domestic meters is small, manufacturers will be reluctant to create UK variants in small numbers.

No comment is provided on commercial interoperability.

11.3 CHAPTER 5 – Other Issues Related to Non-domestic Customers

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

The level of data provision should be driven by customer needs, and therefore by contract between supplier and customer. As the non-domestic customer base is diverse in its requirements, a minimum set of requirements adds the risk of delay to rollout whilst agreement is sought as to what this minimum standard is. Further, there may be no common minimum standard, or suppliers incur cost providing services that their customer base is uninterested in.

It is assumed that if DCC services are used, non-domestic customers will be afforded the same level of provision as domestic customers, which would then form the minimum requirements.

Question 10: Do you agree with our approach to data privacy and security for non-domestic customers?

Capgemini agree with the general approach and principles suggested, although we suggest that there may need to be additional work carried out to separate out smart and advanced meter guidance. This is because common requirements may not be achievable, for example, advanced meters may not support the same level of data encryption as smart meters.

Question 11: Is the proposed approach to rollout (for example in terms of targets and a requirement for an installation code of practice) appropriate for the non-domestic sector?

Due to the diverse customer base, a common code of practice would be difficult to produce that would be applicable to all. If the customer base cannot be easily segregated into sub-types, basic guidelines should be produced and these guidelines will need to be tailored depending on the sub-type.

Developing targets should be carried out in the same way. The customer base will need to be segregated into sub-types, and targets applied to the sub-types. Penalties must be carefully balanced against incentives. If the customer base is simply too diverse then targets will drive the wrong behaviour in suppliers. However, the complete lack of targets will not encourage rollout.