# Response of Siemens to:

# OFGEM Smart Metering *Prospectus* and SMIP papers 94b, 94f and 94g – Questions requiring a response by 28 September 2010

## *Statement of interest*

You may know that Siemens, through its Metering Services division, is one of the largest independent providers of metering services to the electricity gas and water industries in the UK.  It serves all segments from individual consumers through SME and commercial up to major energy users.  Through its other divisions Siemens provides generation, grid, distribution, and connection solutions on a large scale.  Its industry division also provides smart-home white-goods and smart building control solutions from a residential up to an industrial scale.  Finally it provides Secure Data Management and IS services to government departments, local authorities, health services, and other major institutions.  Siemens is active in these segments throughout Europe and much of the rest of the world.

## *Responses to questions*

## *Prospectus*

**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)?**

**A P2.3\***
We welcome the proposed approach to ensuring that customers enjoy a positive experience.  An important factor in delivering this is how well customers' expectations are managed before, during and after the installation of their new meters.  We have offered more detailed comments in our reply to questions in section 3 of the Rollout Strategy.

To facilitate a positive experience the programme must ensure that:

- Most installations are completed in one visit to the home.  All others are completed in two.
- The whole experience is "joined up" (including gas and electricity installation, customer briefing on the IHD, availability of meter data), and billing based on the

new smart metering is initiated from day one from both gas and electricity suppliers.

- Any issues with the existing installation are resolved on-site with minimum customer involvement.
- The home visit is made in a timely fashion. Two-hour appointments may represent a good compromise between speed and avoidance of failed jobs.
- Interoperability – e.g. change of supplier *during the planning stage* does not provide issues for the customer.
- Clear customer support is available and there is clear ownership and management responsibility for the connectivity in all circumstances including meter change, supplier change, WAN or HAN Change

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We believe that special attention should be paid to prevent unfair/unwanted cross-selling activity at the time of smart meter installation, as contemplated in 2.32 of the Prospectus. For example many consumers already have contracts with open market competitors for energy-related, communications and maintenance services, and an objective of the SMIP (eg in para 2 of the Executive Summary) is that this competitive market continues to develop. It would not be consistent with this policy if one segment of the industry was able to foreclose independent competitive activity by exploiting home visits to promote its own energy management products. By extension, we think it would also be undesirable for smart meter installers to act as agents of any other third party.

We agree that there may be certain customer groups that could need special attention but these will be best addressed once the systems and the DCC are well established and robust ubiquitous communications are established. This approach will ensure that plans are soundly based so that customer expectations can be confidently managed.

We welcome a code of practice as proposed in 2.31

**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?**

**A P3.6\***
We are broadly in agreement with the requirements set out in the Functional Requirements Catalogue and particularly strongly welcome the statements on modularity, for example in the Statement of Design Requirements section 4.42.

There are at least two areas that would benefit from further development.
(1) There should be improved detail on the capability of the metering system to support a range of remotely-initiated alerts, and to prepare for some of the foreseeable smart grid applications like demand response and e-vehicle support. Even if these applications do not form part of the initial wave of smart metering, it is still possible to specify the *extent* to which new firmware versions can be remotely down-loaded into meters to offer new functionality.

(2) We believe that the HAN situation still needs further clarification. We believe it is not desirable that different suppliers should fit meters with different, integrated HAN modems. This would simply serve to make it more difficult for competing suppliers and other innovators to develop radical new IHDs that would work with all meters.

We believe that an appropriate compromise is that meters should have a standard "port" or socket, to which HAN modems can be attached.  This port could be a physical socket like a USB port, or it could be a soft wireless connection.  Please see our answer to 2.1.

We particularly highlight the situation with separate visits for smart meter installations (for gas and electricity) and whether the first meter installer will be required to ensure connectivity to the other meter position, for example in cases where the signal propagation of the first installed meter and its HAN would not normally be sufficient to reach the second meter.  We believe that some cooperative process (perhaps an obligation on the first installer to carry out an on-site test) is required to pre-inform the second installer of the likely problem.

An underlying issue here is that it seems to be commonly presumed that the smart meter installers will be the first people on a given premises to be installing HAN equipment.  This is far from the case.  Millions of homes already have at least one HAN, and many of these consumers may wish to connect-in their meter to their existing HAN for their own private purposes.  In other words **from the consumer's point of view** the smart meter is a *small addition* to an existing system.  There *must* be an option for a consumer to connect-in his new meter to his own HAN.

With reference to the Statement of Design Requirements Table 1 in section 1.1, Item C should read .."and enable the meter to link to other existing home systems".  Without this clarification, the impression may be given that gradually the whole household will have to conform to a new metering HAN standard selected by one supplier sometime in the past.


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

**A P3.7\***
The problem of where standards come from still persists.  The most pressing needs are for standards to cover:
- The physical characteristics (Layer 1) of the modular connections to the new meters.  What *shape* does a WAN modem need to be to connect to any meter, and what shape does the relevant part of the meter need to be.  What connections, with what electrical properties will define the "plug and socket"?  Does the WAN modem go "under the glass"?  Is it locked behind the meter seal?
- The same applies for the HAN modem.  Although the Functional Requirements do not yet extend to the underlying principle in this case, it is inconceivable that consumers will be prevented from listening-in to their own meter with their own in-house systems.  EITHER the utilities will have to specify the HAN they are using, OR a standard is needed to define the physical connection of HAN modems in general to meters.

We believe that development time will be minimised by the adoption of existing standards wherever possible.

**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)?**

**A P3.16***
We support the proposal that suppliers deliver the rollout of smart meters.  We believe that suppliers, through their call-centres, have the key resource for managing the day-to-day process.  We believe also that suppliers should take full control and responsibility for discretionary investments, but that they should have rights of support and redress in instances where they have only one prescribed option.  For example we think it is materially different if a supplier has the chance to choose what he believes is the best WAN option in a given installation, or if he is compelled to use a particular one.

The concept of co-ordination raises the question, with whom?  Based on the thinking outlined in the Prospectus section 3.51, the actual combined "installation map" across all suppliers would be quite patchy.  Added to this are the randomising effects of installations at new or refurbished premises, the installation of replacements for end-of-life meters, the maintenance and repair program for broken meters, and the need for credit/prepayment conversion.  The result is that any underlying program based on other criteria (geographic, socio-economic, etc) is not likely to dominate the whole national project.

The special case of multi-occupancy buildings such as large blocks of flats with secure communal meter rooms also creates the potential for a separate body, possibly the DNO, to take responsibility for ensuring that a common local comms solution is provided for all participants – both suppliers and consumers alike.

We believe that many of the key factors for success depend on there being coordinated answers to the foreseeable questions that consumers will ask, for example:
* "When will my house be upgraded?"  Implicit in this is the condition, "if I do nothing".  Care will be needed to avoid the perception that if you do nothing then you don't get a new meter.
* "What is smart metering?" and "What things will I be able to do?"
* "How does this little Display help me?"
* "Will the *price* of electricity go up or down?  Will my *consumption* go up or down?  Will my *bill* go up or down?"
* "Will I have to pay sooner than before?  Will I still be able to get on Pay-as-you-go?"

There are also borderline questions like "Should I get a new fridge?" and ones which we believe are out-of scope like "Should I change my boiler maintenance contract?"


**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?**

**A P4.17***
We agree broadly with the core elements set out in section 4.6.  However we believe that the staged approach, as proposed, introduces a serious risk of unmanageable

complexity and in particular that the period of parallel activity with roll-out underway but with no DCC needs to be reduced. This would represent a case somewhere between the rejected "full establishment" case and the preferred "staged implementation" case. In the worst case of all, the roll-out could become so fragmented that it gathers in complexity at a rate faster than the DCC can catch up, under which circumstances it would be better not to attempt to have a DCC at all. We believe the staged implementation approach currently proposed runs an unacceptable risk of this happening.

One way of achieving this proposed middle way, would be to tie the start of "compulsory" rollout to there being a clear, credible, calibrated plan that showed when the DCC would be ready for operations. Earlier discretionary rollout would be acceptable, but at the suppliers' risk, (which they are already free to do anyway). We believe it would be advantageous to accelerate the issue of an RFI for the DCC with a view to bringing forward the final award so that the detailed business processes and operational requirements could be refined *with the participation of the DCC itself*.

We have offered further ideas in A3.9 above and in section C2 of our reply to the ROMA Consultation that closed on 31 August. In brief, the setting up of a prototype smart meter register seems to us to offer a major opportunity for avoiding crippling complexity and future cost. In ROMA section C2 we advised as follows:

> We believe that the outcome of Ofgem's intention to evaluate the inclusion of Meter Registration (as per section 2.37 of *Smart Metering Implementation Programme: Communications Business Model*) is urgent, and that Registration should be brought forward rather than delayed.
> The introduction of an early "prototype register" would have many advantages:
> - Identification of the data fields actually required, especially with reference to the various new devices in the system (eg WAN modem type).
> - Opportunity to test correspondence between Registry data structures, and those produced by different suppliers and other participants in preparation for specifying the requirement for full automation
> - Early experience of actual Registry usage patterns
> - New source of information on actual switching rates, and patterns of consumer behaviour.
> - Early measurable experience of the likely avenues for efficiency improvements over the old system eg 24-hour switching service
> - Useful information on the *actual* deployment of smart meters, as opposed to some of the un-calibrated claims in the market.
> - Opportunity to test the mechanisms for dual-fuel and non dual-fuel customers.
> - Early preparation of a much tidier "smart legacy" data-set to transfer to the real Register, than would otherwise be the case. Ensuring cleanliness of in-coming data will be central to the success of the migration to the new Registry.

We would also add that it is important that the proposed Codes of Practice that will govern doorstep behaviour do not have to await the establishment of the DCC. It is important that consumer experience is favourable right from the start; otherwise early

high-profile bad impressions will persistently damage the image of the whole SMIP program.


**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?**

**A P4.18\***
Our inputs on accelerating the start of full roll-out (ie with all systems working) have been covered in our response to ROMA sections B3 and C2, and in this response in answers A 3.9, A 3.10[1] and A 4.17.  Very briefly they are to give the highest possible priority to:
- Define what qualifies as a smart meter installation
- Set up the DCC
- Open a prototype smart meter register


**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?**

**A P4.19\***
The technical specifications could be agreed more quickly by hiring a full-time team to deliver them.  There also seems to be limited engagement between the GB (UK) and EU processes, especially in reconciling the differing timescales.

We are also particularly concerned that the end to end prepayment process (particularly for cash customers) necessary to provide continuity of service to existing prepayment customers does not seem to be addressed by the programme.


**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?**

**A P4.20\***
After more than 2 years of consistent and constructive engagement in the various Consultation processes, including regular written detailed responses all of which we have placed in the public domain, we are entering a phase of increasingly focused membership of the Working Groups.  We quite understand that there is no scope for individual company representation, but we feel that the participation of key non-utility industry associations is underestimated in developing a balanced and representative national response.

In our view, smart metering is a market-transforming event.  It brings together the energy supply and energy management sectors in a manner that was only possible for larger consumers in the past.  However it needs to be recognised that while energy data

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[1] Answers 3.9 and 3.10 are not yet due, but our latest drafts are included at the end of this document for reference.

management at the point of use may be new to the utilities sector it is *not* new to the smart building, household appliances and industry sectors.  These have always been openly competitive and smart sub-metering has been routinely deployed to collect energy data many years ahead of the utilities sector.  There is a need for balance in recognising that while domestic householders may be the customers of energy suppliers for *energy supply*, it does not follow that they are automatically the customers of energy suppliers for all other energy-related products, *especially* those related to energy saving and efficiency.

## Statement of Design Requirements

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

**A 94b 3.1**
The underlying principle is that all consumers should be able to connect-in their meters to their own HANs in the future, without requiring a meter change, and without having to seek the help or permission of the utilities or anyone else.  We would be concerned if the interpretation of HAN requirement HA.2 in section 1.41 of the *Statement of Design Requirements* p 77 was intended to prevent a consumer from listening in to his own meter data without the permission of his supplier.  This is **not consistent** with the principle expressed clearly in the *Prospectus* section 2.18 p15 which states (emphasis as per source):

> *"The consumer shall choose in which way consumption data shall be used and by whom, with the exception of data required to fulfil regulatory duties"*

There are at least 3 ways of approaching the question of exchanging HAN hardware:
1. Regulations could specify a given national meter HAN standard that would "never" change.  It would be the supplier's responsibility to ensure that this was delivered and maintained.
2. Metering systems could be specified in a highly modular way so that it would be possible for consumers to (a) exchange or (b) add their own HAN hardware without affecting the meter.
3. It could be possible to install a separate and entirely optional "linker" near the utility-supplied original HAN hardware that made a bridge to the consumer's preferred HAN or to other in-home networks as contemplated in the *Statement of Design Requirements* section 3.19.

Option 1 seems highly prone to obsolescence, even although the metering aspects of HAN communications look very simple and basic.

Option 2(a) is slightly problematical it involves de-installing the utility's HAN device, and this would involve a degree of risk that an unskilled consumer might damage the connection between the meter and the utility's "free" HAN device.  An *exchange* would also involve changing the ownership model of the old device since the replacement would likely be the property of the consumer.  On change-of-tenancy some consumers may take their HAN device away with them leaving behind no HAN at all.

Option 2(b) would seem to be more viable as it requires only that consumers are free to *add* their own devices.

Option 3 is also viable.  In order that the utility-supplied HAN is seen as an enabler for user data access and not a restrictor, it would be necessary that the full specification for how to build the proposed linkers was available to third party system developers.

We believe that option 3 is also better suited to prepay applications where the utility can more easily maintain a degree of quality control over the original HAN connection.

For clarity we believe that features HA.2 HA.21 and HA 22 of the *Statement of Design Requirements* should not be taken to imply that a consumer is not welcome to operate

as many HANs in his own house as he chooses, or that a new level of utility accreditation will be required to connect meters to private HANs in general.


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

**A 94b 3.2**
To the best of out knowledge, there is no HAN available today that is guaranteed to meet the wider propagation requirement for all premises.  There are several however, that meet the great majority of needs extremely efficiently.  On balance the 800+MHz band is a good place to operate wireless HAN networks.  The following special cases need to be taken into account:
- Some homes are very large, and a meter radio link may have to pass through several walls.  Damp masonry and expanded metal laths present serious barriers to wireless signals.
- Some homes are in tower blocks where all the meters are in the basement, with limited consumer access for safety and security reasons.
- Some meters are fitted in outside meter boxes, and must operate effectively under outside conditions.
- Smart gas meters need batteries.
- Gas meters may or may not be close to electricity meters.
- Housing density varies enormously (x1,000) from rural to urban environments.
- 5m consumers change their suppliers each year and 4m move house, taking what they value with them.


**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?**

**A 94b 3.3**
There are several developments running in parallel to the needs of the SMIP which raise this question.  In our view the constraints on remote reconfiguration of SIMs are commercial, not technical.

Where a SIM is to be part of a communications solution, the technology already exists for Mobile service providers to offer remote reconfiguration for Change of Operator.  For lowest manufacturing cost appropriate SIMs could be implemented as normal flow-soldered surface-mount devices.

GPRS solutions also raise other significant questions, for example:
- Is each meter link *always on*?
- Does the system need as many phone numbers as meters?  How many meters could in theory share one number?
- How can out-bound population-wide messages be sent efficiently?
- Are there any limitations on in-bound messaging?
- What are the foreseeable *force majeure* causes of local system non-availabilty?

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

**A 94b 3.4**

The catalogue is not complete and certainly needs more detailed review. Sections 1.41, 1.42 and the section "Smart Meter Services" in particular require further development.

There are some serious ambiguities in section 1.41 that could be taken to mean:
- A consumer is not free to connect his own home management system to the meter HAN (HA.2)
- A consumer needs to inform his utility that he intends to listen-in to his own meter data (HA.2)
- A consumer can only have one utility-supplied HAN connected to his meters, and this must be not be linked to other pre-existing HANs in the home (HA.21)
- A consumer needs to have additional HANs "accredited" by somebody (HA.22).

We are confident this is not the intention of the SMIP, but some clarified drafting is required to prevent possible misunderstanding.

Section 1.42 is under-developed in its current form. For example WA.2 calls for real-time features, "with a response rate of 1 minute or better". 1 minute is not real time. Also there does not appear to be a statement in the WAN requirements (WA.1 – WA.7) or in the Prepayment[2] requirements (PC.1 – PC.11) that the WAN device needs uninterruptible power from the supply-side of the meter or that its power consumption should be within given limits.

The WAN connection in the home needs to be capable of receiving a remote "enabling" signal from a supplier even when the demand-side power in the premises has been OFF for several weeks. Local intervention (say the pressing of a button) by a responsible person is then required to actually restore the demand side power.

Section 1.53 is critical to the cost of roll-out. From our experience we would support self registration but we believe this process has to be completed *whilst the installer is on site* so that when the installer walks away the customer can be confident that the installation is fully functional and can see data on the IHD. A 2-hour service level is therefore quite inadequate; we would propose that 2 minutes would be more appropriate in terms of both the customer experience and the total cost of on-site time, including re-visits.

Section 1.70: The 20 minute service level will most likely be acceptable in the majority of cases but where the consumer's credit and any emergency credit has expired then the service level needs to be tighter – a more appropriate level would be 10 minutes.

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

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[2] The concept of Prepayment will be rendered obsolete by smart metering. There will no longer be any connection between how a consumer is metered and *when* that consumer pays. For example pay-as-you-go can be operated in arrears, and monthly direct debit can be operated in advance. The key difference is that with PAYG systems, the consumer has a lot of discretion over how much he pays and when.

**A 94b 3.5**
Broadly we agree that the additional functionalities are justified.


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

**A 94b 3.6**
We are not aware of any significant additional new evidence of this kind, although we do expect some end-user experience feedback from the Ofgem EDRP project.

We also believe that the requirements designed to support alternative payment algorithms are underdeveloped.  Smart metering is capable of breaking the connection between how energy is metered and how it is paid for, and this raises the possibility that innovative suppliers will be able to introduce a whole spectrum of new tariff offerings in future.  For example pay-as-you-go can be operated in arrears, and monthly direct debit can be operated in advance.


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

**A 94b 5.7**
The proposed approach will deliver the necessary certainty and interoperability, but it will take longer than Option 1 (as described in *Statement of Design Requirements* p 39).  In order to avoid unproductive periods of impasse, it will be necessary to introduce an escalation process to resolve conflicts.

With Option 2 extra care will be required to ensure that subsequent change control remains manageable, and that important details concerning *why* certain features were or were not included, or what was *intended* by a particular line of specification are not lost.

We would particularly emphasise the advantages in an early RFI for the DCC services, including proposals for smart meter registration during the early phases.


**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?**

**A 94b 5.8**
We do agree that it is necessary for the SMIP to act as proposed in the question.

We do not believe it is necessary to place an obligation on suppliers to cooperate, as (a) they have a natural incentive to do so and (b) it is difficult to imagine an effective mechanism for compulsory cooperation.  If suppliers (and all other parties for that matter) are obliged to respect the conclusions, then they will have a strong incentive to engage in the prior process.

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

**A 94b 5.9**
The issues associated with the HAN are more a matter of policy than technology. The key issue is defining the rules of access to regulated subsets of consumer data. Ultimately, it will be up to the consumer to look after his own data and up to the SMIP to ensure that the system is specified in such a way that this is facilitated. There are several market-tested algorithms for setting up other private secure networks in the home and these could provide a useful learning base for metering.

Again we would emphasise the need to resolve technical issues related to Prepayment. These are raised in more detail in our response to 94g in question 5.10. where it is noted that some of today's installed meters could not be easily exchanged for smart meters and programmed remotely for transfer to PAYG tariffs due to their unsuitable location. If *all* meters are to be capable of reprogramming for PAYG, then there is a category of meters that may need to be re-located at the time of the smart upgrade. These "expensive-to-convert" meters may self-select as low priority despite high scores on other criteria, eg age of meter, customer disability. Clearly if the IHD is to be used to solve the location problem, then it also has to fulfil the reliability constraints of existing prepayment solutions, including having an uninterruptible power supply.

**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?**

**A 94b 5.10**
The best way to accelerate the process would be to increase the number of full-time technical experts on the project.

## *Implementation Strategy*

**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?**

**A 94f 2.1**

We support the proposed principles.  It would be helpful if the SMIP was to publish a "map" of the various working groups from time to time, to avoid confusion among some interested parties over whom they should be approaching for a given issue.  It also remains unclear how knowledge from industry experts will be incorporated into the design activity given, for example, the proposition that participation from the communications industry association is said to represent a conflict of interest.  How will IT/Comms/Security best practice therefore be properly considered by the SMIP as a whole?

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

**A 94f 3.2**

It is not clear what is meant by this.  Within the SMIP itself we believe that provided there is a map of the working groups as requested in our answer to 94f 2.1, then "cross-cutting" can be achieved proactively by the groups themselves.

At a higher level the SMIP needs to keep under review the effect of its decisions on the deliverability of medium-term objectives as indicated for example in section 2.35 Figure 2 of the *Communications Business Model*.  Other programs, such as the introduction of electric cars and micro-generation, have a foreseeable bearing on the future requirements of smart metering and opportunities should be sought to engage with flagship projects like Plugged-in Places.  Additional processes that would benefit from close alignment include, forthcoming legislative or standards changes, Feed-in Tariffs, impact on DCC of prepayment by cash.

**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?**

**A 94f 5.3**

We do not wholly agree with this.  We have given detailed reasons in our answers to the Prospectus question P 3.9 explaining the conditions that we think would need to be met before pursuing this approach.  We are keen to see the market deploy dual fuel solutions but we see significant challenges in making these truly interoperable to allow customers to switch just one fuel.  We also see similar issues with prepayment and in this case we believe it would be prudent to not cater for prepayment in solutions prior to the DCC being established.

In summary, we believe the solution is to complete more of the preparatory stages *before* the end of Phase 2 - Go Active.  In particular, and with special reference to section 5.15 of the SMIP Implementation Strategy, we believe there would be great advantage in preparing as early as possible for the implementation of Meter Registration.  The preparations should include ensuring that all deployments arising from suppliers' smart meter installations before the obligations in Go-Live Rollout take effect should be recorded and documented in a manner that makes the inevitable later data migration as smooth as possible.  There are numerous advantages that arise from co-ordinating the data structures that will be created during the early phases, including:

- Creating a common address database that maps both gas and electricity MPRN and MPANs to a single property.  This will be the foundation for a process whereby suppliers and their agents can know whether a smart meter already exists in a property for another fuel and what WAN/HAN is installed.
- Identification of the data fields *actually required*, especially with reference to the various new devices in the system (eg WAN modem type).
- Opportunity to test correspondence between data structures produced by different suppliers and other participants in preparation for specifying the requirement for full automation
- Early experience of actual data request and exchange usage patterns
- Early measurable experience of the likely avenues for efficiency improvements over the old system eg guaranteed 24-hour switching service
- Opportunity to test the mechanisms for dual-fuel and non dual-fuel customers.
- Early preparation of much tidier "smart legacy" data-sets (arising from pre Go-Live DCC phases) to enable industry processes, than would otherwise be the case.  Ensuring cleanliness of in-coming data will be central to the success of the migration to the new Registry.

The advantages of this approach greatly outweigh the *appearance* of progress arising from a massive false start.


**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?**

**A 94f 5.4**
There are several fundamental risks that have already been reviewed in the recent impact analyses, including:

- Smart metering will *increase* costs for existing "minimalist" suppliers and their customers who will have to pay regardless of whether they proactively use the new system
- Compulsory adoption of smart metering will increase market entry costs for new suppliers.
- Meters and trained personnel may not be available.

The proposal to mandate the rollout relatively quickly, before industry processes are agreed and the DCC established, will create significant uncertainty as to the actual volumes of meters to be installed.  This will potentially lead to supply chain issues from manufacturers who do not have clear volume delivery requirements and to meter installers in making sure the required training has been carried out.

We have not seen any proposals to address the continuing need to replace electricity and gas meters due to certification and age.  If from the mandated date these meters are to be replaced with Smart meters then many of these installations may be single fuel.  Without the establishment of dual fuel registration it will be difficult to coordinate with the supplier at the premises.  The consequence of this will be a poorer customer experience of smart metering and higher installation costs than in the DECC model.

We think many of the likely *additional* risks are correctly identified in 5.11 but the risk mitigation analysis in 5.12 is seriously underdeveloped.  In particular, requiring all suppliers to comply with the various prevailing requirements at the time fails to address the problem that some major requirements will not be known to them.  For example how can they ensure interoperability with all possible solutions from all other suppliers unless they *all* develop DCC–compatible solutions in a cooperative manner?  We believe it is not likely that suppliers will be able to accept any liability for lack of interoperability unless there is an adequate specification prepared in advance.

We also think the Implementation Strategy seriously underestimates the risk of irreconcilable differences arising during negotiations over a *complete* matrix of peer to peer commercial arrangements among all suppliers.  It is one thing for competing suppliers to deploy systems that are technically compatible; it is quite another for them to agree full commercial terms and conditions for adopting each other's deployments.  Would it be within the law for a supplier to make one deal with one competitor, but to force a tougher deal on another?  We do not support the idea of an industry-wide "rate-book" that fixes the transfer charge for all types of installation as this creates a perverse incentive for suppliers to overstate rather than understate the fixed charges.


**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?**


**A 94f 5.5**
There is a lack of clarity over the expression "how the roll-out could be brought forward".  As stated in our response to Prospectus question 3.9, maximising the number of smart-ish meters installed in the short term is the **wrong target** as it will lead to exponentially increasing complexity and cost thereafter.  Better targets would be (1) the in-home solutions are defined to the point where rollout-scale procurement can begin; (2) the DCC is up and running and procuring communications services and (3) there is a registry with one version of the truth for non supplier-specific data.

Using these definitions of roll-out, the actions that would bring roll-out forward are:
1. Complete the in-home requirements specification not 6 but 12 months sooner than the "Go-Active" date of "early 2012".
2. Issue an RFI by Dec 2010 in order to accelerate the appointment of the DCC to mid 2011.  Give it responsibility for interoperability.  Give it 18 months to Go-Live.  Use on-going Regulatory instruments to refine its business case *in parallel* with the technical and operational development process.
3. Start a prototype or "virtual" Registry in late 2011.

**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?**

**A 94f 5.6**
We see the need for the delay, but have serious doubts about the both the clarity of the concept and the allocation of 6 months.  The need for this arises largely from the over-emphasis on meter-numbers deployed, and the lack of focus on adequate preparation.

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

 **A 94f 5.7**
As we have stated above, we think there is too much focus on the early deployment of impressive numbers of meters, and not enough on the necessary preparatory work.  In our view this creates an unacceptably high risk that there will be a massive false start, that costs will run out of control, and that the real roll-out of millions of efficiently-deployed installations throughout the country will be seriously delayed.  This misplaced emphasis is creating a high probability of failure in other overly-compressed activities; for example six months for DCC implementation is impossible unless it simply involves deploying a standard "out of a box" service, which we do not believe exists today.

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

**A 94f 5.8**
Our principal observation is that the appointment of the DCC and the establishment of a prototype registry should be requirements of Phase 2.

## *Rollout Strategy*

**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?**

**A 94g 2.1**

We believe the balance would be improved by increasing the intensity of preparatory work, and de-emphasising the focus on headline early deployments. Failure to do this creates an unacceptably high risk that there will be a massive false start, that costs will run out of control, and that the real roll-out of millions of efficiently-deployed installations throughout the country will be seriously delayed.

Overall we are supportive of a market led approach but as stated elsewhere we believe there will be many specific requirements for coordination, eg for multiple-occupancy dwellings. The SMIP needs to monitor how these sites are being tackled by a pure market led approach and should consider alternative plans for these specific sectors, perhaps involving coordination by the local DNO as a trusted 3rd party.

We agree with the caution expressed in section 2.13 concerning the relevance of comparisons between the rollout of smart metering and the switchover to digital TV, and would add that there are also far fewer compelling reasons for consumers to demand smart metering.

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

**A 94g 2.2**

We believe the non-domestic sector is already leading the market in innovation and improved customer service. However this sector is differentiated by the willingness of customers to appoint their own meter operators.

In the non-domestic sector we believe it is sufficient to agree suitable industry rules, perhaps within the Smart Energy Code, to ensure there is a reliable change-of-agent process.

As noted in our reply to Prospectus question 3.14, one helpful compromise would be that even although SME customers may elect not to use the DCC, their metering arrangements should nevertheless be logged with the central register. This would facilitate the change of supplier process by providing immediate clarity to the new supplier. It may be also helpful to cover special arrangements for SME customers within the Smart Energy Code, thus enabling competing service providers to assert unequivocally that their services are industry compliant.

We also support the idea that one of the communications channels that the DCC should be obliged to support would be an internet-enabled link to SME service providers, especially those deploying *advanced* metering. In our view, this is capable of providing

extremely cost-effective solutions, and may in the medium term offer significant potential in the Residential sector too.

By extension, we believe that the DCC should provide scope for suppliers and their agents to use internet-based techniques with *all* customers to collect data as they see fit, and where appropriate to feed this into the DCC as if it had arrived by a directly-contracted comms channel.

Where non-domestic customers elect to appoint their own meter operators and data collectors the suppliers should be obliged to accept these arrangements on a non-discriminatory basis and to discount their customer charges to recognise the reduced level of services required.

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

**A 94g 2.3**
We do not see a need for special arrangements for small suppliers provided there is a suitable the change of agent process for meter operators and data collectors.

**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?**

**A 94g 3.4**
The best way to promote consumer engagement is through effective, consistent and appropriately frequent communications. "Appropriately frequent" does not mean maximum.

It will be important to distinguish between generic information (that applies to the whole SMIP in general) and supplier-specific differentiating information. Without this distinction, DECC and Ofgem will be vulnerable to a torrent of criticism that different people are saying different things and nobody seems to know what is going on.

We therefore support the idea that a national awareness campaign is needed. We expect the key issues will include:
1. What is smart metering?
2. Is it compulsory?
3. When will I get it?
4. Will it be used to spy on me?
5. Will my bill go up or down?
6. Will the price of electricity go up or down?
7. What other benefits will I get?

Smart metering comes at a cost, so it *could* create upward pressure on energy bills. However many industry analysts believe that the unit price of electricity is bound to increase in the medium term for other reasons. It will be important therefore to get the customer message across *in context* otherwise early adopters might report that they got

a new smart meter but their bills went up, leaving the impression that if they hadn't got a smart meter things would have been better.

The key message is that in a world where energy is becoming more costly, smart metering is an investment that will help customers to keep their bills lower than they would otherwise have been. This is a much more difficult message than "your bill will go down".

There is limited value in having a national campaign unless it endures across the roll out period. TV advertising is the obvious medium for mass communication of generic information although there is clearly a role for all the other media too, especially local press. It also seems likely that for any parts of the rollout program that are geographically focussed, there will be a heightened degree of competitive supplier activity at the time of deployment. We believe that free customer information lines and on-line resources like web-sites and e-mail desks are the best ways of dealing with interactive responses. The campaigns also need to be timely to the introduction of the new metering from the consumer's point of view.

In all scenarios we believe that it is vital that suppliers and other competing agents do not contradict each other over matters of fact and policy, as this is a prime cause of customer disaffection with practically all industry sectors. Both the Smart Energy Code and the doorstep protocol (assuming there is one) can be used to ensure best practice.


**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?**

**A 94g 3.5**
We believe that independent consumer groups like Consumer Focus are well positioned to facilitate this process. They are also likely to get a lot of customer feedback and so should quickly gain a reasonable evidence base from which to prioritise issues. Over time, it may be practical to offer the various new codes for formal adoption by the relevant industry associations.

As noted in our response to question 4, it may be expected that there will be heightened energy sales activity around times of installation in each neighbourhood. It may be also helpful to consider different rules for best practice pre installation and post installation.

Meter Operators have significant experience in on site requirements and their views and expertise should be sought in the development of this code.


**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?**

**A 94g 4.6**
We do agree with this proposal. A completed installation should be defined by the receipt of appropriate notification by the prototype register. We would expect the conditions for a successful filing would include:

- A smart meter (complying with the industry agreed minimum specification) is installed, and paired with a WAN that is supported or will be supported by the DCC.
- A meter that is registered, communicating with its associated WAN and IHD (where supplied) and to the DCC and is technically mapped to the DCC to enable remote management.
- All relevant/required data relating to the meter and the registered supplier is held by the DCC.
- The metering Is configured to the supplier's requirements.
- Data held in the meter only reflects **the current consumer's** consumption and account.

We have offered more detailed arguments concerning the benefit of registration in our response to Prospectus question 3.9 where we have argued that there would be great advantage in preparing as early as possible for the implementation of Meter Registration. The preparations should include ensuring that all deployments arising from suppliers' smart meter installations before the obligations in Go-Live Rollout take effect should be recorded and documented in a manner that makes the inevitable later data migration as smooth as possible. There are numerous advantages that arise from co-ordinating the data structures that will be created during the early phases, including:
- Identification of the data fields *actually required*, especially with reference to the various new devices in the system (eg WAN modem type).
- Opportunity to test correspondence between data structures produced by different suppliers and other participants in preparation for specifying the requirement for full automation
- Early experience of actual data request and exchange usage patterns
- Early measurable experience of the likely avenues for efficiency improvements over the old system eg guaranteed 24-hour switching service
- Opportunity to test the mechanisms for dual-fuel and non dual-fuel customers.
- Early preparation of much tidier "smart legacy" data-sets (arising from pre Go-Live DCC phases) to enable industry processes, than would otherwise be the case. Ensuring cleanliness of in-coming data will be central to the success of the migration to the new Registry.

The advantages of this approach greatly outweigh the *appearance* of progress arising from a massive false start.

From the point of view of the SMIP as a whole, and also for any interim targets, conditions need to be established under which non-installation is acceptable. Completion of a tranche of installations is reached when only those with the predefined conditions still remain. The conditions list needs to be managed centrally and will necessarily evolve.


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

 **A 94g 4.7**

We do believe there is a need for interim targets in order to avoid the possibility that significant and unforeseen financial pressures emerge that discourage rapid deployment.

A simple algorithm for, say, a 7 year program would be that a supplier must upgrade at least $1/7^{th}$ of its start-of-year customers in year 1, $1/6^{th}$ of its new start of year customers in year 2, $1/5^{th}$ in year 3 and so on until it has to do all of the remaining ones in year 7. We believe that it would be necessary however to devise some special rules around the opening years, especially if early deployment is expected to precede the full definition of the rules of interoperability.

Specifically, it is not acceptable that a supplier (or anyone else) should be compelled to deploy products that have an uncertain service life due to lack of industry rules. Once the Technical Specification and the functional requirements of the DCC have been established we suggest Suppliers should be required to submit their roll out plans to Ofgem. They should demonstrate how they will deliver the required overall programme including specific licence requirements to address certain customer groups, so that Ofgem can monitor interim targets.

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

**A 94g 4.8**
These targets could take the same form as those that govern the replacement of end-of-life meters today. The minimum acceptable levels should apply to all suppliers. With the special exception of ensuring suitable commitment to vulnerable customers, we believe that the prioritisation, planning and execution of the rollout process should be a matter for suppliers.

In addition to targets related to *installed* meters we believe it would be productive to monitor the performance of end to end process possibly by recording the number of customers actually billed using data retrieved remotely.

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

**A 94g 4.9**
The industry is easily capable of operating at about twice its normal routine replacement rate of approximately 2.0m electricity meter exchanges and 1.3m gas meter exchanges per year, while still maintaining existing standards on event-driven work (failures, damages, PAYG swaps). With 18 months to prepare, it could gear up for a 7-year program. We have previously provided detailed statistical evidence to DECC on our reasoning behind these estimates. The fastest possible deployment, before the risk of serious threat to safety and quality standards is about 5 years.

A 5 - 7 year program strikes a good compromise in creating sustainable employment for smart meter workers in the medium term and avoiding the problems of a faster rollout

that would entail mass recruitment of a temporary workforce followed by a mass redundancy.

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

**A 94g 5.10**
It is already normal practice within the industry to prioritise both consumer groups and meter types.  Our estimates above assume that this flexibility is maintained or even improved.

Smart metering raises some new categories however.  One of these is: which of today's installed meters could not be easily exchanged for smart meters and programmed remotely for transfer to PAYG tariffs due to their unsuitable location?  If *all* meters are to be capable of reprogramming for PAYG, then there is a category of meters that may need to be re-located at the time of the smart upgrade.  These "expensive-to-convert" meters may self-select as low priority despite high scores on other criteria, eg age of meter, customer disability.

**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?**

**A 94g 6.11**
We support the proposed approach.  We also believe that the reporting of early deployments provides an ideal opportunity to set up a prototype registry.  We have provided a fuller argument for this in our response to question 4.6.  Within a short time this would make it possible to learn what data fields were actually required to define an installation, what form the data should take, what entitlements should there be to external access, what is transferred or erased on change of supplier and so on.

It is very important to realise that some of the major systems in use today struggle to deal with quite basic requirements like receiving the serial numbers of new types of meters from new manufacturers.  Early experience of these simple but fundamental limitations will offer major opportunities for de-risking the later implementation stages and driving down total project costs.

As per our comment under question 8, we believe that suppliers should register their deployment performance with any special customer segments where external obligations override the supplier's discretionary strategy.

**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?**

**A 94g 7.12**
We agree that there is adequate protection in place for meter exchange work, but we believe that a review is necessary to cover the additional security risk associated with the following:

- There may be multiple staff on site so supervision by the customer may be impossible
- A bogus *team* presents potential for much more serious crime
- The process for setting up the HAN, including the entry of special PINs or keys, is open to abuse
- An intensive roll-out will make inside industry know-how available to a large number of temporary field staff who will shortly be made redundant again. This would suggest that maximum use is made of keys, codes, passes, etc that expire unless refreshed, rather than ones that remain valid unless cancelled.

**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?**

**A 94g 7.13**
We support this proposal. In addition to best practice concerning appointment-making, doorstep greeting, identification and on-site behaviour, it should include the following:
- As per our response to question 3.4, clear guidance is needed to ensure representatives distinguish between generic information and supplier-specific information.
- There is probably a set of generic information that representatives should be obliged to provide. Supplier-specific information may be considered optional.
- Suppliers should not make assertions about the value of supplier-specific information provided by other suppliers.
- Suppliers should not unreasonably exploit the authority lent to them by their leading role in smart metering deployment to undermine customers' confidence in other existing products in their houses, especially existing wireless HANs and related devices.
- Where applicable suppliers should explain to customers how to connect-in their new smart meters as peripherals to their existing HANs.
- The code of practice should extend to any help desk activities in support of rollout, not just to the household visit itself.

# Responses not yet due, but referred to in answers above

**A P2.1**

The key issue is whether or not IHD's are seen as supplier differentiators.  There is no expectation in the Prospectus that all suppliers will offer identical devices, so the implicit conclusion is that IHD's *are* seen as differentiators.

We therefore support the principle that the SMIP should specify the minimum requirements only, and that these requirements should include interchangeability, so that a supplier can offer a new IHD at a later date if he so chooses, or a new supplier can offer his own preferred device.

A standard is therefore needed to define the interface between the IHD and the meters.  There are at least two ways of providing a such a standard.
1. by specifying a HAN protocol that will connect any IHD to any meter
2. by specifying a special "socket" on meters such that any HAN modem can be attached.  This could be similar to a USB socket although the mechanical aspects will probably need to be much more robust.

Figure 2 in 3.14 could helpfully be drawn in more detail to clarify this.

With reference to section 2.12 we agree that suppliers should offer interactive display devices suited to disabled customers.   In our experience, the key features of such devices are location, intuitive operation, text-size, lighting, button-size (whether real or touch-pad), audible feedback, tactile feedback.
The desirability of including special disability needs on an improved priority service register also comes into consideration although this is better covered in the Consumer Protection questions.

**A P3.9**

We believe the current proposal will *not* lead to an earlier achievement of the Go-Live DCC milestone as described for example in the SMIP Implementation strategy section 5.  Furthermore the longer the Go-Live Rollout phase persists the more difficult it will become to reach the next milestone at all.  The adoption by the DCC of communications contracts negotiated by other parties (as described in 2.63 of the SMIP Communications Business Model) looks particularly problematical.

We believe the solution is to complete more of the preparatory stages *before* the end of Phase 2 - Go Active.  In particular, and with special reference to section 5.15 of the SMIP Implementation Strategy, we believe there would be great advantage in preparing as early as possible for the implementation of Meter Registration.  The preparations should include ensuring that all deployments arising from suppliers' smart meter installations before the obligations in Go-Live Rollout take effect should be recorded and documented in a manner that makes the inevitable later data migration as smooth as

possible.  There are numerous advantages that arise from co-ordinating the data structures that will be created during the early phases, including:

- Identification of the data fields *actually required*, especially with reference to the various new devices in the system (eg WAN modem type).
- Opportunity to test correspondence between data structures produced by different suppliers and other participants in preparation for specifying the requirement for full automation
- Early experience of actual data request and exchange usage patterns
- Early measurable experience of the likely avenues for efficiency improvements over the old system eg guaranteed 24-hour switching service
- Opportunity to test the mechanisms for dual-fuel and non dual-fuel customers.
- Early preparation of much tidier "smart legacy" data-sets (arising from pre Go-Live DCC phases) to enable industry processes, than would otherwise be the case.  Ensuring cleanliness of in-coming data will be central to the success of the migration to the new Registry.

We agree with the principle that the scope of activities of the Central Data and Communications Function should initially be limited to core industry processes, but would re-emphasise that these processes *include* change-of-supplier and all other agents.  It is vital that the change-of-supplier process is not "frozen" by the arrival of non-compatible datasets from competing suppliers, otherwise smart metering will become perceived as a competition blocker, not an enabler.

In summary, we believe that maximising the number of smart-ish meters installed in the short term is the wrong target as it will lead to exponentially increasing complexity and cost thereafter.  Better targets would be (1) the in-home solutions are defined to the point where rollout-scale procurement can begin; (2) the DCC is up and running and procuring communications services and (3) there is a registry with one version of the truth for non supplier-specific data.


**A P3.10**

We think it is the right approach to establish the DCC as a procurement and contract management entity as stated in the question.  Given the DCC's special status as a semi-regulated industry-wide body as described for example in the SMIP *Communications Business Model* section 3.37, we believe that there are actually very few options for likely candidates to fill the role and that by taking a very practical approach Ofgem could complete the appointment much sooner than currently planned (autumn 2012).  The objective of pulling this forward would be to allow the DCC to prepare its procurement and other contract documents in parallel with the SMIP finalising  the various specifications and industry processes.

This would greatly improve the likelihood of success for the otherwise extremely challenging period of "autumn 2012 to spring 2013" during which a newly-appointed DCC is expected to award major new contracts to new service providers, providing new technology to a new system.

An accelerated appointment of the DCC also provides the industry with an additional source of credible input to the SMIP as a whole.