

Response of Siemens

to:

OFGEM ~ Smart Metering *Prospectus* and SMIP papers 94a, 94c, 94d, 94e, 94h, 94i – Questions requiring a response by 28 October 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 1: Do you have any comments on the proposed minimum functional requirements and arrangements for provision of the in-home display device?

A P2.1

We support the proposed minimum functional standards. The key issue is whether or not IHDs 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 IHDs *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, a new supplier can offer his own preferred device, and the consumer can add additional devices of his own choice.

A standard is therefore needed to define the interface between the IHD and the meters. There are at least two ways of providing 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.

We have described in more detail how this could be implemented in our response to question 1 of *Statement of Design Requirements*.

Figure 2 in 3.14 could helpfully be drawn in more detail to clarify this. It seems to imply that a failure of the “WAN Module” could also affect the link between the electricity meter and the HAN. We see no reason why the electricity meter should be the only device in the home installation that does not support the HAN directly.

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 SMIP *Consumer Protection* questions.

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

A P2.2

We welcome the clear statements on the overall approach to security. The statements in the Executive Summary and in 2.13, 2.15, and 2.18 are particularly helpful.

We believe it is useful to distinguish between access rights to *read* data, and access rights to *create*, *alter* or *modify* data.

Special attention needs to be paid to what is meant by “meter data”. In the past this was typically limited to the current status of a single mechanical register that formed the basis for the billing calculation, and the question of data ownership was not important. However, smart meters are capable of logging much more detailed information which completely transforms the situation. We strongly support the view expressed in the references quoted above that the entitlement of suppliers to “meter data” arises solely from their obligation to provide accurate bills and fulfil licence terms, and does not include by default all data that was ever recorded in a given smart meter. This, wider, dataset is the property of the consumer and nobody else. The concept of privacy should therefore include the principle that this wider dataset may not be exploited for profit (or even benevolently at cost) by any third party without the consumer’s permission. We believe there should be standard, regulated data sets that define the actual entitlement of third parties and are limited to what these parties need in order to fulfil their licence terms and other legal responsibilities.

Categories of entitlement to data subsets may include:

- Data required by a supplier or DNO to meet its licence obligations.
- Data required by a supplier or DNO to meet the terms of a separate voluntary contract signed by the consumer.
- Summary data helpful to a *new* supplier to understand the consumer’s needs.

- Summary data necessary for other third parties (eg landlord) to meet legal or regulatory obligations.
- Summary data for government to monitor the effectiveness of the smart metering program.

We believe that the consumer's entitlement to the wider consumption dataset needs to be underpinned by a mechanism that facilitates local consumer access, via either a HAN or special port to which the consumer's own HAN may be linked, and via consumer-authorised third parties through the DCC.

Question 3: Response provided 28 Sep 10

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

A P2.4

We believe the Prospectus covers most of the main issues. "Switching to prepayment" however raises some issues that require further development.

Typically prepay meters have several interactive user features that are absent on ordinary meters, including buttons, audible beeps, and versatile information displays, (sometimes backlit). Current best practice, which in our experience is observed by all major energy suppliers, is that the *location* of a meter needs to be taken into account when deciding on the viability of a switch from "credit" metering to "prepay". If in a given case the location is unsuitable for user interaction (too high, too low, outdoors, in basement, inaccessible, etc) then the need to re-locate the meter has to be considered. The cost of this will likely be high (much higher than a normal meter exchange), and is sometimes prohibitive, so that alternative solutions must be found.

Some meter manufacturers offer a separately mounted consumer control unit on an "umbilical" connection to the meter, but this connection includes power backup so for reliability reasons the remote unit remains effectively part of the meter.

The "switching to prepayment" concept in the *Prospectus* is predicated on a situation where all new meters are located wherever the previous ones were. This means that the current accessibility requirements for prepay are not necessarily met. Consequently a remote unit based on the IHD concept may not be acceptable on at least two grounds (1) it is too susceptible to loss/damage/failure and has no fall-back solution at the meter, and (2) it does not have an uninterruptible power supply.

These limitations may be deemed acceptable for certain segments, eg student accommodation, but IF prepay is to be proffered as a solution to the vulnerable, THEN it must be robust. The interactive features of a prepay unit are not simply "nice to have". They may be the only bridge over the gap between comfort and hypothermia. In summary, some basic requirements for prepay are:

- Dependency on AA batteries provided by the householder is not acceptable.
- Dependency on other non-guaranteed services (eg phone) is undesirable.
- Top-up features must continue to work, in the dark, when the household (demand-side) power is off.

There is a separate need to ensure that the datasets available to all parties at times of change are appropriate to the process. For example a new tenant should not have access to all of the previous tenant's data. Similarly suppliers, particularly newly-chosen ones who are also offering a change of payment method, may have a need to see some of the previous data, but not necessarily all of it.

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

A P2.5

We believe that the “smaller non-domestic consumers” sector has attracted more innovation than any other. SME consumers who have appointed their own meter operators are able to manage their energy usage on-line without any investment in new systems, through new “advanced metering” technology. These users can already use meter data to control consumption via mobile phones, PCs, i-phones, blackberries, etc that are linked to a whole range of electronic appliances from televisions to fridges.

There are two data channels that the SMIP needs to take into account:

1. In many advanced metering applications, data is pulled automatically, locally, from meters into *metering systems*. These systems have versatile data handling capabilities, and can provide most smart functions much more cheaply and efficiently than is possible by always using remote comms directly into every meter. From the DCC point of view, it actually connects to the *system*, not the meter. There are well-proven solutions for validation, verification, notarisation, etc that have been tested over several years now. In this case the DCC only needs to be able to handle data over the existing general-purpose communications networks.
2. Some low-cost energy suppliers may wish to make conditional contracts with their customers based on the principle that IF the customer provides appropriate meter data free on-line (within the constraints of the proposed ownership and privacy rules), THEN the supplier will offer a discount for not having to use one of the DCC's appointed communications solutions. In this case the DCC needs to be able to handle data via suppliers, rather than exclusively over its own new networks.

Some care will therefore be needed to ensure that over-restrictive compulsory use of the DCC's own contracted communications channels does not build-in avoidable costs. Put differently, the DCC should not unreasonably reject communications channels that meet the industry need, simply because of the negative effect this might have on its income.

Question 6: Response provided 28 Sep 10

Question 7: Response provided 28 Sep 10

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?

A P3.8

We agree with the principle that the roll-out process should be supplier-led. We take differing views on the suppliers' involvement in specification, purchase, installation and maintenance for the different elements of the metering system. We believe that it is helpful to distinguish between elements that are not intended to differentiate among suppliers and those that are intended to do so.

Meters

Our starting point is that due to the long-term effect of consumer switching, **all suppliers will have to be able to work with all meters**. Meters are therefore not differentiators. However, in a competitive market, suppliers will purchase¹ these meters at different prices and with different contractual terms and conditions. This means that although a supplier will be able to work *operationally* with all meters (via the DCC), he will have an increasingly complex portfolio of meters that are governed by externally defined terms and conditions. In a typical case, he might win a customer from another supplier that negotiated a much poorer MAP price from a previously unknown (to him) asset provider. Why should he pay more for this meter than he does for all his others? Could another supplier use this situation to unfair advantage?

We think it is not acceptable within the spirit of competition law that suppliers should have to negotiate "back-to-back" contracts to cover price fixing in this scenario. As a meter asset provider we also have negative practical experience of trying to get suppliers on contract to cover cases of switching on an *ad hoc* basis. We believe that there is real potential for a competitive market in the independent provision of MAP services provided that the role is clearly identified and appropriately structured within the industry rules, possibly via the Smart Energy Code.

WAN modems

"Purchasing" of WAN modems implies that these would become the property of the purchasers, ie the suppliers. As for meters, there is no logic in suppliers each owning a completely random sample of the country's smart WAN modems that bears no relationship to their on-going customer base.

Given that there may be considerable operational risk in WAN modem ownership, we believe it is also not reasonable that suppliers should be forced to accept this, especially as the choice of modems will be highly constrained (possibly to 1) by the communications policy of the DCC. We believe that medium-term responsibility for the operational performance of WAN modems should lie with the comms provider.

As for meters, we do not believe that WAN modems are primary service differentiators for suppliers, and could therefore be subject to the same asset ownership model proposed for meters.

¹ For the present we consider for simplicity the case where suppliers retain meters on their balance sheets. A more likely model is that they will have an asset-owning partner that will provide the balance sheet treatment.

HAN modems

If these are standardised, then they should be treated the same way as meters. If they are chosen by suppliers as competitive differentiators, then they should be owned and maintained by suppliers.

IHDs

In all scenarios these appear to be seen as competitive differentiators, so they should be owned and maintained by suppliers.

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 to the effective transfer of smart metering data, such as data access and scheduled data retrieval?

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 should *include* change-of-supplier and all

other agents as well as Registration for new smart metering. 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 our response to the Communications Business Model question 7 we have proposed a limited functionality “early start” solution with agreed security and data capture that should be provided by suppliers.

In summary, we believe that maximising the number of “possibly-smart” 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
3. meters deployed under the mandate are managed by a communications and data solution that uses agreed industry technical and security standards
4. there is a registry for all compliant and mandated smart meters with “one version of the truth” for non supplier-specific data

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?

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.

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)?

A P3.11

We support the proposed approach. As outlined in our response to Question 10, we believe that there is great advantage to be had in accelerating the appointment of the initial DCC.

Given that the DCC will provide a more-or-less monopoly service, we believe it would be helpful if support for an internet channel for use by advanced metering service providers in the SME segment was included among its basic requirements. Thus, even although the DCC may appoint one or more Comms Service Providers (as described in SMIP *Communications Business Model*) it should also support an optional internet channel for approved DCC service users.

Question 12: Does the proposal that suppliers of smaller non-domestic customers should not be obliged to use the DCC services but may elect to use them cause any substantive problems?

A P3.12

We see no serious problems resulting from this provided there are some suitable industry rules to ensure there is a reliable change-of-agent process.

One helpful compromise would be that even although SME customers may elect not to use the DCC, their metering arrangements should nevertheless be managed by the Smart registration process established under the DCC. This would facilitate the change of supplier process by providing immediate clarity to the new supplier. It may be 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.

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

A P3.13

We strongly support the proposal for a Smart Energy Code.

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

A P3.14

In general we believe the Prospectus does identify most of the wider impacts. However there are some that could helpfully be recognised in more depth.

In GB there are scores of competitors already engaged in energy efficiency and energy management solutions. As in the Supplier domain, there are some very large ones, but also very many smaller ones some of which are highly-specialised. Our experience of

the discussions within five trade associations is that there is increasing concern among these businesses that energy suppliers are being afforded “assisted entry” into what was hitherto an open competitive market and that the market will be seriously distorted as a result. Many independent service providers have built their businesses on the premise that they are *not* driven by energy sales, and they are therefore concerned that the image of authority that accrues to the party that leads on-site installations may undermine the independents’ proposition.

At the same time it is clear that suppliers are faced with “fronting” the costs of smart metering, and risking the negative impact of passing these costs through in the form of higher prices to their customers. We see no advantage for *suppliers* in the idea that the industry will make compensating savings by reducing overall consumption. This pressure inevitably leads suppliers to seek wider value propositions to fill the gap.

We believe the Smart Energy Code has a vital role to play in ensuring fair play in these respects for suppliers and independents alike.

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

A P3.15

We welcome and support the SMIP’s new, clear statements on data ownership and rights of access as expressed for example in the opening summary to the *SMIP Data Privacy and Security*.

It would be helpful to compile a glossary of specialist terms for this particular area, in order to avoid misunderstanding of terms like Security, Integrity, Notarisation, Privacy, Encryption, Encoding, Meter Data, Billing Data, Energy Management Data, Lifestyle Data, Ownership, Right of Access, Right to Copy, Right to Retain, Right to Hold, Right to use or exploit, Access-control, Verification, Anonymisation and so on. We are already experiencing the use of the same word but with different apparent meanings, and of different words with the same meaning.

There is a useful distinction to be made between individual user data, and grouped or summarised data.

We also propose that there should be increased visibility of security issues *across* all of the working groups and that security experts that are part of the main security advisory panel are members of each of the working groups.

Question 16: Response provided 28 Sep 10

Question 17: Response provided 28 Sep 10

Question 18: Response provided 28 Sep 10

Question 19: Response provided 28 Sep 10

Question 20: Response provided 28 Sep 10

94a Consumer Protection

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?

A 94a 2.1

As outlined in section 2.12 there is concern that a significant number of consumers who change supplier are either worse off, or unable to determine with any confidence whether their situation has improved. We do not think that the proposed approach for addressing tariff confusion makes best use of some of the unique features of smart metering, especially the local (in-the-meter) record of actual consumption. This data is sufficient for a “switching site” (in the terms of section 2.14) to *reconstruct a virtual bill* that an individual consumer would have had to pay for *every tariff package from every supplier* in the market. This would surely offer powerful evidence to individual consumers on whether they were currently getting the best offers available. Three things are required to get this consumer benefit from smart metering, at no additional cost to the industry:

- Consumers must be able to “pull” their own data from their own meters in a manageable format, probably by making use of the proposed HAN or HAN gateway so that they can for example pass the appropriate dataset to switching sites in order to discover *exactly* how they have been faring
- Consumers must be able to authorise accredited third parties to access their data sets held by the DCC. This might be particularly valuable to consumers who either do not have net access, or who cannot make the HAN link to their net access device.
- A copy of the “industry” dataset held by the meter should be held by the DCC for up to two years.

This is a no-cost feature which exploits the transformational qualities of smart metering and which would remove much potential “tariff-confusion” at a stroke.

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

A 94a 2.2

As noted in our response to *Prospectus* question 3.16, 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? Will I be able to get *off* 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 appoint a new boiler maintenance contractor?”

With reference to the five explicit points raised in section 2.21 our views are:

- Customer appointments are a good thing for major work of this type. However a compromise needs to be struck between the number of appointments per day per field team and the cost of the contingency resource that is required to prevent unforeseen circumstances causing some appointments to be missed. One-hour appointments should be possible in urban areas, but two-hourly may be more appropriate elsewhere.
- The “provision of information” is not straightforward, as what is left unsaid can be just as important as what is said. We believe it is possible to establish a body of material that installers should be obliged to cover as a minimum. We also believe that suppliers should be free to engage with their present customers to try to ensure they are offering the best energy retail service possible. We believe they should *not* promote products, whether from themselves or other parties, in related competitive markets.
- We believe that, as far as is practical, government departments and Ofgem should *not* be seen as sources of information other than definitive policy statements and summarised regional and national statistics. The consumer’s first port of call should be “the market”.
- We believe that third party not-for-profit organisations have a key role to play. It must be expected that not all of their inputs will be either 100% aligned or 100% supportive. Some care may be needed to ensure that there is an authoritative, open and fair counterbalance to *excessively* negative arguments. For example at Ofgem’s *Prospectus* launch event on 4th August a concern was raised publicly about the possibility of unacceptable levels of radio-activity from smart meters.
- In general we believe that customer segmentation is a matter for suppliers. Nevertheless it is expected that DECC/Ofgem will have a duty to ensure that no customer groups suffer unfair discrimination.

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

A 94a 2.3

Clearly the primary purposes of the visit are

- To complete the installation there and then, within the appointment period.
- To verify completion with the relevant data centre *during the visit*.
- To ensure that the consumer is satisfied with the installation.
- To ensure that the consumer has been familiarised with the key features of the installation.
- To ensure that the consumer knows whom to contact with any further queries.

Additional acceptable uses are:

- As noted in our answer to question 2, to provide (access to) straight answers to factual questions like “Does loft insulation really make a difference? Is my landlord *obliged* to help me with energy-saving improvements to the premises?”
- To provide contact points for good sources of information.

Unacceptable uses are

- Solicitation of records of contracts that consumers have with other parties, eg security services or central heating maintenance agreements.
- Negative opinion or comment on other existing systems within the premises (eg HANs) designed to win replacement business.
- Dual-fuel sales to consumers using separate suppliers.

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

A 94a 2.4

We believe this is a matter for suppliers and that major intervention is not necessary provided that similar guidelines to those offered in question 3 also apply here.

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?

A 94a 2.5

We strongly support this principle. Indeed it lies at the heart of the two main benefits of smart metering.

- As pointed out in our answer to question 1, accessible consumption information *solves* one of the persistent criticisms of the current competitive market, viz that consumers often cannot tell whether a switching decision produced the right result or not.
- Accessible consumption data is also key to the development of *local action* towards the wiser use of energy by more enlightened consumers.

This can best be achieved by requiring that one of the datasets held by a smart meter is designed to provide the consumers with *exactly* the information they need to choose the best tariff for them, individually. This dataset could be the same as that already proposed in the SMIP *Statement of Design Requirements* section 1.34 DS.2 for data storage. It must be possible for the consumer to be able to “pull” locally this data out of his meter in a manageable format so that it can be used by other in-home systems of his own choice, including but not limited to his own PC. All that is required is that the consumer can gain access to the meter HAN either directly or through an available gateway.

We also strongly support the principle expressed in section 2.31 “that data control rests with the customer”. We agree broadly with the proposals as set out in sections 2.33 – 2.35 except that we do not support the contradictory “opt-in” condition implicit in 2.34 which seems to suggest that suppliers will routinely prevent access to this information

unless asked. We believe that demanding a consumer opt-in would present at least three serious problems

1. it prejudices the consumer's basic right of access to his own data
2. it implies that there are centrally-held keys, codes or passwords, which is a well-known weak-point for systematic security attack
3. that act of requesting access might signal a potential sales opportunity to *one* participant in the wider competitive energy services market

Nevertheless we expect that suppliers will offer a wide range of energy consumption and energy management information through every channel they deem appropriate. This will include competitive web-based individual consumer services and many other promotional activities.

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?

A 94a 3.6

We agree that the existing protections are sufficient to prevent inappropriate switching to prepayment. An important step in these protections is that *access* to the meter must be taken into account using the “safe and practicable” criteria described in section 3.16. We have presented our analysis and proposals on this in more detail in *Prospectus* section 2 question 4 and in question 7 below.

In future an additional step may be required for consumers that have FIT arrangements since supply disconnection could also result in the generation being disconnected in the consumer's premises. In these cases it could be better to use a load limitation function that only allowed very limited import but no limitation on export.

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

A 94a 3.7

The provision of an IHD *could help*, but that is all. The main challenge is: how does the IHD maintain its functionality when the meter has switched off the household supply? It should be remembered that for prepay consumers the interactive features are not just “nice to have”; they are core elements in access to energy.

Best practice today is that it is not acceptable that access to electricity should be dependent on customer-maintained batteries. Also, although the question has not previously arisen, we believe it would also be unacceptable that restoration of power to a house should depend on finding a “loose” object (portable IHD) possibly in the dark.

An appropriate IHD for prepayment, therefore, should be very robust, have uninterruptible power (possibly a lifetime battery, or one maintained by the supplier) and should be wall-mounted.

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

A 94a 3.8

In all cases we believe that either a telephone dialogue or bi-lateral correspondence demonstrating full understanding in each case, are necessary precursors to a change to prepayment mode. It should be remembered that a switch to prepayment mode could result in an immediate “disconnection” unless suitable counter-measures, such as those available on existing prepay meters, are put in place. Preferably, and probably in the majority of cases, the switch will be mutually agreed so many of the problems arising from a “forced” switch do not arise.

In the less favourable circumstances the switch to prepay is intended to protect the supplier’s credit risk, and also to some extent to protect the consumer from building unmanageable debt, so two weeks or the beginning of the following month, whichever is longer, is reasonable notice. A good agreement takes into account the consumer’s income pattern.

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?

A 94a 3.9

We believe this is a matter for suppliers. However, the success of these features in terms of actual favourable consumer feedback is so strong that we would expect them to be routinely offered.

Both of these features offer a win for both parties. One benefit that is often missed is that if prepayment meters do *not* switch off say on Christmas day, then suppliers will receive fewer “mistaken” fault calls, and will therefore make fewer expensive out-of-hours field service visits. So consumers can have power and engineers can have the day off.

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

A 94a 3.10

We believe that smart metering renders the traditional differentiation between prepay and credit metering obsolete. Smart metering *decouples* the previous relationship between how people pay, when they pay and how they are metered.

The remaining residual customer segment that is least well addressed is those that prefer to pay “over-the-counter”, often in cash. If suppliers continue to offer over-the-counter services, then there will be a continuing need:

- to collect the payments and accept the payment risk
- to identify the customer (or the target meter) at the time of the transaction
- to route the transaction details to the correct supplier
- to forward the cash to the supplier

- to provide a means for the point-of-sale network operator and the retailer (shop-keeper) to charge the correct supplier for its services

In the medium term, a possible simple operational solution would be for the DCC, through its registry function, to route retail transactions to the correct suppliers.

We do not see a continuing need for suppliers to have to provide PPMIP services to each other.

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?

A 94a 3.11

In general, we believe these measures are sufficient.

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

A 94a 3.12

We believe that remote disconnection requires at least the level of diligence that prevails today in order to avoid serious risk of unacceptable unintended consequences.

We believe that *auto-disconnect* (ie the outcome is based wholly on formal system input criteria, with no human intervention) is potentially dangerous both at an individual and a population level and is not acceptable.

In the case of self-disconnection for consumers operating in PAYG mode, some suppliers may choose to send a top-up reminder to their customers, by SMS or other appropriate channel. This might be particularly helpful for carers.

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?

A 94a 3.13

We believe this is a matter for suppliers, but in general much of the cost of the system seems to be arising from the imposition of successive layers of credit risk management, to the detriment of the original drivers, which were wiser consumption and accurate billing.

Load-limiting by time may be viable but we believe load-limiting by power is not likely to be popular due to its uncertain effect on various appliances. This could create a negative reaction to smart metering in general. We do not think these features are either necessary or represent good system value when user-friendly PAYG offerings are also available.

We also take the view that insufficient weight is attached to the pro-active features of smart metering. For example, smart metering should guarantee the provision of frequent informative accurate bills removing one of the previous *causes* of payment

difficulty, which was the operation of poorly-controlled billing cycles with under-recovery and over-recovery.

There is too much focus on providing complex features designed to force reluctant consumers to pay up, and not enough devoted to the provision of excellent service for which consumers will be relatively happy to pay.

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

A 94a 3.14

In general we agree with the proposed approach, but would reiterate that smart metering was not originally proposed as a means of finding as many ways as possible to insulate energy suppliers forever against the risk of non-payment. Much more emphasis is required on how consumers can use smart meters to ensure they are on the best tariff (which they are more likely to pay for) and that they have the information they need to try to consume energy more wisely.

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.

A 94a 3.15

There may be categories of vulnerable consumers, especially among the extremely fuel-poor, who would benefit from a guarantee from their suppliers that they were truly on the cheapest tariff. With smart metering it would be possible for a supplier to calculate such consumers' bills according to *all* the tariffs it had on offer and to bill according to the lowest, regardless of the actual contract.

Rising block tariffs have a strong tendency to favour smaller consumers. Given that the fuel-poor are over-represented in this group there would seem to be some attraction in making the offer of a rising block structure compulsory. Special care would be needed to accommodate single-fuel consumers who use electricity for heating and cooking. Rising block tariffs also offer the maximum incentive for larger consumers to reduce their total consumption.

Statistical pre-analysis of remote disconnection "commands" by the DCC could provide part of the protection plan against security attacks that attempt to make large-scale disconnections of the consumer base. We believe that an intelligent system could detect and prevent a high proportion of this kind of malicious attack.

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

A 94a 4.16

Key issues include the provision of information via appropriate media, and in the right language. There is a lot of experience in the industry in providing such material,

including important detail like font size and style, colour schemes, and audible and tactile feedback. (Push-buttons on occasionally-used devices MUST provide immediate sensory feedback, or they will be pressed ever harder and more frequently until something breaks.)

Some vulnerable consumers may benefit from an option to have a trusted third party (friend, relative, local authority representative, church-member) present when their meters are installed. Local authorities may be able to offer a default service. This could have ramifications for the design of good call-centre appointment-making scripts where allowance would have to be made for vulnerable consumers who cannot commit in one conversation.

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

A 94a 5.17

We believe that metering, IHD and all such installation-related costs should be collected via the normal bill. Although it does not seem practical to prevent suppliers from trying to recoup their initial costs sooner rather than later, they will be under strong competitive and financial pressures (as noted in section 5.4) to avoid losing customers by over-charging after completing new installations.

The SMIP should note, however, that there have been several well-publicised cases in the United States where consumers have complained that their bills have increased significantly since a smart meter was installed. Some consumers believe that this rise is not directly attributed to the agreed increases in their tariffs to cover the costs of the deployment. There has often been a suspicion that the new meter is inaccurate or measures in a different way, or that the energy supplier has used the meter deployment programme as an opportunity to change the way it calculates consumption cost. It is true that some consumers will see a larger than expected increase in costs but this is most likely because there are no estimated meter readings and the meter accuracy class may itself be improved. There are also likely to be some consumers that may previously have been assigned an incorrect (lower cost) tariff or perhaps have been billed for an incorrect supply point (e.g. if two consumers have been cross-billed). The SMIP may become aware of similar issues arising during the UK smart meter roll-out, and should be prepared to deal with the resulting negative feedback from consumers.

94b Statement of Design Requirements

Questions 1 - 10: Response provided 28 Sep 10

94c In-home Display

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.

A 94c 2.1

We agree with the reasoning expressed in sections 2.14 and 2.15 to the effect that a combination of on-going indicative figures backed by periodic cumulative “statements” is a good approach.

We agree there are two aspects to accuracy: (1) accuracy of instantaneous consumption rate and (2) accuracy of cumulative bill to date.

In case (1) we see no good reason why the accuracy should not be commensurate with the accuracy of the meter. The current applicable tariff should be “known by the meter” at all times, so in most instances this should not present a significant problem. There are some complications however:

- In cases where a tariff depends on information that only becomes known at a later date (say, the end of a consumption period), the instantaneous consumption cannot be calculated exactly in money terms.
- A special case of this is the “friendly block tariff”. A *falling* block tariff (as is common, but not necessarily desirable) can penalise prepay consumers because they pay the higher price earlier and the lower one later, while customers paying in arrears simply pay the average. Current prepay meters can “forecast” a consumer’s quarterly consumption and charge the correct average rate throughout the period. Actually the forecast improves as the period develops and achieves maximum accuracy at the end.

In case (2) we believe that cumulative billing information available on the meter (or IHD) will be acceptable to consumers if it is correct to the nearest penny at 02:00 the previous night (or perhaps week-end) and dated accordingly. For particular events, especially change of tenancy, we believe that timed, dated, information should be available within one hour of request.

Special billing statements should be available, correct to the nearest penny, to mark all changes of circumstance, eg at time of transferring to a new tariff.

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 best be represented to consumers.

A 94c 2.2

We do not have statistically significant evidence on whether information on carbon dioxide emissions is useful in encouraging behaviour change. We do believe however that total energy consumption is a close proxy to CO₂ emissions in the minds of most consumers. This may become open to debate if and when consumers actively sign up to green energy offerings that are sold on the basis that the energy was generated by

low a CO₂ process. We believe that consumers who actively choose a low CO₂ service will want to see an appropriate statement showing how much they saved by doing so.

The engineering units of measurement are awkward as most people find “tons of gas” hard to visualise. Alternatives might be to count a previous billing period as “100%” and work from there. Or to refer to a national average household output that could be calculated once and for all and used as a benchmark. People with non-average consumption will quickly realise that it is their own personal long-term *trend* that is important, not the starting point.

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

A 94c 2.3

We believe this is a matter best left to suppliers to decide.

Nevertheless it is important to distinguish between what the IHD is capable of receiving and what an electricity meter is capable of sending. We believe the performance specification of the meter should not necessarily be limited by short-term IHD constraints.

Question 4: Do you think there is a case for 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?

A 94c 2.4

We believe this is a matter best left to suppliers to decide.

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

A 94c 2.5

We believe this is a matter best left to suppliers to decide. However as noted in our response to SMIP *Consumer Protection* question 7, we believe that IHDs offered as the sole interface to PAYG consumers should be firmly wall-mounted.

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

A 94c 2.6

We believe this is a matter best left to suppliers to decide.

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?

A 94c 2.7

We believe this is a matter best left to suppliers to decide. We do not believe it has any negative impact on innovation. Our key concern is that consumer data (meter data) is also available to other devices of the consumer's choice, eg iPod, PC.

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

We do agree with these proposals. We would draw special attention to the ramifications of the proposal to allow the obligation on suppliers for the provision of IHDs to lapse after one year. While we support this approach we note that it strengthens the case for ensuring that meter data is openly available to other devices of the consumer's choice.

We would also argue that, contrary to the implications of section 3.7, it is not known whether suppliers are deploying smart meters in advance of the rollout, because "smart meter" is not yet defined. What is known is that many parties are, quite correctly, experimenting with a wide range of metering technology at their own commercial risk.

94d Communications Business Model

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?

A 94d 2.1

Yes, we support this. These are the fundamental requirements of the DCC. We particularly support the translation requirement as we believe it is important that suppliers or other authorised parties do not have to develop access to the direct meter functions but can use instead the DCC. The following additional functions are also basic services that must be provided to ensure that the Smart market develops:

1. Receipt of alarms and status outputs from HAN devices and routing to appropriate owners eg Suppliers, DNOs/GTs and possibly MAPs
2. Maintenance of a service delivery point (property address code)
3. Register of all utility-provided devices attached to the HAN per Service Delivery Point

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

A 94d 2.2

Yes, we support this, but **it should be included in the initial scope.**

We see meter registration as another fundamental requirement of the DCC. We believe that the industry should only have "one version of the truth" that drives smart industry processes. DCC should hold the standing data relating to each meter point including:

- who is the registered supplier
- what is the meter configuration
- who has the right of access to meters and control equipment within the property that are connected to the HAN
- who has access to the data retrieved from the meter

As we have explained in further detail in answer to other questions (eg in our response to *Prospectus* section 3 question 9 and section 4 question 17, and in section C2 of our reply to the ROMA Consultation that closed on 31 August) we believe that registration, even in prototype form, needs to be brought forward to capture every claimed smart metering installation from day one. This seems to us to offer a major opportunity for avoiding crippling complexity and future cost.

We believe that the outcome of Ofgem's intention to evaluate the inclusion of Meter Registration (as per section 2.37 of *SMIP: 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 are aware that it may be argued that it is not possible to start a register on day 1, because there are no agreed data structures, but this is the whole point. Unless there is powerful pressure to confront, identify and address these details early on, the situation will surely get steadily worse. We have encountered many instances in the earlier years of open competition, when various parties have acknowledged their regulatory obligations, but have avoided adherence by simply claiming that their systems *cannot* comply. The reasons given extended from complex issues of mass data migration, to the most mundane details of meter serial numbers. One major party could not adopt a newer, cheaper, interchangeable meter because they could not accept any serial number with a particular letter in the middle. Another could not accept modules because their system could only recognise one device per installation. The problems were countless but the justification was always the same: “it would cost us too much to change our systems now”.

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

A 94d 2.3

For standard datasets, data processing, aggregation and storage *should* be included within DCC’s scope. There is an opportunity to greatly simplify the current system of aggregation and settlement, and in our view the transition would best be implemented if the DCC used new rules based on smart meter data from the outset.

It is vital that suppliers have an incentive to offer new flexible tariffs based on smart data as soon as possible so that the benefits of smart metering are brought forward. Much of this incentive is lost if new granular data is ignored and settlement continues based on existing profile classes. This means that *suppliers* will be charged for their consumers’ energy as if nothing had changed and there would be no point in offering the consumers a financial incentive to shift their loads. By placing Data Processing within the DCC new smart consumers could be treated as new settlement classes and solutions agreed with the BSC to deal with these customers’ smart meters more like the half-hourly segment, where actual interval readings are used to assess individual consumption patterns and incentivise behaviour change.

There is a perfect opportunity for the DCC to introduce a new solution organically, and to generate some feedback for DECC/Ofgem on the effects of smart metering tariffs on consumer consumption patterns. The “standard” profile for all profile classes will need to be reviewed much more frequently.

On the topic of storage, we do not see this as an onerous task. The DCC should retain a regulated dataset, (a minimum of 12 months but preferably 2 years of half-hourly readings, plus a few years of monthly readings, plus meter installation details) and delete everything else on a rolling basis. This would enable consumers via third parties to access data consumption over longer periods to analyse energy performance against other drivers such as occupancy. There is no value in archiving old details, apart from where these are required by regulation (such as financial transactions or the balancing and settlement code) if Data Processing and Data Aggregation are included as services. Even from the consumer’s point of view we would argue that there are opportunities for them to record their consumption data locally if they want to. But if they choose not to, then after a given period it is lost. An auto-delete approach to data management also helps reduce the scope for data *mis*-management over the years.

Data processing in the Electricity Industry is an accredited activity and drives the settlement process. It is a non-differentiating service, carried out to prescribed industry rules using the meter standing data (ie the meter and timeswitch code) combined with the settlement class. With registration being centralised it would be more efficient to centralise data processing in the long term. The gas industry has a different system for calculating the AQ values and nominations of the AQ per MPRN for the following year. At the start of the smart DCC services neither the gas nor electricity data processing systems are required to change, therefore there are no immediate drivers for including these in the DCC services from day one. However, we believe that from an industry efficiency point of view the DCC should be able to *offer* these services and indeed it may be better to *mandate* these services as part of the DCC licence some time in the future. Similar arguments apply in Data Aggregation, where there are even more efficiency drivers for centralisation and no added value from individual action by suppliers.

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?

A 94d 2.4

As argued previously, (for example in our response to Question 1 on Rollout Strategy on 28 Sep), we think the period “before DCC service availability” should be zero. There are both technical and commercial problems.

Early rollout of meters without the technical and security standards that will be provided by the full rollout of DCC services will create a 2 tier deployment. Any issue with security has the potential to severely impact the programme. If it is deemed a requirement that Smart Meters are rollout before the DCC services are implemented we propose the following steps are taken:-

- The SMIP agrees and publishes the Technical Standards for communication protocols, security and encryption, required standing data, data definitions, fields and data formatting.

- The industry encourages potential DCC data and WAN communication service providers to work with Suppliers to set up early start, limited scope DCC data services and WAN communication services from the start of the mandated rollout period that use SMIP agreed security and Technical Standards, data formats and definitions for standing data.
- Suppliers are required to build interoperable solutions or use service providers that employ the published standards and provide an agreed minimum scope for pre DCC deployment. This approach will enable the full services to be developed and tested to incorporate the migration of standing data, consumption data and other information in an agreed format, for early (Pre DCC) deployed meters.

Essentially, phase 1 is a period when suppliers and other industry players can do research and testing on possible smart products for their customers, but with no guarantee that another party will become obliged to support these in the medium term. It is not tenable that the DCC should offer a catch-all safety net to all previous prototype solutions, no matter how underdeveloped. Such an open-ended technical liability will limit the willingness of otherwise strong candidates to bid for the opportunity.

Equally, it will be difficult for any bidder for the role of DCC to provide a guarantee in advance that it will accept potentially unlimited financial liability for contracts that it has not seen. This would probably rule out investor-owned participants on governance grounds.

On balance, we prefer the option identified in section 2.63 to the effect that communications contracts entered into by suppliers should be of a duration limited by the start-up of the DCC, or have no promise of novation.

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?

A 94d 3.5

We strongly support this proposal, especially the reasoning outlined in section 3.16 that it offers a means of reducing the integration risks between separate data and communications companies.

We believe that it is important to establish in the DCC licence that its core function is procurement and contract management and that as a licensed body it is precluded from providing these services itself. We also see a need to procure security management services to manage and accredit the end to end security of the smart meter system, from users of the DCC services to the hardware and software components attached to the installed metering systems.

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?

A 94d 3.6

We support the statement in 3.26 (bullet two) that any party controlling the DCC, or controlled by it, would be ineligible to bid to provide services to it.

We believe the question of its independence turns on whether other parties are obliged to use its services or not. We think it would be acceptable for the DCC to be owned or controlled in whole or in part by its community of compulsory users provided that none of these also compete in the related energy service markets. We believe that *optional* commercial users, eg private services companies, should be excluded unless it can be clearly demonstrated that their position cannot be used to distort other free markets, eg energy management or building automation.

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?**A 94d 3.7**

We support the arguments in section 3.27 onwards to the effect that much can be done in parallel to the appointment of the DCC to accelerate progress thereafter.

We see the major challenge to the programme is the time to build and test an operational DCC Data Services solution, which in our estimation will take considerably more time than six months. Early rollout of meters without the technical and security standards that will be provided by the full rollout of DCC services will create a 2 tier deployment. Any issue with security has the potential to severely impact the programme. To mitigate this risk we have proposed a solution in our response to question 4 above.

Question 8: Do you have any comments on the proposed approach to cost recovery and incentivisation for DCC?**A 94d 3.8**

We support the idea that DCC should have a positive financial incentive to perform efficiently as proposed in section 3.58. In addition to the charges outlined in section 3.48 we believe there are at least two other factors that need to be considered.

1. System users will naturally want access to a smart data communications service that is capable of meeting their every possible present and future need. However they will probably not want to pay for services that they have not actually used. It is foreseeable that there may be a large gap between what the system is capable of, and what it actually does. We believe that DCC must be allowed some scope for charging for available capacity and functionality, as well as just usage. This may be possible within the "standing charge".
2. Some SME sector consumers will be able to provide meter data via their agents over the internet. In order to support solutions like this, we believe that DCC should offer an internet channel for approved data services providers in addition to any other purpose-built channels of its own choice.

We also believe the proposal to create incentivisation via regular market testing at 5-7 year intervals needs to be balanced against the need to provide a stable environment to invest in long term infrastructure components. Whilst new communications technologies

may emerge in the future it is also important to select technologies now that have the ability to be flexible and deliver the potential requirements of smart grids. The concept of short term communication contracts will create significant uncertainty for potential providers and can only lead to increased overall costs to the customer. The procurement process needs to focus on delivering the lowest long term cost of service for current and future needs.

94e Data Privacy and Security

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

A 94e 3.1

We strongly support the overall approach, and in particular welcome the statement in section 3.11. We believe it is necessary for industry stakeholders to identify the potential value of consumption and demand data as we move into a Smart Grid world. It is paramount that real personal data issues are clearly understood alongside the potential benefits that may be gained by the use of this data at different levels of granularity and aggregation.

We think that over a period of time there will be an increasing number of home automation applications that could make use of “meter data” and that the meaning of the term itself may not stand still. In the past, meter data clearly meant occasional meter readings taken periodically for billing purposes and at other irregular intervals for special needs like change of tenancy. In this context, there was no question about the right of access of the (vertically-integrated) utility to all meter data.

The changes brought about by smart metering however require that this information is re-classified in much more detail. It is already well known that meters can record data much more frequently than before, enabling the offer of more flexible tariffs from energy retailers. It is slightly less well known that meters can record many more characteristics of the energy supply like power quality, power factor, supply reliability, instantaneous consumption and so on. This information is obviously quite different in kind from quarterly cumulative register reads, and although it may originate in the meter it is helpful to distinguish it from other “meter data”. This will enable the industry to avoid the invalid assumption that retailers should have automatic rights in perpetuity to all data that passes through meters because they have always done so in the past.

The distinction between different classes of data that may be created or held by meters will become even more evident when meters generate not only instantaneous consumption details, but also electronic signatures for all consumer goods in each home. This technology is already available, and few would argue that if this data ever passes through a meter then the energy retailer should have a right of access.

We would argue, then, that increasing care needs to be taken over the use of the term “meter data” and wherever possible we should be more specific and talk about billing data, settlement data, industry data, energy management data, grid management data, and lifestyle data. These categories are quite distinct and the new rules need to recognise this.

We believe that access to centrally-held industry data should only be granted to accredited parties whose systems and security measures comply with those established under the Smart Energy Code (SEC). We would not suggest that the DCC is mandated to interface directly with consumers and that consumer authorisation of approved interfacing parties must be auditable and follow procedures governed by the SEC.

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 to fulfil regulated duties.

A 94e 3.2

Our starting point would be that half-hourly data aggregated on a similar basis to the 100kW market should be enough to fulfil most, if not all, regulatory duties. In any case the process needs to replace *profiling*, otherwise suppliers will not be able to secure the benefits of better individual consumption patterns from smarter consumers.

In addition, since regulation now requires both licensed network owners and suppliers to address energy and carbon reduction, the use of consumer data is likely to evolve. Analytical tools and services will be developed over time that will require more granular data. Technologies and processes such as electric vehicles, demand side management and smart grids will increase the pressure for access to energy statistics but, where these can be associated with individual consumers, appropriate controls and consumer opt-in authorisations will be required.

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

A 94e 3.3

We strongly support the proposal to develop a privacy charter.

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

A 94e 3.4

The privacy charter should take into account at least the following:

- The need to recognise that the SMIP rules do not replace the constraints of the Data Protection Act.
- Identification of the different parties who will use or depend on the smart metering system
- Explicit definition of the different classes of data that may be created by or handled by the system as discussed above in question 1, with no default ownership rights to any party other than the consumer.
- The rules for destroying, rendering obsolete, or otherwise closing access to old data

The charter could also usefully contain some statements concerning the purposes for which data access might be in the national interest

- The original objective of DECC to achieve improved security of energy supply at a macro level, and to
- The original objective of DECC to reduce carbon emissions, and the part individuals can and should play.
- The need to encourage the accelerated development of some key national infrastructure to meet foreseeable future needs such as smart grids and e-cars.

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

A 94e 4.5

We agree with the overall approach.

We would add that while there has been some good analysis of the challenges associated with handling data within the “end-to-end” system, this has taken place under the tacit assumption that the system is somehow self-contained. While this may be possible, it is also possible that smart meter data may leave and re-enter the “smart metering system” many times, say while passing over the mobile phone network, or through unspecified internet channels. We believe it would be helpful to devote some attention to these wider aspects.

Siemens believes that smart meter systems should be regarded as part of the Critical National Infrastructure and that financial transactions will be included in the messages to meters and IFDs. Consequently security has the highest priority. We suggest the following areas may need more consideration

- Denial of Service attack – either deliberately or accidentally and on a macro or micro level – from DCC through to HAN.
- Use of different security approaches depending on the message being moved, e.g. different encryption for financial, disconnection and connection messages.
- Security is currently advisory and it must be mandatory. Industry specialists need to be engaged and risk assessments made.
- Security management needs to be added as a service procured and managed by the DCC.
- Leveraging experience from overseas and other industries
- Change of supply and tenancy processes at the meter system and in the DCC

Finally, we see the need for security experts that are part of the security steering group to be involved in all the working groups established to ensure visibility of issues, consistency of approach and an escalation routes.

94f Implementation Strategy

Questions 1 - 8: Response provided 28 Sep 10

94g Rollout Strategy

Questions 1 - 13: Response provided 28 Sep 10

94h Regulatory and Commercial Framework

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

A 94h 2.1

We agree that all of the key elements are covered, except possibly:

- Meter asset provision. At present consumers still have a right to provide their own meters. It is unclear whether this right is expected to expire.
- SME services. We believe that DCC should offer an internet-based comms channel to support authorised DC agents of SME consumers.
- Governance. Great importance attaches to the body that administers the Smart Energy Code (SEC).

The importance of the SEC administration body in managing changes and clarifying the roles and responsibilities under this new regime will be a key element in the regulatory regime. The ability of this body to effectively and proactively manage the administration of the SEC will determine the success of the initial phases. This follows the first principle of the Code Administration Code of Practice, with the CA as a critical friend. This is key to success.

Third-parties (such as Energy Services Companies) who are not covered under existing or planned license arrangements may be required to commit to the framework agreement for the SEC in order to access services from the DCC (accede to the Code). If so, clarity will be required over what rights they will have to raise modifications to the DCC services, and whether they will be entitled to vote on relevant changes as the industry develops.

If the DCC were able to offer competing services at some later stage in the future (having 'stabilised' its core function) this would create a conflict with the third parties who had entered the market earlier. Without clarity under the regulatory regime on what activities the DCC will be 'allowed' to undertake in the future, there is a substantial risk that new entrants offering innovative data services will perceive any extension of DCC functions as potentially unfair competition.

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

A 94h 3.2

We strongly support this proposal but it remains unclear how SEC governance would align with governance arrangements of existing codes. The stated advantage in creating the SEC is that it overcomes the issue of fragmented governance and the challenge of keeping arrangements aligned across gas and electricity, once the powers of the Secretary of State to modify codes in relation smart metering have expired. This suggests that the SEC will have significant influence over all other codes in regard to smart metering changes. The issue of cascading the changes flowing from the SEC through other code modification panels (and their impact assessment processes) needs to be considered, and the process pragmatically set out.

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

A94h 3.3

We believe that the Code should cover the voluntary provision of internet-enabled data services by consumers, to accommodate circumstances where this can reduce consumer charges.

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

A94h 3.4

We support the arrangements proposed, especially the inclusion of consumer representation.

We note however that the SEC panel responsible for the governance of the code is not yet defined. Early consideration from DECC and Ofgem on the appropriate composition of the panel and associated voting rights would clarify both the participation rights of the stakeholders, and also the benefits Ofgem and DECC wish to secure. This clarity will provide the necessary focus in developing solutions and establishing commercial arrangements.

Clearly many parties with direct interests may wish to participate on the panel, and with the scope of the SEC being so broad it is possible that representation from all potential stakeholder groups could make the size of the panel unwieldy and ineffective. Early guidance from the SMIP on these major issues will accelerate progress significantly.

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

A 94h 4.5

Suppliers should take responsibility for installation and maintenance of approved WAN devices.

In order to facilitate the supplier's maintenance process in the medium term:

- WAN devices should be exchangeable on-site without a change of meter, and without the need for access to dangerous voltages (ie 230V).
- Meters should provide secure uninterruptible low-voltage power supplies to WAN (and HAN) modules.

DCC should approve WAN devices, probably in conjunction with their agreements with preferred communications providers.

Suppliers should take responsibility for selection of appropriate approved devices as it is unlikely that any low-cost device will work in all installations.

DCC should provide *guidance* on the selection of WAN modem types for various locations.

As an alternative to the proposal in section 4.9 that suppliers should procure WAN modems, we believe that DCC could procure the issuance of them to suppliers via the

competitive process for comms provision. In practice the modems may remain the *property* of the comms companies at all times.

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.

A 94h 4.6

We support the current proposals, and in particular the statement in section 4.14.

The HAN signal strength should be included – this can be used by the installer, the consumer and the call-centre help-desk.

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 <sic> transferred to the electricity supplier when the electricity smart meter is installed?

A 94h 4.7

We believe that a high degree of complexity is generated by the ramifications of installing gas meters first and that, despite the negative impact on free and open competition, consideration should be given to stipulating that for non-dual-fuel customers, electricity meters should always be installed first. We believe this would affect less than on quarter of the country's 28m homes. It is also a practical response to the real-world situation, which is that most of the drivers for smart metering arise from the improved control of electricity consumption. We therefore support Option 3 followed by option 2.

The drawbacks of installing gas first include:

- The "transfer of responsibility" contemplated in the question is fraught with potential for dispute.
- The WAN modem needs an uninterruptible power supply. Given that no low-voltage source exists, the gas-fitter would either have to be also a fully-qualified electrician capable of making mains connections or would have to install a temporary batter-powered device of unknown service life.
- When the electricity meter is installed, a new secure uninterruptible low-voltage source will become available, and in future will be the natural point of connection for new WAN modems. There could therefore have to be *two or three* versions of every modem: mains-powered, battery powered and low voltage powered.

We agree that the WAN and HAN should be shared infrastructure. The *current supplier* should be responsible for on-going customer service, including maintenance. The *installing supplier* should bear residual liability for the quality of the installation

workmanship, but not for on-going maintenance. For the reasons given immediately above we believe that serious consideration should be given to the proposition that the electricity supplier always takes responsibility for maintenance of the WAN and HAN.

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

A 94h 5.8

The best way to avoid risk to the program is to maintain absolute clarity that early movers do so entirely at their own risk, and to concentrate all efforts on completing the *specification* of compliant solutions as soon as possible, thus removing both doubt and risk.

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

A 94h 5.9

Commercial interoperability is best ensured by avoiding the need for all suppliers to negotiate an *ad hoc* network of peer-to-peer contracts. Six suppliers would require fifteen contracts for each transferable service. Either these contracts are all the same, or there is scope for legal action from any party that perceives a systematic disadvantage. One way of ensuring a degree of fairness would be to require that individual contracts must contain a novation clause that allows other suppliers to adopt the service on the same terms.

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?

A 94h 5.10

In accordance with responses we have offered in other places (eg Prospectus Q17) we believe that the SMIP should consider defining a regulated dataset which should be available only to a suitable public body, possible Ofgem, DECC or ONS. This body would publish national statistics that would provide a solid basis for independent research and evaluation of the performance of the system as a whole and of its constituent parts.

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

A 94h 5.11

We believe that there is too much focus on the headline principle that “early movers” are installing smart meters, and not enough on the real substance of these claims. Until a smart aggregation and settlement process is established (and smart data are not just re-profiled back to the old system) there will be limited value at the high end of the system. The real value will be centred on how consumers use smart data locally to manage their energy consumption more wisely. For these gains to be achieved all that is required is that the HAN protocols are agreed sooner rather than later.

As noted in our replies to SMIP *Consumer Protection* question 13, we also take the view that insufficient weight is attached to the pro-active features of smart metering. For example, smart metering should guarantee the provision of frequent informative accurate bills removing one of the previous *causes* of consumer complaint, which arose from the operation of poorly-controlled billing cycles with under-recovery and over-recovery. There is too much focus on providing complex features designed to force reluctant consumers to pay up, and not enough devoted to the provision of excellent service for which consumers will be relatively happy to pay.

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?

A 94h 6.12

The main barrier to the development of innovative time-of-use tariffs is that the whole aggregation and settlement system for the residential segment is geared to *profiling* consumers. This effectively synthesises individual half-hourly data based on population-wide figures (ie what went in divided by the number of consumers).

As noted in our answer to SMIP *Communications Business Model* Q3 it is vital that suppliers have an *incentive* to offer new flexible tariffs based on smart data as soon as possible so that the benefits of smart metering are brought forward.

Much of this incentive is lost if new data are pushed into the “old system”. There is a distinct likelihood that the old system will simply ignore all the new data (it can’t cope with it anyway), keep only the “book-end” meter readings to replicate the traditional inputs from manual system, and then *profile the readings* to create the same synthetic data that was produced in the past. This means that *suppliers* will be charged for their consumers’ energy as if nothing had changed and there would be no point in offering the consumers a financial incentive to shift their loads. The DCC needs to net new smart consumers out of the old system and treat them more like the half-hourly segment where actual interval readings are used to assess individual consumption patterns and incentivise behaviour change.

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

A 94h 6.13

As noted in our reply to the previous question we believe this is one of the most important areas for improvement. A new aggregation and settlement process based on real smart data rather than synthesised profiles is a necessary precursor to realising the central benefits of smart metering. Without this, a supplier who successfully gets all his customers to operate to a more helpful consumption pattern will not be rewarded by the system. Local benefits may still develop apace, but without appropriate central treatment of the data it will be impossible to detect whether it is happening or not, other than by “manual” statistical sampling.

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?

A 94h 6.14

We do not see any barriers to access to the benefits of smart metering for customers located on independent networks, provided that a central registry is set up as a matter of priority and that the deployment of smart metering and the associated customer service processes are supplier-led.

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

A 94h 6.15

In our view, it is worthwhile to take into account developments in the water industry. The needs there are similar to those in gas and a significant amount of work has been done in developing practical battery-powered HAN solutions. A common theme is that the physics of the 868MHz band is significantly more amenable to good signal propagation than that of higher bands regardless of the actual preferred protocol. We would strongly recommend concentrating in that area.

94i Non-domestic Sector

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?

A 94i 3.1

Neither *advanced metering* nor *smart metering* are sufficiently well defined for the answer to be clear. Nevertheless the term “advanced metering” covers all possible means of gaining remote access to meters, not just those that will be supported by the new DCC and is therefore more general than smart. Special applications like separate energy export monitoring and power factor analysis may not fall within the smart definition.

The term “smart metering” will come to refer only to solutions that comply with and are supported by the operational constraints of the DCC. For this reason we believe it is necessary that the DCC supports an internet channel in addition to all its own appointed data communications channels, so that it can exchange information with the “advanced” domain. This channel may also be used directly by *any* consumers via their HAN and local internet connections to provide very low-cost data collection “free” to the industry. We have covered this in more detail in other questions, eg Q12 of the Prospectus.

We do not have reliable statistics on the deployment of U16 or CT meters among SME customers.

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

A 94i 3.2

We support the proposed approach. We believe that it will be necessary to devise clear guidelines in the proposed new codes to ensure that fit-for-purpose advanced metering is not needlessly removed in order to disrupt a competitor’s on-going provision of wider customers services.

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

A 94i 3.3

Further review would be helpful on the treatment of power factor measurement, export energy and reactive power measurement.

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

A 94i 4.4

We support the proposal that use of the DCC for operational services should be optional for non-domestic participants.

However we believe that *all* metering service providers should have an obligation to record certain minimum details with the central registry of the DCC. This is necessary to:

- reliably underpin the change of agent processes for the benefit of *all* stakeholders, including customers and suppliers
- ensure that a new supplier gets immediate access to customer service information
- ensure that external *national interest* needs (eg smart grid, e-cars, carbon trading) can be met

Question 5: If the 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?

A 94i 4.5

We agree with the proposed approach, provided there are also effective restraints on DCC itself entering the wider energy data management services market.

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?

A 94i 4.6

We believe that the mechanism outlined in answer to question 4.4 could be used to address this. *All* meter data services providers, whether or not they have opted out of the DCC's operational services, must be obliged to meet certain minimum requirements on behalf of the industry as a whole. These could include:

- Provision of core datasets for registry
- Provision of support information for smart grid applications.
- Support for other national needs

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?

A 94i 4.7

The question is unclear. Routine data collection will be carried out by the DCC (via its comms agents) or via independent meter operators (via advanced metering). It has

already been argued that, regardless of the *process*, there is a need to ensure that certain minimum datasets are recorded with the Registry. It is a matter for the parties bidding to become the DCC to decide how they would “re-sell” data to authorised system users. We do not believe that this requires further obligations to be included in Supply licences.

We believe the process is as follows:

- The DCC routinely collects messages (including standard datasets), issues messages, and retains a minimum reference dataset on behalf of the industry.
- The DCC provides additional “open channels” and other data services on a “request” basis. These services may be provided to suppliers, DNOs, and possibly other parties.
- The DCC will normally use its own appointed data comms agents to deliver the messages, but it will also be obliged to support an internet-based portal for use by independent service providers who often use advanced metering and are appointed by small non-domestic consumers.
- The pricing models for these services will have been offered by bidders for the role of DCC.

The key enabler is that the DCC SLA obliges it to offer the relevant services.

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

A 94i 4.8

There is already fit-for-purpose interoperability in the smaller non-domestic sector. The only additional requirement needed is that independent (of the DCC) service providers should be obliged to provide an agreed minimum service to the DCC in order to qualify as compliant providers.

We have argued previously (eg in *SMIP Rollout Strategy* question 6) that a clear definition of *compliance* in terms of metering systems performance and available data services is key to ensuring interoperability, and consequently to driving a vibrant market in high-quality competitive services.

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

A 94i 5.9

There are three main points of access for customers to get their data.

1. Directly via the HAN
2. Indirectly via (a) their appointed meter data agent, or (b) their supplier
3. Centrally from the DCC

Re option 3, we do not envisage that customers will generally engage with the DCC, but there will doubtlessly be formal data protection and freedom of information constraints that must not be overlooked.

With respect to option 1 we believe this is the single most important new feature of smart (and advanced) metering from the consumer view-point. It is necessary only that the details of how to access data locally are clear to the consumer, and that such access is not constrained, permitted, controlled or otherwise mediated by any third party. The data must be available in a suitable form such that the consumer could link it across, say, to his own PC. We strongly support the statements in section 4.14 of the SMIP *Regulatory and Commercial Framework* and in sections 5.11 and 5.13 of this document (94i/10) on this matter.

With reference to option 2(a) in some cases SME consumers will appoint agents to meet their metering needs. The agent may collect the meter data via one technology and present it back to the consumer via another, typically over the internet. This works well in at least two cases:

- where special physical data comms measures are needed, because the standard solutions won't work or are uneconomic
- where the agent is providing a package of services that enable the consumer to use energy wisely and also to get a better deal from his supplier.

With reference to option 2(b), many consumers may see their energy supplier(s) as their main sources of help and advice on energy-related matters and in these cases we expect that suppliers will have an obligation to provide individual access to all data that they hold, but may also choose to offer more feature-rich services either remotely or via the IHD.

We believe that only in option 2(b), and only in instances where the consumer has decided to use the supplier's services, should the means through which data is provided to individual consumers be a matter of contract with suppliers. Clearly the same rules should apply to options 2(a) and 3.

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

A 94i 5.10

We broadly support the SMIP approach to data privacy and security.

As a very specific point, we consider the centralised issuance of passwords to be intrinsically insecure. A feature of all kinds of personal data management is that ultimately consumers have to take some responsibility for the protection of their own information. Passing this responsibility to other parties simply opens up large systematic gaps in the security concept. "Forgotten your password?" services could present a significant system cost.

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?

A 94i 5.11

In general, we believe the proposed approach to rollout *is* appropriate in the non-domestic sector, especially for consumers that use the metering services of their suppliers.

The residual category of consumers that make their own arrangements is less clear. We believe that a possible route is via the *compliance* constraints placed on metering agents, as discussed above in questions 6, 7 and 8 and previously in *SMIP Rollout Strategy* question 6. In other words, provided that the DCC is receiving inputs that are compliant with the requirements of smart metering, it is less important *how* this is being achieved by the independent operators.

Thus the requirement could be that the DCC will only operate with compliant services after a given target date. Agents acting outside of this definition would no longer be upholding their claim to their customers that the service was fit for industry needs. As noted in our answer to *SMIP Regulatory and Commercial Framework* question 1, this may touch on the relationship between the Smart Energy Code and independent service providers.

MRP Siemens October 2010