Smart Metering Implementation Programme
Department of Energy & Climate Change
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8 October 2012

Smart Metering Implementation Programme: Consultation on the second version of the Smart Metering Equipment Technical Specifications

EDF Energy is one of the UK's largest energy companies with activities throughout the energy chain. Our interests include nuclear, coal and gas-fired electricity generation, renewables, and energy supply to end users. We have over five million electricity and gas customer accounts in the UK, including residential and business users.

EDF Energy welcomes the further development of the Smart Metering Equipment Technical Specifications as a fully defined Smart Metering System is necessary to ensure technical interoperability, which is critical to the success of the programme. In particular:

- We welcome recognition of the benefits of a Communication Service Provider (CSP)-led model for development and procurement of a communications hub. We believe there is a compelling case, rather than there being a marginal preference, for this approach given the additional complexity and costs that could arise from a supplier led model.

- We expect swift development of an Intimate Communications Hub, necessary for mass roll-out, which will simplify and deliver the most economic installation of smart meters for the majority of homes in Great Britain.

- We believe that DECC should actively pursue the development of an 868MHz HAN, which is again, essential for mass roll-out. Enabling a rapid movement from 2.4GHz to 868MHz will avoid roll-out inefficiencies, customer confusion and excess costs being passed to consumers.

- A solution is required for all the buildings where radio solutions won't work. This is necessary to ensure 100% coverage by the end of the roll-out period, and to have a non discriminatory approach against high rise building customers and other properties where wireless communications will not work, such as low rise blocks of flats or very large properties. In this context swift progress on trials to prove the capability of a wired HAN should be a priority.

There are a number of key points that EDF Energy would highlight regarding the DECC Smart Metering Implementation Programme's design and consultation process, which we believe may compromise the validity of this consultation:

- Respondents are being asked to confirm their positions regarding the second version of the Smart Metering Equipment Technical Specification. However, this document has not been published.

- Subsequent to the publication of this consultation document, DECC has published for comment Detailed Design Specifications (DDSs) regarding specific smart metering equipment components. These DDSs appear to alter the functionality of each component. Thus, there is no stable design baseline from which to consider the consultation.

- The lack of visibility of an end-to-end architecture and operating model risks a variety of assumptions being made by respondents. It is possible that companies will make incorrect assumptions, leading to incorrect design decisions being made.

- The recent publication of proposed security architecture has yet to be fully resolved and the implications of this design are still unknown. It is not clear how, or whether, the security design will be supported by the Smart Metering Equipment Technical Specification.

We look forward to clarity on Enrolment and Adoption criteria, which will provide greater certainty regarding smart metering assets and reduce procurement risks. We believe these criteria must consider the impact on delivery timescales for the DCC and be focused on supporting the smart metering systems that will be deployed during the enduring roll-out.

Finally, we note the challenging timescales for DECC, the SMS supply chain and suppliers to develop and have available in bulk supply an interoperable, secure, safe and compliant SMS which can be enrolled into DCC. It is only once this is achieved that we can have confidence in meeting the Supply Licence Condition roll-out obligations at a reasonable cost and a manageable level of risk.

Our detailed responses are set out in the attachment to this letter. Should you wish to discuss any of the issues raised in our response or have any queries, please contact .

I confirm that this letter and its attachment may be published on DECC's website.

Yours sincerely,

Attachment

Smart Metering Implementation Programme: Consultation on the second version of the Smart Metering Equipment Technical Specifications

EDF Energy's response to your questions

Chapter 4 – SMETS 2 Development

Q1. Do you have any comments on the criteria used in the evaluation of the application layer standards?

EDF Energy agrees that the criteria used appear to be appropriate for the application layer standards.

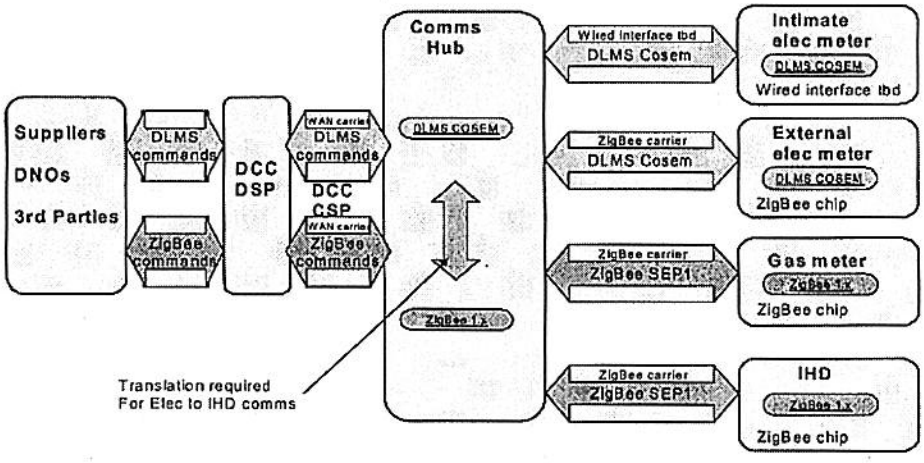
Q2. Do you agree with the proposal to adopt ZigBee SEP / DLMS as the HAN application layer standards for GB?

EDF Energy agrees with the proposal to adopt ZigBee SEP1.x and DLMS as application layer standards for the GB market, subject to clarification of the end-to-end architecture and operating model. Incompatibility between the intended use of ZigBee and DLMS and the Architectural design would require a fundamental review.

EDF Energy would welcome more clarity, including a detailed specification covering the architecture depicting how these standards apply to the logical and physical components of the smart metering system:

- within the HAN and for each of the smart metering components; and
- to and from the DCC, on the WAN and on the supplier head-end

Our current understanding of the application layers is as follows, however, we would welcome a clarification by DECC:



ZigBee also offers meshing capabilities. EDF Energy would welcome clarification from DECC as to whether this feature will be used for the SMHAN connectivity.

Q3. Do you agree that equipment should be required to comply with SMETS and a GB Companion specification for ZigBee SEP / DLMS?

EDF Energy would welcome clarification of which version of SMETS is being considered. EDF Energy agrees that equipment should comply with SMETS2 (and not SMETS1). SMETS2 is the only version of the specification that will define the HAN interface and other key requirements, and thus enable technical interoperability within the home.

EDF Energy agrees that a companion specification is required in addition to SMETS2. This companion specification will have to define all interfaces between all the SMHAN devices and with the DCC, from a physical and logical perspective.

The development of the companion specification must be done in coordination with the business processes, CPL logic and end-to-end design baseline in order to deliver the expected functionalities. It must also comply with the STEG security requirements.

We believe that the companion specification must be sufficient to guarantee technical interoperability and be tested to prove this.

Q4. Do you agree with the overall approach proposed in relation to the HAN physical layer? If not, please provide a rationale and evidence for your position.

EDF Energy does not agree with the overall approach proposed in relation with the HAN physical layer. We believe that none of the 3 options proposed can maximise the Impact Assessment benefits.

EDF Energy welcomes the radio propagation testing performed by the programme. However, we note that this test was very limited involving only 120 properties and as such any results need to be assessed in the context of a statistically limited trial. However, EDF Energy acknowledges the evidence that a significant number of properties will not be covered with a 2.4GHz solution, and agrees to consider 70% coverage with 2.4GHz as a broad estimation.

Option 1 with 2.4GHz as a standard solution is not practicable as it would require the use of repeaters in customer's property. Repeaters induce a higher cost to the industry and have many drawbacks and unsolved challenges including their maintenance and their power supply.

Indeed, the propagation test confirmed that 2.4GHz is far from being the optimal solution and would leave 30% of the market without a solution.

Option 2 dual-band communication hub is appealing at first glance, however, it would induce a higher cost in every communication hub, while this future flexibility may only be required in a minority of cases. In addition, there is a high risk that the future upgradeability will not be possible – since it cannot be demonstrated at the time when the devices are installed in the field. Another issue associated with dual band chips is the reduced performance of an antenna that would work at both frequencies – or the increased cost of having to fit two antennas.

A mix of two HAN radio technologies on the market will have many drawbacks:

- Customer confusion: when buying additional devices such as gateways or IHDs, as the customer would need to know which HAN standard he has to buy against.
- Installation and maintenance complexity: when installing or replacing new kits, the installer would need several variants of each smart metering equipment. This would also apply to the HHT: the installer would need either a dual band HHT or two HHT.
- From a supplier point of view, the multiple HAN induce one more type of variance for all the smart metering equipments – this adds on to the other types of variants (such as : single / dual elements / three phase, with / without additional contactor, intimate / external communications hub). More variants induce smaller production volumes and will increase all costs: manufacturing costs, testing costs, installation costs, and maintenance costs.

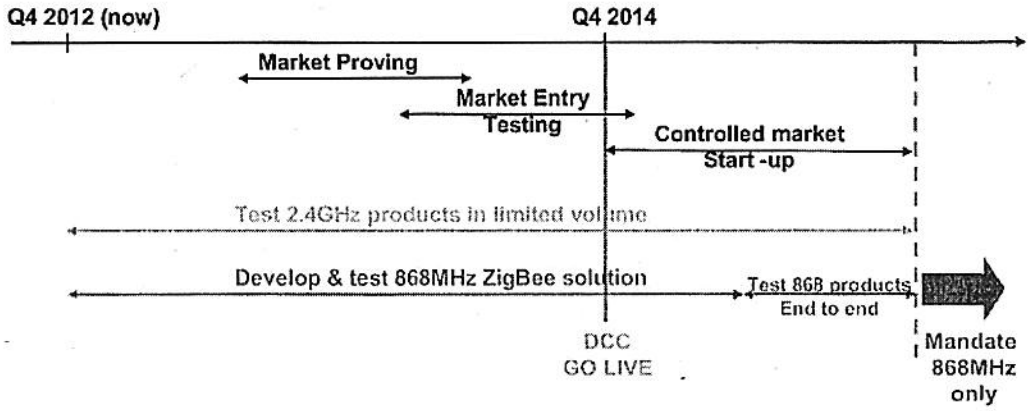
Option 3 with a market led approach is not the optimal solution to ensure in time development of a solution to cover the estimated 30% of the market where 2.4GHZ won't work.

EDF Energy would favour an approach where priority is put on the licensed spectrum dedicated to Smart Metering near to the 868MHz band. We believe that 868MHz solution should be mandated for the mass roll-out, while 2.4GHz products should be limited in volumes for trials and testing.

In addition, putting all efforts from now on the development of the 868MHz solution will reduce the development timescales currently estimated between 2 to 3 years.

If the programme could get a dedicated spectrum in the 868MHz range, it would be far better to make use of it for all of the market, and not only for a small fraction of it. The costs of this licensed band would be spread over all customers as well as the risks of interferences would be reduced for all of them.

The following plan illustrates EDF Energy's proposition:



Q5. Do you have any comments on the criteria used in the evaluation of the physical layer of the HAN?

EDF Energy would like to highlight the following points that we regard as critical to the evaluation:

- The bandwidth availability will depend on the frequency band that is used, the number of channels and their allowed duty cycles. In this regard, the 868MHz licence exempt bands (863-870MHz) are limited to meet the SMETS2 requirements. The capabilities of these bands were designed for older analogue systems. This could potentially be overcome by using high data rate modulations; however, it would reduce the coverage (to 90-95% of the market, say industry experts).
- In terms of coverage, 868MHz is clearly better than 2.4GHz, EDF Energy agrees with the propagation trial results.
- EDF Energy is in favour of a licensed spectrum for smart metering HAN (see question 6) and would like DECC to provide an evaluation of the costs for the industry.
- EDF Energy has concerns around the development time for the 868MHz solution, especially if no decision is taken to mandate 868MHz solutions.
- The impact on the IA of any decision must be undertaken.

Q6. What are your views on the compatibility of the reserved spectrum 870-876MHz with 868 MHz and the value of considering the use of this band?

EDF Energy believes that there would be more benefits and a lower risk profile to apply for a licensed band for the smart metering HAN at 870-872MHz than to use the licence exempt band at 863-870MHz.

The smart metering programme has the possibility to use licence-exempt band at 863-870MHz or to apply for a dedicated licensed band in the frequency ranges of 870-872MHz or 872-876MHz. The benefits of a dedicated spectrum are multiple:

- In band interference risk: the licence exempt band presents an inherent threat of interference with other devices legally operating in that same band. Existing users already include toys, telemetry systems, garage doors remote controls, alarms, RFIDs; etc. This could compromise the delivery of the IA. A licensed band would clearly reduce this risk.
- Out of band interference risk with future LTE: Although not proved in the field, there is a high risk that future LTE devices interfere on the frequencies that are close to 863MHz.
- Limited bandwidth in the licence-exempt band: if working over the unlicensed band (namely at 863-870Hz), the bandwidth is very small compared with the needs of the smart metering equipment as defined in SMETS. This is especially due to the duty cycle limitations (comprised between 0.1% and 1%).
- Increasing bandwidth: If the smart metering programme were provided a licensed frequency band, the duty cycle could be increased by the licence owner. Within licence-exempt bands, options exist but they are quite constraining for the smart metering programme. The first option consists in implementing a Listen Before Talk (LBT) protocol to maximise the use of the available channels. However, the LBT protocol defined in ETSI EN 300 220-1 is different from the protocol used in ZigBee (CSMA/CD), and this would require a complex and lengthy re-writing of the ZigBee specification. There is also a gas meter battery issue if the gas meter has to do many communication attempts. The second solution would consist of picking a physical layer modulation that maximises the data-rate. However, this would have impact on the coverage of GB properties, leaving more properties to be covered with a PLC solution where available (if no gas in the property).

For all these reasons, EDF Energy believes that the programme should seek to get a licensed band at 870-872 MHz for the Smart Metering programme.

Q7. Do you consider that additional measures should be taken to encourage the development of an 868 MHz solution?

Yes. EDF Energy believes that additional measures should be taken to encourage development of a licensed spectrum dedicated to Smart Metering in the 868MHz band.

Leaving the decision to the market will lead to confusion, the potential use of many competing and non interoperable solutions and may well result in a significant increase in Smart Programme timescales before an industry standard is arrived at. Such uncertainty in the market could well result in a poor customer experience, especially for those that deploy smart in two phases e.g. electricity followed, some time later, by gas.

EDF Energy believes that the programme should limit the 2.4GHz volumes to trialling and testing to ensure that maximum efforts are driven towards the 868MHz solution delivery.

Q8. Do you agree with the approach to allow the market to determine the balance between 2.4 GHz and 868 MHz? If not, please provide rationale and evidence.

EDF Energy disagrees with the proposition of leaving the market to determine the balance between 868MHz and 2.4GHz.

There is a clear risk that 868MHz takes much longer to become available and deploy if no decision is taken centrally by DECC. This would leave 30% of properties without smart meters, and the business benefits would not be realised. The customer experience would also be poor due to aborted installs and/or inability to offer a smart meter to all those who would like to benefit from the programme.

A similar situation occurred with the COP7 Half hourly meters: meter manufacturers never produced one as they never saw the need for it. The key question, if there is no mandate to roll-out 868MHz, is whether the market will actually provide such devices, or delay decisions to do so, compromising the efficiency of the roll-out and therefore burdening customers with extra costs.

Q9. What are your views on the three options identified for displaying wireless solutions (i.e. 2.4 GHz as the default; dual-band communications hubs; or market led)?

EDF Energy believes the optimal solution to be to mandate the adoption of an 868MHz solution and limit the volumes of the 2.4GHz products, as explained in our answer to question 4.

Q10. Do you agree with the proposal for a 'fit for purpose' installation obligation on suppliers?

EDF Energy believes that key principles should be followed:

- The installation obligations should be clear to enable compliance and avoid complexity for logistics, installation & maintenance purposes.
- The obligations should developed on the basis of technical assessment to ensure they deliver correct outcomes.
- The obligations should lead to the best long-term outcomes.

On each of these points:

Clear obligations to enable compliance:
The consultation document does not define in any detail 'fit for purpose'. Greater clarity will be required to ensure that unclear obligations do not become the cause

of a non-compliant roll-out. As much as possible, the decision making process should be taken away from the installation process. We believe that avoiding complexity will also provide benefits in simplifying logistics, installation processes & maintenance arrangements, but believe an economic assessment should be undertaken to confirm this.

Technical assessment:
There are two key decisions that need to be taken regarding technical feasibility:

- DECC's assessment is that using 868MHz 'is likely to achieve over 95% satisfactory propagation' and to support delivery of the programme objectives of 100% coverage, a wired HAN trial is being developed. The implications of two variants of wireless HANs (2.4GHz, 868MHz) and wired variant need to be assessed simultaneously to avoid excess cost, complexity, non-interoperability and customer dissatisfaction.
- The 'fit for purpose' obligation needs to consider the technical risk that non-licensed frequencies could become overwhelmed by other developments, particularly affecting the use of 868MHz where available bandwidth is just sufficient, with no spare capacity. See our answer to question 6, regarding the possible use of licensable frequencies.

Best long-term outcomes:
A 'fit for purpose' installation obligation could lead to the proliferation of three physical layers, which will have implications for maintenance, replacement stocks, training, customer usability (e.g. for the CAD) & support costs, amongst other factors. The best long-term outcome is likely to be one where a simple solution exists and 'fit for purpose' should consider the impact not only on go-live but also for the enduring situation.

Q11. Do you have any views on the proposed approach to developing a wired HAN solution?

EDF Energy agrees that a solution is required for all the buildings where radio solutions won't work. This is necessary to ensure 100% coverage by the end of the roll-out period, and to have a non discriminatory approach against high rise building customers and other properties where wireless communications will not work, such as low rise blocks of flats or very large properties.

This evaluation should be supported and led by DECC as was done for the radio propagation trial. This would ensure the independence of the results in the wider industry. In addition, suppliers are not the only stakeholders impacted by the HAN choice. The CSP will have a key role to play in this process.

Q12. Do you agree with the proposed scope of functional requirements for a communications hub? Are there any other functions that should be included and what would be your rationale for including those functions (including estimated costs and benefits)?

EDF Energy does not agree with the proposed scope of the functional requirements for a communication hub. This arises from concerns that EDF Energy has about the following.

The recently issued Communications Hub Technical Specification (CHTS) has stated that there is a requirement to be able support both hub & spoke and mesh architecture. This dual requirement in effect requires message translation and a Customer Access Port in both the Communications Hub and the smart electricity meter. Clearly this is an added cost burden that will inevitably have to be funded by customers.

Previously it had been understood that the Communications Hub would be central to all HAN traffic; however, slides presented at the SSAG meeting (15/8/2012) indicated this was no longer the intention. For example there was a depiction of the electricity meter communicating directly with the customer's IHD. EDF Energy is concerned that this is complicating the design of the smart electricity meter. In effect this is adding functionality to an already technically complex piece of equipment. It has to be remembered that Suppliers will have an expectation that smart electricity meters will have a service life capacity of 15 years. Additionally, such functionality within the electricity meter leads to an increased risk of failure. Furthermore, any change in communication technology increases the risk that the meter will require exchange. It has to be remembered that meter exchanges are very inconvenient for customers as there is a need to de-energise their supplies.

EDF Energy has a declared preference for an intimate communication hub (ICH) (See also response to Q13) featuring:

- A wired data link;
- A low voltage DC power supply; and
- A mains pair connection for PLC purposes.

EDF Energy believes that it should be possible to develop a design of ICH that can be hot swapped without the need for the customer's supply to be de-energised. Such a design provides for changes in communication technology to take place without the need for meter removal and the attendant need for the customer to lose supply. Any new design of communication hub simply needs to accommodate the facility to accept information from the data pair, be compatible with the existing DC power pack and if necessary have provision for connection to the mains pair for PLC purposes. In terms of servicing costs it is clearly going to be cheaper to hot swap a communication hub as opposed to replacing the meter. It also needs to be borne in mind that if a meter has to be changed by reason of an upgrade to the communication technology that meter is likely to be obsolete and so will become a wasted asset.

One of the advantages claimed by DECC for mesh methodology is the fact that only one transmission is required to send an update between the electricity meter and the IHD. While it can be argued that this is true and leads to a sensible reduction in HAN traffic the same can also be said of the wired data link used in an ICH arrangement since data passed by an electricity meter to an ICH, is a direct connection, not a radio transmission.

With regard to the question of power supply EDF Energy accepts that standalone communication hubs of the type suggested by another supplier for single fuel gas situations where smart electricity metering has yet to be installed will need to be mains powered. Such hubs are designed to be connected direct to the service head and as such must be of a suitable design to cope with the considerable fault level available at such a connection point. At time of writing it is understood that this particular design is the subject of a DCUSA consultation.

A further option understood to have been considered is for a stand-alone communication hub that derives its power from an umbilical connection to the electricity meter. EDF Energy does not favour the external communication hub with umbilical connector on the basis that:

- The design requires additional space at the intake position;
- Such designs have previously been known to be prone to interference and tampering; and
- There is a concern about mains cabling emerging from a meter in an umbilical connector (see below).

With regard to power supply arrangements EDF Energy believes that a low voltage supply is safer than a mains connection. In the case of a mains connector such a supply needs protecting with a suitable fuse. In the event of a fault the fuse will blow and will need to be replaced following rectification. Such a feature will add significantly to the cost of the electricity meter, since the fuse will require a secure means of access and a sealing arrangement. However, at this juncture a PLC solution has not been ruled out and so any standardised umbilical connector designed to serve a generic design of communication hub will have to feature a mains connection!

With regard to outage alerts EDF Energy understands that this would very much depend upon the CSP's choice of technology and whether or not they could provide alternative methodologies. It is therefore felt that there is not necessarily always going to be a need for a communication hub to report outages (see also EDF Energy's response to Q17).

Q13. Do you have views on the specification for an 'intimate' interface between electricity meters and communications hubs?

In the case of the proposed intimate communication design (ICH) EDF Energy is concerned with the requirement for such hubs to be mains powered. The actual

electronic circuitry of an ICH will necessarily be low voltage and so if the ICH has to be mains powered this will require a separate Power Supply Unit (PSU) to be associated with the hub. Given that the power for the hub will be the associated electricity meter, it is suggested that such power should be derived from the low voltage output of the meter's own PSU. Such an approach would obviate the need for the ICH to have its own separate PSU and would serve to reduce the cost and the overall physical size of the ICH package. Our analysis shows that this will reduce the cost per ICH by between While it can be argued that a mains voltage will be necessary for PLC based hubs, there is no reason why a mains socket cannot also be provided within the top hat enclosure of the electricity meter and furthermore why an ICH that uses PLC technology could not also be powered from a low voltage supply derived from the electricity PSU of the meter.

Furthermore, there are concerns that the mesh methodology, that is now being favoured by DECC, is effectively mandating a requirement for every smart electricity meter to contain a HAN interface. It is a fact that a physical gap needs to be maintained between 2 radio transceivers to ensure no interference. Given the preference by most suppliers for an ICH to be situated in a top hat compartment of the meter this in effect means there will be two HAN interfaces working in very close proximity to one and other. Clearly there will be a need for great care at the design stage; this might lead to additional costs. Irrespective of this argument, it is apparent that the cost of electricity metering will increase if every such electricity meter has to include a HAN interface. The majority of meter manufacturers are of the opinion that this is unnecessary for meters that incorporate the ICH design and have argued for a hard wired data link communication. It needs also to be borne in mind that if any change in communication hub and or technology requires a change to the HAN system frequency then the meter will also require replacement since its HAN transceiver will no longer be compatible (See also answer to Q12).

Q14. Do you agree with the Government's marginal preference for the CSP-led model for communications hub responsibilities, or do you prefer the supplier-led model? Please provide clear rationale for the advantages and risks associated with your preferred option.

EDF Energy fully agrees with the Government's preference for the CSP-led model. However, the suggestion that this is a marginal preference is of some concern and EDF Energy is of the opinion that there are some very clear reasons why the Government should be adopting the CSP-led model, these are as follows:

- In a scenario where gas and electricity suppliers are provided by two different suppliers one supplier would be responsible for maintaining the communication hub. If such a supplier (or their agent) failed to do so in either a timely or efficient manner then the supplier responsible for the other fuel will suffer the consequences. This could lead to inter-supplier dispute situations. However, in the CSP-led scenario, where the CSP was responsible for the maintenance, this should not be an issue since the CSP will be at liberty to

simply engage the services of the cheapest and or most effective of the Metering Service Providers.

- In the Supplier-led model it will be necessary to track maintain and record the purchase history so that if required warranty arrangements can be exercised. This will inevitably add complexity to the COS process. In the CSP – led model there will be no communication hub warranty transfer issues. Warranty arrangements will simply be managed at all times by the CSP.
- In a Supplier-led model the rental arrangements will be very complex to administer. Additionally in a scenario where gas and electricity supplies are provided by two different suppliers the second fuel provider will need to continue paying the original supplier a hub rental charge based on the shared usage principle. In the event of a COS event related to one of the fuels the contractual situation will be very difficult to manage. In the CSP-led model the CSP simply levies a rental charge per Supplier per fuel.
- The CSPs will over the course of time acquire experience as to the suitability of differing technologies and will be able to procure to meet the requirements of specific geographic areas. Suppliers on the other hand will not have this ability and will have to make best guess estimates as to their requirement. Clearly in a Supplier - led scenario this will lead to inefficiencies and inevitable additional costs being passed on to customers.
- In a CSP-led model the three CSPs will be managing all of the domestic installation procurement arrangements for their geographic areas and so will have considerable buying power. As such they will be able to secure optimal pricing for the equipment that they procure. Suppliers on the other hand will not have the benefit of such buying power and so inevitably in a Supplier – led model the cost of communication hubs will inevitably be higher. Higher costs of this nature will obviously have to be passed through to customers.

EDF Energy also strongly disagrees with Government's assertion that "costs should lie where they fall" in respect of installation and maintenance costs. Where the Supplier carries out installation and maintenance activities in respect of the Communications Hub, our view is that the Supplier should be able to recover the associated costs from the CSP. We consider that this approach has the following advantages:

- It would ensure that the chosen device would be robust, fit for purpose and cost effective, since it would align the CSP's incentives to the interests of the Supplier and customer (for example, such an arrangement would mean that it would be in CSP's interest to ensure that technical failure is minimised, as the CSP would bear a direct financial exposure to any such failure).
- It would ensure that customers and Suppliers would not be penalised due to their geographic location (e.g., where installation costs are higher in particular regions), since CSP costs would be apportioned across all users.
- It would also not seem reasonable from an accounting perspective to separate the costs and installation and maintenance from the capital costs associated with the Communications Hub.

- Moreover, we envisage that certain property types (e.g., multiple occupancy premises) would require a distribution board or other forms of shared infrastructure in order to effectively propagate HAN signals throughout the property. In those instances, it will be most appropriate and economical for the CSP to carry out the installation of shared communications infrastructure[1]. We believe that this approach would be preferable for the following reasons:
    - Supplier-led installation of shared infrastructure could lead to duplication of effort and resources (e.g. if different Suppliers adopted different within-building communications solutions).
    - Supplier-led installation could also lead to conflicts of interest where a single Supplier was responsible for installing shared infrastructure on behalf of other Suppliers' customers. This could lead to excessive charging for the use of the infrastructure, or discrimination in the provision of services.
    - CSP-led installation would weaken the incentive on Suppliers to avoid installing smart metering systems in difficult (e.g., multiple occupancy) properties until later in the roll-out period;

Finally, EDF Energy believes that the DCC Licence should be explicit in defining the boundaries of responsibilities. At a minimum, it is essential that the WAN coverage is sufficient to reach the communication module, even where the module must be installed in a "difficult-to-reach" location. This would ensure that the network coverage is sufficient to cover all properties whether single site or multiple occupancy.

Q15. Do you agree with the proposal that a CHTS-compliant communications hub should not be mandated for opted out non-domestic sites and that suppliers should be free to use whatever type of communications equipment best supports their processes and WAN service?

EDF Energy does not agree with this proposal and believes that a CHTS-compliant communications hub should be mandated for opted out non-domestic sites.

Our reasoning for this is as follows:

- EDF Energy believes that if Opted Out sites do not have a CHTS compliant communication hub, then this decision could impact competition in this area e.g. the consumer will stay with their current supplier, as they believe other suppliers may not be able to support their smart metering arrangements, or it could be due to the perception that extra costs would inevitably be incurred by switching to a new supplier. We therefore question whether this additional cost to replace the communication hub has been factored into the DECC Impact Assessment?

[1] Note: we do not consider that it will be necessary for the CSP to carry out a separate visit to the customer's premises in these instances. However, if this were to be the case, we consider that it would be necessary to explore alternatives, since we oppose multiple customer visits.

The alternative to this, which is common practice in today's AMR (Advanced Meter Reading – Profile Class 5-8 and gas equivalent) market, is that the new supplier for simplicity has no choice but to use the existing provider to maintain communication links to the site. This is particularly relevant where the customer has entered into a direct contractual relationship with a Metering Service Provider (MSP). This requires the supplier to directly contract with that MSP just to obtain their regulatory data e.g. billing data. However, even in this market we are currently experiencing operational and commercial difficulties with some providers.

- A proliferation of bespoke solutions is likely to lead to a situation where not all suppliers can support those solutions. This will weaken competition and will ultimately have an adverse consequence for those customers.
- The SMETS2 consultation discusses the market that already exists for provision of data and whether a HAN is necessary to enable non-domestic customers accessing their data through a Consumer Access Device (CAD). Our experience in today's market where this exists is predominantly in the large business arena where AMR is fitted and companies have their own data management personnel. Data is transmitted through loggers, or other communication technologies to suppliers facilitating them to display that data back through web pages etc. However, the majority of the market where the SMETS2 complaint meters will be installed is the smaller one off type sites at the lower end of the non-domestic market. For these companies they are unlikely to have web capability; and therefore, their desire for more local access will be significantly greater. Hence, not to provide this capability will hinder this market in accessing consumption data, especially if there is no HAN (Home Area Network) to allow local access to data.
- Although concerns have been raised by certain parties about the additional cost of the gas mirror in electricity only supplied non-domestic sites and its resultant redundancy at these sites, EDF Energy believes there could be a solution to this which could also reduce the costs for the domestic roll-out. Within Great Britain there are approximately 5 million domestic premises with an electricity supply only and no gas main. If CSP could produce two CHTS compliant communication hubs; one for an electricity only site without a gas mirror and a dual fuel communication hub for the mass market, costs could be reduced. This would provide a more competitive price for the non-domestic sites and at the same time reduce the overall cost in DECC Impact Assessment for the domestic market. However, should the cost difference between the two versions be so small that it would not be cost effective for manufacturers to produce them i.e. only memory and processing, then the argument not to use them because of the cost of the gas mirror would have no material bearing.
- The installation of a CHTS compliant communication hub would also smooth the process, at the point of change of supplier, in allowing new suppliers for these non-domestic sites to be enrolled in the DCC without the need for a site visit, thereby reducing the cost and inconvenience to the customer.

Q16. Do you agree that the gaining supplier should bear the costs of installing an appropriate communications hub if they decide to switch between opted in and opted out?

EDF Energy does not agree that the gaining supplier should bear the costs of installing a CHTS-compliant communication hub, for the reasons provided in Question 15. However, there will be exceptions to this where the customer has entered into a direct contractual relationship with an MSP. In these circumstances the new supplier has no alternative but to contract with that MSP and retain the existing communication infrastructure outside of the DCC installed by the MSP, until such time as that contract expires. This could reduce the benefits of Smart Metering to these customers as they would be unlikely to opt for a prepayment tariff and Suppliers would be unable to utilise the full remote functionality of these meters.

Q17. Do you agree that the design and implementation of outage reporting functionality should be assigned to CSPs, documented in the communications hub technical specification?

EDF Energy generally agrees that outage management should be the responsibility of the CSP but has some concern about the costs and practical considerations associated with these requirements.

With regard to the possibility that every communication hub could incorporate an outage management feature, it has to be recognised that the three minute delay before an outage report can be transmitted will require the incorporation of an energy storage device (battery/supercap) which will add cost (our analysis shows that this could increase the cost per communication hub by around and physical size to the communication hub design. Given the majority of suppliers are in favour of an ICH design this also raises a concern as to the overall physical size (footprint) of the electricity meter, when adjoined to the ICH. If the meter/ICH footprint is too large this will inevitably lead to installation difficulties. There are further concerns relating to the rash of messages that will be sent in the event of a major outage, however, it is assumed that the CSP/DCC will have to put in place coping mechanisms based upon message priorities and system assumptive measures.

With regard to paragraph 97 of the consultation, it should be noted that if the ICH design incorporated a wired DC power supply connector linking the communication hub to the meter then there would be no need for two sources of energy storage since both devices could share the same energy source.

Furthermore, EDF Energy believes that some design consideration should be given to providing a means of differentiating between a general power failure i.e. voltage unavailable at meter terminals and loss of supply to the communication hub only. If a voltage was present at the meter terminals but the power supply unit to the communication hub were to fail then an inappropriate outage message will be sent. This will possibly occasion a no supply call-out by a DNO or their

agent. Clearly in such circumstances it might be better for the communication hub to advise the loss of its own power and send a message to the Supplier via the DCC.

We believe that restoration messages are unnecessary, the Network Operator should be cognisant of the measures that it is taking to restore supplies and so following restoration activity could simply ping smart metering systems situated at strategic positions around its network to determine the level of success that they were having.

With regard to the possibility that CSPs could incorporate outage management functionality elsewhere within their infrastructure EDF Energy believes that this may well be more cost effective but will not be able to provide granularity down to MPAN level. However, it is felt that such a compromise may well provide a more cost effective means of providing for any significant outage management events.

Q18. Do you agree that it would be inappropriate to require meters operated outside DCC to be required to implement outage reporting? Please provide rationale to support your views

EDF Energy believes that outage reporting for meters operated outside of DCC should be identical to the requirements for meters operated through the DCC. This is another reason why a CHTS complaint communication hub should be mandated so that this functionality will exist whether opted in or out of the DCC. The DNOs should then be required to enter into contractual relationships with the providers (predominantly MSPs) to access this data.

EDF Energy agrees that DNOs should not look to suppliers to provide outage information. Suppliers in many cases will not have access to this data, if the MSP does not cater for that functionality. Additionally, if the customer has directly contracted with an MSP, the supplier would only be receiving its regulatory data (e.g. meter readings for billing), and would therefore not be in a position to provide DNOs with outage data.

EDF Energy is concerned that MSPs will not be obliged to forward alerts and alarms from the smart meter, as if they were the DCC. This will impose upon suppliers a two tier operating model, where our preference has always been to operate a single operating model through the DCC, with the same standards, security, interfaces and protocol requirements etc. As this appears not to be the case, we would require the same standards, security, interfaces, protocols and alerts/alarms etc to be enforced whether the site is operating in or outside of the DCC.

Q19. Do you agree that maximum demand registers should be included in SMETS? Please provide evidence to support your position and provide evidence on the cost implications of delivering this functionality via back office systems or via the meter.

EDF Energy agrees with the proposal to incorporate the specified maximum demand registers within the SMETS 2 smart meter design.

With regard to the costs of back office inclusion EDF Energy is not familiar with the design of such systems and so cannot comment. However assuming that the manufacturers have given assurances to the effect that the cost of incorporation into the meter design is marginal EDF Energy is comfortable with inclusion of such MD registers into the SMETS 2.

Q20. Do you agree with the proposal not to include the capability to generate additional voltage alerts based on counter thresholds in SMETS 2? Do you have any evidence that could justify including this functionality in SMETS 2?

Based upon manufacturer's advice EDF Energy agrees that the inclusion of voltage threshold counter alerts (VTCA) will add complexity to the smart electricity meter design. Given that the DNO's own analysis indicates only minimal cost savings will be realised by incorporating VTCA into the smart electricity meter design, EDF Energy is of the opinion that the functionality should not be included within SMETS 2.

One further consideration is the possibility of altering the original SMETS 1 requirements relating to the transmission of WAN alerts from the compulsory SMETS 1 option to a configurable option. The rationale behind this suggestion is that if an extreme voltage event occurs within a locality every smart meter in the vicinity will respond by sending a message. This could incur unnecessary messaging costs, and furthermore might clog up the WAN. By making this a configurable option, DNO's could simply configure smart meters at key strategic points around their network to report on unusual voltage excursions

Q21. If DNOs were permitted to access remote disablement functions, should control logic be built into DCC systems or meters? If the logic should be built into meters, should the logic be specified in SMETS 2? Please provide rationale to support your position including estimates of the cost of delivering this functionality under the different options being considered and any evidence relating to safety issues associated with each option.

EDF Energy does not believe that DNOs should be allowed to remotely disable customer's supplies by means of the smart metering network. If the facility is to be afforded at all it should be achieved by means of a contractual arrangement between the DNO and the individual Supplier concerned. The adoption of such a stance obviates the need for any logic to be placed within the DCC system.

EDF Energy believes that if the DNO's are to be afforded access to remote disablement functions then the majority of the necessary control logic should be built into the DCC. The rationale behind this view is as follows:

- The DCC is intended to provide access control, thus implementing control logic in the meter removes one of the original intentions of the DCC and places it in the SMS.
- In the event that a party disabled a particular meter the DCC would know the identity of the party concerned and so could reject contrary commands from other parties.
- Should any changes be required to the software/firmware associated with the disablement logic the DCC system is available. If the logic is incorporated within the smart metering estate then every meter has to be upgraded to effect any change.
- Different rules can be applied to different authorised parties. For example a Supplier could be restricted such that only one meter can be disabled during each transaction. A further limit could be set based on a common sense approach as to the maximum number of meters that could be disabled in any one day; this would serve to make the system more secure. DNOs however are likely to require the facility to disable multiple numbers of meters although again constraints in the form of a maximum number could be put in place to overcome the possibility of malicious attack. Placing the control logic in the meters cannot mitigate this risk, as any individual meter will not be aware that it is part of a wider attack.

EDF Energy does however have a concern related to multiple DNO disablement achieved either directly or by means a contractual arrangement. It has been stated that the functionality will be required at times of network stress such as severe weather conditions. This leads to the possibility of a scenario wherein a DNO/Supplier has disabled the supply to several hundred customers due perhaps to the loss of overhead lines brought down by high winds, snow etc. If following such disablement, the same severe weather causes the WAN to fail, this gives rise to the prospect that several hundred customers will be off supply with no immediate means of restoration and will occasion the need to make numerous emergency site visits. Hence EDF Energy would suggest that some logic will be required within the meter designed to automatically restore the supply after a configurable time period. In essence this would require that upon receipt of a disablement message from a DNO, the DCC would send a command that (a) disabled the meter and (b) set into operation a restoration timer. If after the configurable time period had elapsed the meter had not received further verification from the DCC that the disablement regime should remain in force then the meter should automatically restore the supply. The same logic could be utilised for load limiting purposes if initiated by a DNO. Clearly such logic would require description in SMETS 2. The restoration logic will not be required for supplier disablement operations as these will be more permanent in nature and in the event of WAN failure the number of sites requiring emergency site visits will be low. However, the meter will also need to know the nature of the disablement command in order that it can respond appropriately.

Q22. Do you agree that variant smart electricity meters should be specified in SMETS 2 and that the cost uplift for variant smart meters is similar to that for variant traditional meters? Please provide evidence of costs to support your views on cost uplifts.

EDF Energy is in general agreement with the Government's stance to specify features of variant meters which relate to auxiliary switches, load control switches, boost buttons, multiple measuring elements and polyphase metering. In order to ensure interoperability it is very important that the data items related to such functionalities are defined in a universally agreed manner. This will provide for future Change of Supplier events in a manner that allows for an incoming supplier to continue using the existing variant functionality provided by a previous supplier.

With regard to costs, we see no reason why an additional function, (i.e. switch, element etc.) should be anymore expensive than the costs currently experienced by the Industry for current designs of non smart meters.

It is important to recognise that variants will only be developed for the smart meter market if one or more meter manufacturers believe there is a viable market for such products. It is therefore important that the Industry gives consideration to whether or not a particular variant functionality will be available and if necessary looks at other means of satisfying particular tariff requirements if unsupported by a variant.

EDF Energy believes that other variant forms will evolve over time to meet newly emerging market needs. It is clearly important that SMETS should be cognisant of this and be written in a manner that doesn't stifle development.

EDF Energy believes that remote HAN-controlled contactors will be necessary to maximise the opportunity to deliver the energy savings included in the Impact Assessment, along with enabling Demand-Side Management / Demand-Side Reduction, the management of Electric Vehicle charging and other tariff-related services.

Q23. Do you agree that randomisation offset capability should be included for auxiliary load control switches and registers as described above? Do you have views on the proposed range of the randomisation offset (i.e. 0 – 1799 seconds)? Please provide evidence on the cost of introducing this functionality.

EDF Energy fully agrees with the proposal to incorporate a randomisation offset facility to be simultaneously applied to auxiliary load control switches and tariff registers as described. This accords with the current Industry practice and is an essential means of avoiding mains network stress due to large synchronised changes in load caused by several hundred ends points (e.g. restricted heating schemes) simultaneously switching on or off.

The suggested half-hour delay (0 to 1799 seconds) will ensure that the start time will accord with the expected initial settlement period although it should be noted that where a significant time delay occurs the end of tariff/switch off time will fall outside of the expected settlement period. However, similar such deviations are already accepted in the current marketplace and so EDF Energy sees no reason why the practice should not be perpetuated.

With regard to costs the meter manufacturers have advised that it is existing functionality and so no adverse cost issues are expected.

It is felt that the example of switching customer programmed devices (i.e. tumble dryers) is a poor choice. Kent Fire Service amongst others has said that under no circumstances should tumble dryers be operated unattended. The thought that someone might be encouraged to set up their tumble dryer to come on when the cheap rate occurs at midnight (i.e. after they've retired to bed!) is of some concern.

Q24. Do you support Option 1 or Option 2 for 'pairing' a CAD to the HAN? Please present the rationale for your choice and your views on the implications that these options have for the technical design of the solution.

In assessing the most appropriate process for connecting a CAD to the HAN it is essential to establish the principles the Industry needs to support:

- The process for pairing the CAD to the HAN must be secure:
  - The CAD must pair securely to the HAN and by definition must be able to send an acknowledgement to the HAN (as per IHD) and therefore must be a core device
  - CAD is a core device communicating via the HAN
  - HAN devices shall be mutually authenticated by digital certificates and/or pre-shared cryptographic keys (a STEG requirement)
  - All devices requiring authentication must be captured and stored by the DCC to enable the DCC to issue digital certificates and/or cryptographic keys
  - DCC will need to be pre-notified of the CAD's unique device identifier
  - DCC must issue security credentials / keys
- CAD process for connecting to the HAN must be consumer-friendly:
  - The above steps must be transparent to the user other than completion of the pairing

Option 2 of the SMETS consultation paper / Option 1 of the EUK pairing options paper are the only option which provides for the above. We recommend the following steps:

1. The Consumer acquires CAD
2. The Consumer contacts party offering commercial energy services (SEC party)

3. Consumer completes bill payer verification process with party offering commercial energy services
4. Consumer provides CAD ID to party offering commercial energy services
5. Party offering commercial energy services pre-notifies DCC of CAD and sends request for pairing to DCC
6. DCC issues security credentials to communications hub
7. Communications hub pairs CAD using security credentials
8. Consumer can download their data using the CAD

We note two further points:

- The CAD DDS provided a process where the consumer provides CAD details directly to the DCC and is then paired by the SMS based on a request from the DCC. We understand this is now unacceptable to DECC, but believe that the simplest model and is therefore likely to be the most cost effective for the consumer.
- The DCC has been designed to provide a service to download the complete set of data by an Authorised Third Party (ATP) for provision of data / energy services to the customer (Service request 4.8 ReadProfileData). While the latency currently on offer for this service maybe unacceptable (24 hours noting many suppliers have requested a faster service), this should form the basis of the solution as originally modelled by the DECC BPDG. This should provide an alternative to the provision of a CAD, which may be perfectly acceptable to consumers.

Q25. If Option 2 were adopted, do you agree that obligations should be placed on energy suppliers to support this process by submitting 'pairing requests' to the DCC on request from their consumers?

EDF Energy disagrees with obligations being placed on the Supplier, and believes a commercial offering should be provided by a SEC registered commercial party (e.g. ESCO / CAD manufacturer).

To assess the party best placed to offer this service, it is important to understand the principles associated with the service first:

- Pairing service requests must be submitted by a SEC party
- Provision of energy services is a commercial offering as opposed to a regulated duty
- In the event there is significant take-up of this service, there will likely be significant costs associated with managing the process, not least in dealing with a significant increase in call centre activity, plus costs associated with transactional charges
- The service will support innovation and commercial service offerings
- Suppliers are highly likely to have differing business drivers in terms of the commercial propositions they will support as an Energy Service Company (ESCO)

- Some suppliers are already planning to offer energy services which may not be limited to their own registered customer base
- It would be inappropriate to force the registered supplier to support commercial services possibly provided by their competitors.

Based on the above it would seem sensible for a commercial organisation registered as an ESCO (could be a CAD manufacturer) to operate and manage CAD pairing for consumers. This of course should not preclude a supplier who wishes to offer this service from doing so.

Q26. Do you consider that other CAD installation options should be pursued? If yes, please explain the approach you favour and your reasons.

As described above in response to question 24, EDF Energy believes the DCC could provide a suitable solution direct with the customer, noting this was the documented solution provided in the DECC CAD DDS.

We also consider that Service request 4.8 ReadProfileData provides a mechanism for ATP's to provide consumers with their SMS data. However, we believe the current definition of the latency for this service (24 hours) may not be sufficient, and Industry should look to provide based on an acceptable customer experience (we note DECC's existing CERG and CAG groups can advise on an acceptable service level). This would provide an alternative to the CAD, which may be perfectly acceptable to consumers.

Q27. Do you agree with the proposal to include in SMETS 2 a specification for a PPMID, connected via the HAN, as described above?

EDF Energy agrees with the proposal to include in SMETS 2 a specification for a PPMID, connected via the HAN. We consider that the PPMID is an essential component of the smart metering system that is required to facilitate the operation of a smart meter in prepayment mode, for consumers with meters in hard to access positions. We believe this device will enable more consumers, including some in the 'vulnerable' group, to enjoy the benefits of prepayment where they may currently be unable to. Suppliers will be able to achieve some associated benefits through better debt collection opportunities and improved cash flow for this group of customers thus helping to achieve the Government's Impact Assessment.

Inclusion in SMETS 2 would also provide standardised functions and ensure the interoperability of devices, essential if consumers take gas and electricity from different suppliers. It would also ensure that any devices inherited from previous suppliers could be supported without the need for replacement.

Furthermore, we also believe that:

- The PPMID must be a core device, paired securely to the HAN

- HAN devices shall be mutually authenticated by digital certificates and/or pre-shared cryptographic keys (A STEG requirement)
- All devices requiring authentication must be captured and stored by the DCC to enable the issuing of digital certificates and/or cryptographic keys
- The DCC will need to be pre-notified of the PPMID's individual device identifier
- The PPMID should be matched uniquely to a meter to make it a component of a specific metering system. I.e. it would not be transferable to other premises. This is because the requirement for the PPMID is driven by the location of the meter at a specific premise. This unique matching would ensure that on change of Tenancy, a new customer would still have access to a PPMID and therefore retain the immediate option of prepayment mode. The device would therefore not need to be replaced

If the PPMID were to be excluded from SMETS 2 it would reduce both Supplier and consumer benefits and ultimately affect the Government's Impact Assessment

Q28. Would including the capability to enable gas and electricity supply through a PPMID connected via (a) a wireless HAN or (b) a wired HAN meet GB safety requirements? What impact would including this capability have on the cost of smart metering equipment? Please provide evidence to support your answers.

A key priority for EDF Energy is the health and safety of our employees, contractors and customers. One of our key ambitions is to be a zero harm company.

Although we believe that the PPMID is an essential component of the smart metering system, EDF Energy's procurement processes will require assurances and positive test evidence that any device procured (or inherited from another Supplier) meets all necessary safety requirements and standards. Furthermore, EDF Energy would expect to perform our own safety impact assessment on the stated functionality and associated installation procedures.

We expect that device manufacturers will take the requirements of the Suppliers and the standards imposed by SMETS 2 to design, build and test an appropriate solution. To facilitate this, it is an essential prerequisite that the HAN is designed to be robust and secure and that any device connected to it is trusted. Any concerns about interference or cyber attack must be mitigated and be consistent with all security requirements.

The PPMID device is required to facilitate the operation of a smart meter in prepayment for consumers with meters in hard to access positions. It is not a mandatory device for either all prepayment customers or all customers with hard to access meters. We support the use of the device as it will enable more customers to enjoy the benefits of prepayment than are currently able.

EDF Energy would expect the device to cost more than a basic IHD but the additional cost of this device would compare favourably against the alternatives.

An assessment of these alternatives has been provided to DECC in a paper from the SMDG Prepayment Working Group on the 12th July 2011. We do not believe that these costs have changed significantly since then. A summary is provided below:

Q29. Do you agree with the proposal that the communications hub should be specified such that it can support multiple smart electricity meters? How many smart electricity meters should be supported by each communications hub?

EDF Energy agrees that the communication hub should be specified to support multiple smart electricity meters. However, there are a number of variables, some

known and some unknown, which would determine the volume required, or indeed that can be supported, such as:

- The capacity and capability of the CSP's communication hub. EDF Energy believes that we should not be driven by their specification as the main driver, as to the number of supported devices their technology and protocols can accept, but should be driven by our requirements. Of course, if there is more than one CSP for GB then we do not want to end up with differing capacities across the country.
- The future number of smart electricity meters for microgeneration is an unknown. Typically today the norm is one or two per site, but we do have installations where four installations are present and previously we did supply a farm with nine differing types of generation. However, as time goes on there are a couple of variables that could impact the volume of these smart meters in the future, such as:
  - Even for a single type of generation e.g. PV you could have multiple smart meters for scenarios where a consumer has invested originally in this technology and then expanded their number of panels later, but at a different FIT rate. In order to pay the consumer the correct amount for generation two smart electricity meters would have to be installed to record the generation of each installation.
  - Some sites, mainly farms etc install a variety of generation types e.g. PV, wind etc which require separate generation meters for each generation type and again you could in the future have multiple smart meters for a single generation type as explained in (a) above.
- Although the capability to store and transmit readings from a microgeneration meter is included in DECC's 'A-H list', it is known that the smart metering HAN infrastructure will be required to support other remote smart electricity meters and devices in the future, such as:
  - Electric Vehicles (EV) – this is a growing area and is always on the agenda whenever smart grid discussion takes place. We also need to consider the support of repeaters within the EV installation to reach EV charging posts that are some distance from the meter.
  - Heat meters – there are already District Heating Scheme installations that will require smart metering installations at some point, along with the potential growth of individual Heat Metering installations, such as residential or commercial scale heat pumps (e.g. for RHI payment purposes).
  - Water – it is not inconceivable that the Water Industry, as they embark on the mass installation of water meters, will develop smart metering for the reading of these meters. It would be reasonable for them to piggy back on any existing infrastructure that provides connectivity into the home.
- When smart electricity meters are installed, for these potential uses, the existing smart metering infrastructure will need to determine whether they are trusted or untrusted devices. When trusted they can join the Smart Metering HAN, but if untrusted access should only be allowed through a trusted mechanism that takes into account data privacy and security. In the

consultation in talks about the objective of achieving 'secure and consumer friendly' connection. Of course, an untrusted device may over time become trusted and a remote pairing to achieve this would be preferable.

Q30. Do you agree that a specification for a HHT interface to the HAN should be defined? If yes, please identify the functions that this interface would need to support and the scenarios in which such functionality could be required.

Yes. EDF Energy believes a common interface specification between the HHT and the HAN/communications hub in SMETS2 is essential to ensure Suppliers Metering Agents / Installers do not have to procure and use different HHTs for devices manufactured and provided by different parties. Consumer switching will lead to suppliers needing to support every device variant from every manufacturer if a common interface is not defined. Field Force Resource Providers will be providing services to multiple suppliers and otherwise would need to carry an HHT for each supplier to whom they provide services.

Where a consumer is supplied by differing gas and electricity suppliers and one fuel has been installed, the HHT will need to interoperate with the other supplier's communications hub to facilitate the install. Where a HHT is used to diagnose faults then clearly a common interface will ensure one type of HHT can be used for all sites/devices.

Failure to provide a common interface specification will lead to increased CAPEX and OPEX costs in terms of both the differing HHTs suppliers will have to procure and the delays caused during the installation in ensuring the correct HHT is used with differing user / interface designs during the commission. Indeed, Suppliers may be unable to use a single HHT where the consumer is using different gas and electricity suppliers. The consumer will ultimately bear these increased costs.
It is essential the common interface should also ensure suppliers / meter installers do not have to procure different HAN / SMS commissioning / integration software from different meter manufacturers. Therefore, we believe a single common interface that all manufacturers have to support is essential.

The Industry has mapped out the installation process where it is expected that a complete SMS with up to 5 devices (GSM, ESM, enhanced IHD (for inaccessible meters) communicating via a communications hub and LAN (in a block of flats)) can be commissioned by one installation 'ping' within 2 minutes. Failure to realise this requirement will have a very significant impact on the DECC IA,

EDF Energy believes it is essential these standards are finalised as soon as possible, since Suppliers are currently in dialogue with Service Integrators, where a set of agreed standards are essential to agree the associated requirements and progress solution design in time for mass roll-out.

Functions the HHT interface will need to support:

The following table provides a list of the functions EDF Energy believe the HHT need to support, as an alternative to provision of the functionality through the SMS.

Function	Scenario	Comments
MPxN entry	Installation / exchange	Without automated entry of MPxN via the HHT will require an extra 6 minutes per install for manual entry with an associated error rate of 10% which will require a further 16 minutes to correct noting no service to correct currently included in DCC User Gateway Catalogue.
Trigger installation commissioning message (ping)	Installation / exchange	It is essential a commission ping for up to 5 devices can be activated by one command by the installer either through the communications hub or HHT and complete with DCC providing keys/config. back within 2 minutes – failure to achieve this will have a significant impact on the IA due to extending the time taken on site to complete an installation. Detailed Component Processing Logic required as a matter of urgency detailing this process (does not currently exist).
Decommission	Exchange	BPDG process "03.02 Decommission Metering Equipment" process step "03.02.04 Initiate Decommissioning Message" references meter and HHT to send the message, as debated and agreed by the Industry in the BPDG.
Configuration entry	Smart ready installation / exchange	Where the WAN communications is available at the start of the install which subsequently fails at the end of the installation, the Installer will need to ensure correct credit tariff is loaded (particularly important where time switching tariff has been agreed with the customer e.g. E7) It is understood that where no WAN is available the meter should not be left in prepayment mode.
Authentication / appropriate security model	Smart ready installation / exchange	Where WAN communications was available at the start of the install which subsequently fails at the end of the installation, the Installer will need to ensure trust is established. The method for establishing trust is currently under debate within the Industry.
Update DCC	Smart ready	Where WAN coverage is not available, the

	installation / exchange	HHT will need to notify the DCC of the details for the trust / appropriate security model (WAN communications unit in HHT which can be moved to a different location hence connect to DCC). This provides added advantages in terms of supporting a real time security model.
Fault diagnosis / query logs & data	Maintenance scenario	There is an expectation the HHT will support and speed resolution of faults where there is no WAN (expect remote capability also); we see this as a low risk read only transaction.
Firmware upgrade	Maintenance scenario	Where the WAN is down, the HHT will need to authenticate that the firmware is from a valid source – will need to incorporate the appropriate security controls into this process.
	Stock firmware invalid / insecure	Devices in stores (not yet deployed) and firmware requires update due to security breach prior to being installed
HHT authentication / trust	Authenticate HHT for use in the field	Required to ensure the HHT is secure.
Operate HHT in test mode	Accredit new HHTs	EDF Energy assumes the HHTs will form part of Industry testing and accreditation and would therefore need to operate HHTs in a test environment to ensure suitability / accreditation of new HHTs

Chapter 5 - Governance and Assurance of Security and Interoperability

Q31. Do you agree with the proposed approach to the governance of security requirements? If you propose alternative arrangements please provide evidence to support your views.

Yes. EDF Energy believes that a technical sub-committee to the SEC Panel should be formed of technical experts from the: Energy Suppliers, National Grid, UK National Technical Authority (CESG), CPNI, Ofgem, Energy UK and DECC for such purposes.

Q32. Do you agree with the proposal to establish independent assurance procedures for DCC and DCC users? Please explain your views and provide evidence, including cost estimates where applicable, to support your position. Comments would also be welcome in relation to the impacts and benefits of the proposed approach with regard to small suppliers.

Yes. We believe it is essential for all licensed suppliers and any third party service providers with access to data from smart meters or smart meter functionality to

have undertaken appropriate and consistent security risk assessments for any smart metering systems.

We do not agree with a role based approach but would expect all DCC users to achieve the same level of security. Protecting our customer's personal and private information is one of our top priorities.

Q33. Do you agree with the proposal that re-testing should occur at least at set intervals and more frequently when significant changes to systems or security requirements are introduced? Please explain your views.

Yes. If there is a fully functioning Information Security Management System (ISMS) in place which is continuous, any re-certification or re-testing should be triggered by changes in the system, risk or elapsed time.

A DCC user should have to re-confirm conformance to a DCC code of connection annually. Included in this code of connection should be a requirement to operate an ISO27001 ISMS which is regularly audited by suitably qualified external assessors.

Q34. Do you agree with the proposal to establish an independent security certification scheme for smart metering equipment? Do you have any views on the proposed approach to establishing a certification scheme or evidence of the costs or timelines for setting up such a scheme or submitting products for certification?

Yes. It is appropriate to have an independent test regime. Any equipment (including all components within the relevant SMS) that is intended to be enrolled or adopted by the DCC should comply with and be subject to the same test regime criteria.

Q35. Do you agree that sanctions for non-compliance with security requirements should be included in the SEC? Do you have views on the nature of the sanctions that might be imposed?

EDF Energy agrees there should be measured and appropriate sanctions for non-compliance. However, there must be a clear distinction between this proposed regulatory protection and existing legislation such as the Data Protection Act (DPA).

We believe that the SEC provisions must not conflict with the DPA or replicate obligations already covered by the existing statutory framework.

The process should be sufficiently proportionate that it does not discourage self-disclosure. Any sanctions must reflect, as a minimum, the impacts on other participants, the severity of the non-compliance, the number of occasions, appropriate escalation routes and include an option for controlled expulsion.

Q36. Do you agree with the proposal to, in effect, extend the arrangements already proposed for SMETS installations prior to DCC operation, to all installations being opérated outside DCC? Please provide evidence of the costs that might be incurred and the impact of this approach on small suppliers.

The implementation of an ISO 27001 framework for smart metering systems outside of the DCC during Foundation is a positive step towards gaining appropriate management of data. EDF Energy believes this arrangement should be extended into all SMETS installations operated outside of the DCC.

We believe the whole industry should work to a specified standard and DECC should ensure all parties are aligned by producing a:

- Standardised, ISO27001 scope
- Industry-wide risk appetite statement, to ensure consistent controls are applied

FIPS 140-2 encryption is required for the same reason to ensure future interoperability and enrolment into DCC, without the need to visit site, for those suppliers wishing to operate within the DCC.

EDF Energy believes that this is essential to ensure a consistent approach is adopted across the industry. Otherwise, when a customer changes supplier the security risks and controls of the existing smart meter installation may not be aligned and there will be a possibility of the meter installation not being acceptable to the incoming supplier. This would result in the current meter being replaced by the incoming supplier, and therefore the meter assets becoming stranded. Should security breaches or data privacy issues arise in this sector, through not adopting the same standards, it could have a detrimental impact on the mass roll-out of smart meters in the domestic market.

Q37. Do you agree that interoperability is central to the development of a successful smart metering solution and that activities related to the assurance of SMETS equipment should be governed by SEC? Please provide views on the governance arrangements that would be appropriate for assuring interoperability of smart metering equipment.

Yes. Interoperability is imperative. The complexity of the GB market, along with a supplier-led roll-out, increases the risk of non-interoperability which needs to be mitigated. GB has multiple energy suppliers who are likely to purchase SMS equipment from differing manufacturers. Suppliers who gain customers from other Suppliers will need to be able to support equipment they inherit in a simple and cost effective way.

In most other European and world wide energy markets metering is the responsibility of the Network Operator who covers set geographical areas. Such arrangements mean one agent purchasing metering equipment to a single

specification from a limited amount of manufacturers; hence interoperability can be achieved via the commercial supply chain processes. However, we are aware of international experience, which we have shared with DECC, where a simpler market model has struggled to achieve interoperability.

Although we agree that the SEC (and its appointed governance body) should have overall responsibility for ensuring that smart metering equipment is compliant with the SMETS and generally fit for purpose, we would emphasise that it is Government's responsibility to ensure that the SMETS and CHTS are developed in a manner that facilitates interoperability. The SEC cannot be effective in administering the technical specification unless the specification is designed in an optimal manner. This is particularly the case given the proposed separation between the SMETS and the CHTS. We are mindful of the risk that the two specifications are developed without due regard to mutual compatibility and interoperability, and look to Government to provide comfort that this risk is being addressed.

The GB test and assurance regime requires central independent governance as there are multiple commercial parties expected to provide a critical national infrastructure service. Unless there is such a body responsible for ensuring a single set of rules and governance for security, manufacture, business process and arbitration, there is a significant risk to delivery.

In light of this, EDF Energy has provided presentation overviews to DECC and wider industry on how such an accreditation scheme should work. The following points provide a high level summary of EDF Energy's views:

- The SEC panel should appoint a 'competent body' responsible for agreeing test criteria, appointing competent test houses and acting as arbiter between disputing parties. The appointed central governance body must also be capable of providing an 'operational service delivery function' on a day to day basis
- Under this approach, the relevant party (e.g., a manufacturer or supplier) will register their intention to put new or existing component(s) through the 'competent body' specified testing regime. The relevant party will then be required to use the approved test houses and processes.
- Once testing is complete, the 'relevant party' will be required to present documented evidence to the 'competent body for assessment.
- If the competent body deems this evidence to be complete and acceptable, they will inform the 'relevant party' that they can apply an approved label to the component(s). The competent body will also inform the DCC, who will add the component(s) to the DCC list of approved components.

The SEC panel is the natural party to provide or appoint such a governance body, since the code is the principle instrument governing conduct of all parties that are affected by the roll-out of smart meters, including the DCC. As such, the panel is likely to be the only body with a sufficiently broad remit to implement the testing

regime, while also ensuring appropriate representation from key industry participants.

As a minimum, we believe the competent body should be responsible for:

- Defining test criteria
- Defining accreditation governance
- Acting as the central point for approving and contracting individual commercial test houses.
- Providing a dispute resolution mechanism for all parties manufacturing, testing and supplying equipment expected to communicate with the DCC via the SMHAN
- Ensuring that only equipment that has been tested and accredited via the central regime can be registered on the DCC
- Providing an ongoing change control mechanism to ensure that no parties can make a change to approved versions of SMS component 'Hardware, Software or Firmware' that may place a risk on the security of the DCC and its ability to provide contracted services. In addition this control is required to ensure other parties that may have to interact with the equipment (Networks, ESCOs etc.) in the future are able to do so.

The regime and relevant processes mentioned will aid confidence in areas such as:

- Finance – Assurance around interoperability and other aspects of accreditation will reduce the risk of asset stranding which will give more assurance around financing. Without such assurance, MAPs may refuse to invest or incorporate higher risk premia into their rental prices, leading to higher asset costs for Suppliers and customers.
- Technical certainty – Manufacturers will be able to design and build equipment with confidence that they have a central body to refer to for any technical ambiguities that remain following the publication of the SMETS.
- Cost minimisation – Consumers will have a higher degree of confidence that their cost exposure to interoperability failures will be minimised.
- Customer convenience – An adequate test regime will reduce the risk of equipment failure, which would require additional visits and is therefore likely to lead to customer dissatisfaction.
- Supplier costs – Suppliers and appointed agents such as Mops will have confidence that the SMS they plan to use is fit for purpose.
- DCC costs – Adequate testing procedures will reduce the likelihood of technical issues associated with registering SMSs with the DCC. Moreover, we consider that an adequate test regime is essential in order to ensure that DCC is provided with a fully specified list of acceptable devices.

Q38. Do you agree with the creation of an 'approved products' list and the requirement on suppliers and CSPs to obtain, retain and provide evidence of appropriate certification should apply regardless of whether they intend to enrol the equipment in DCC?

An approved SMS products list is imperative and should be available to the DCC. The source of approved items that can be included in the list should come via the central test regime and be published in the public domain. This is similar to the successful working model followed when purchasing current MID compliant 'dumb' meters.

If individual Suppliers or CSPs decide to purchase and use equipment that they do not intend to register on the DCC, it is assumed that such items have not been certified by the industry test regime. In such circumstances said parties should keep and be able to provide evidence of the 'self determined' due diligence measures they have taken.

With the additional security, remote communications and radio emissions brings a new dimension to current in home metering technologies. As we have noted in other roll-outs consumers rightly need confidence that equipment installed is safe as well as fit for purpose, regardless of origin.

When a party attempts to pre-register equipment the DCC should automatically check each SMS component is within the approved list. If a component is not pre-registered the DCC should automatically reject the registration. In addition the DCC should also technically be able to remotely audit installations to confirm at any point in time what identified Smart components are installed on a SMSHAN at any given customer premise. This approach would provide an accurate source of reference for assets installed in a customer property rather than out of date, unsynchronised sources of information.

Suppliers, CSPs and other relevant parties should ensure and keep their own records that equipment purchased does have the appropriate certification at the point of purchase.

Paragraph 192 of the consultation states 'The Government considers that an approach is needed which supports a comparable level of security for smart metering systems, whether they are serviced by the DCC or are operated by a supplier (or agent) outside DCC'.

For domestic sites operating outside of the DCC after DCC go-live, the installing supplier should be responsible for meeting enduring DCC security requirements. Should the customer change supplier, the new supplier should not be held responsible unless they intend to continue to operate the SMS in 'smart' mode.

One of the issues with this own risk approach is that customers may have switched supplier several times before the current supplier attempts to register the SMS on the DCC. In such circumstances the 'Meter Asset Provider needs to be able to

trace back to the original installing supplier to recover potential remaining asset life costs.

For non-domestic opt-out sites, it makes sense for procured SMS components purchased after the DCC go live to follow the same certification requirements as those for domestic arrangements. This would provide the same clear framework to meet the security requirements. In addition this would reduce the potential for stranded assets if opt-in decision is made in the future.

Q39. Do you agree that protocol certification (against a GB Companion Specification) should provide adequate assurance that a product will meet interoperability requirements? Please explain your views and identify any additional assurance testing that you consider to be necessary and the rationale for including such testing.

EDF Energy needs clarity as to what the Companion Specification will actually contain as well how it will be produced?

We agree that there is the need for a GB Companion Specification, however, it requires much more than 'basic protocol checks' that consists of 'data item fed in generates expected data item out' testing. The ZigBee alliance and presumably DLMS user associations carry out protocol testing. How would a joint cross set of test requirements be met by different organisations? The original Interoperability technical working group or 'IOTWG' reviewed current testing carried out to certify to ZigBee standards for items such as broadband routers. The group concluded that there are additional requirements specified in the IOTWG final document published by DECC. For example, IOTWG agreed the need for bespoke Golden test units produced by the test house/s rather than a 'plug fest 'or declare one manufactures component as the golden unit approach.

<u>GB needs to have a companion specification that ensures:</u>

- Logical interfaces i.e. what route one device uses to pass a message to others
- Functional specifications i.e. what makes the machines work (will include: metrology, PAYG, types of tariffs, parameterisation, etc) – this has to be done for each device (gas, electric meter, communications hub, IHD 1, IHD 2 etc.
- Functional outcome verification test requirements i.e. test the expected outcome of the communication e.g. did the gas valve actually close?
- Tighter security specifications e.g. FIPS 140-2 modules including physical penetration rules (general and if required, a specific part for each device). Any IS027001 implications. Specific mapping links to security source document in relevant sections of the companion specification.
- Variants defined in an interoperable way e.g. Twin element meters
- Specific GB Non functional (or material) requirements: Form design e.g. size and position of communications hub, voltage levels, breaker/valve requirement and any GB specific safety requirements. If not within the companion specification itself the companion specification should reference the relevant industry source documentation to refer to.

- HHT requirements – Interoperability, Interfaces, Security
- CAD requirements – Security, Logical and Physical Interfaces
- Gas mirror data rules and abilities around changing a communications hub etc. (Note from industry meetings it is assumed this to be included in Communications Hub Technical Specification 'CHTS).

The GB market is complex and requires SMS equipment that has a high level of consumer interaction as well as multiple parties that will be expected to support and operate in a dynamic environment. We must wherever possible remove the chance of differing interpretations that may affect said abilities to serve.

In addition to an independent assurance regime that accounts for assurance of the companion specification requirements there obviously needs to be continued MID certification requirements and a need to confirm that Smart functionality does not impact MID

Chapter 6 - Operational licence conditions

Q40. Do you agree with the Government's proposals to require energy suppliers to operate specific aspects of smart metering equipment functionality for domestic consumers? Please provide rationale to support your position.

EDF Energy supports the objective that all domestic customers should be able to benefit from smart meters by the end of the roll-out period, but raise the following points:

- We believe it is inappropriate to force suppliers to operate 'in smart mode' SMSs deployed by other suppliers, which cannot be enrolled into the DCC. If SMSs are not fit for the DCC, we do not believe that it is reasonable to force suppliers to operate such meters in smart mode through other systems. This would have several adverse consequences, including:
  - Creating obligations that mandate the use of the DCC but also mandate the use of systems other than the DCC, compromising the business case of the DCC and increasing complexity of arrangements
  - Perpetuating difficulties on Change of Supplier
  - Limiting opportunities to simplify electricity and gas arrangements
  - Create customer confusion
  - Forcing the use of other suppliers' SMSOs, with implications on competition and security assurance
- There are a number of fundamental challenges to completing roll-out by December 2019. Not least the availability of assets and visibility of an end-to-end solution that enables all suppliers and other participants to build systems in confidence.

The government position, as stated after paragraph 229 refers to suppliers being obliged to "take all reasonable steps to establish & maintain a WAN connection...", but fails to note the DCC's responsibility to provide a service that ensures connectivity.

Q41. What are your views on the Government's proposals to require energy suppliers to operate specific aspects of smart meter equipment functionality for micro-business, but not other non-domestic, customers?

EDF Energy's view is that it is very difficult, as per the definition of a relevant person below, to identify a micro-business.

Ofgem's Standard Licence Condition 7A.1 states:
'the licensee must either take all reasonable steps to identify whether that Non-Domestic Customer is a Micro Business Consumer, or deem that Non-Domestic Customer to be a Micro Business Consumer.'

As a result, our non domestic (PC 3-4) customers are typically treated as a micro-business customer, unless it is a site that is linked to a major customer with multiple sites.

However, EDF Energy is likely to install the same type of smart metering equipment, including the CHTS communication hub, in our non-domestic (micro-business) sites, as our domestic sites. Hence, the same capability will be available to allow the customer to have local access to their data and consumption history through the HAN. This would support the use of a CAD or an IHD.

This proposal may have an impact on DECC's Impact Assessments (IAs), as currently the Domestic and Non-Domestic IAs are independent and what effect will this have on them to treat micro businesses the same as domestic?

Q42. Do you agree that the licence conditions as drafted effectively underpin the Government's policy intentions for consumer operational requirements?

EDF Energy is concerned with the proposed licence condition paragraph 8b as we believe that it is not DECC's policy intention to force one supplier to use another supplier's SMSO for the reasons given in response to question 40. The alternative would be that the supplier should enrol the SMS into DCC by this time or be able to strand the SMS at no commercial risk to itself.

Paragraph 3a requires clarification as the term "licensee's Head End System" is confusing. The "*licensee's* Head End System" could be interpreted to mean a Supplier's communications system before the DCC is in place. The term *Head End System* is defined in SMETS as a "centralised means by which an Authorised party can access Gas Smart Metering Systems and/or Electricity Smart Metering Systems (as the case may be)...". Therefore, it is unclear whether this refers to SMSs that are operated through suppliers' own systems or those operated through the DCC.

In paragraphs 2, 3 & 4, the technical limitations should be reflected as individual customers may wish to use Consumer Devices outside of the range of the communications hub and may therefore question whether all reasonable steps have been taken.

There should be an exclusion within the "Commencement of Operational Requirement" such that the condition only applies once the Effective Switching threshold (25,000 SMSs' per licence type) is exceeded*. This will avoid the risk of potential non-compliances if small volume trials installations suffer operational issues during the 'learning phase'.

* - for suppliers who do not meet the 'larger supplier threshold' of 250,000 customers per licence type, a smaller threshold should be determined that reflects:

- the number of customers of each supplier
- the need for the supplier to benefit from a 'learning phase' without undue risk
- that risk to the success of the programme exists if multiple smaller suppliers on aggregate deploy large volumes of SMSs that cause operational problems.

Q43. What are your views on the Government's proposals for obligations to be included in the SEC for information to be made available to Network Operators and ESCOs via the DCC?

This consultation question appears to miss part of the Government's position set out after paragraph 229 – that the obligation should apply to domestic SMSs that have not been enrolled into the DCC by end of 2019. Dealing with these issues separately:

Configuring SMSs to enable the DCC to offer services to other SEC parties:

EDF Energy believes that all parties should pay for the services to the extent that they benefit from those services. Therefore, additional costs should be borne by those users, including both the cost of the assets and the operational costs.

If DNOs require functionality that increases the cost of the assets, a cost benefit analysis should be performed to ensure that the extra cost is justified and that it is the most cost-efficient solution. The benefits relating to this cost should then be accounted for within the next distribution price review (at the moment ED1 or GD1).

The additional operational cost (for example the cost of the DCC and Service Provider developing additional services and transactional communications costs) should be borne by that class of user or specific user. Such services should not compromise delivery of the DCC or provision of its core services.

Configuring SMSs to enable the DCC to offer services for SMSs not enrolled in the DCC by the end of 2019.

There are two main points:

- It is contradictory to assume that the DCC can offer services for SMSs not enrolled into the DCC
- That other SEC parties cannot receive services for SMSs that cannot be enrolled into the DCC provides evidence that these SMSs should be replaced by the end of the roll-out period. The cost in this instance should lie with the supplier who deployed the SMS so as to avoid the transfer of commercial risk between suppliers.

Q44. Do you agree with the Government's proposals for the timing of the introduction of operational requirements? Please explain your reasoning.

EDF Energy agrees that all customers should be able to enjoy the benefits of smart metering by the end of the roll-out period.

We also agree that obligations should be placed on suppliers who deploy SMSs outside of the DCC. Such obligations cannot be reasonably placed on suppliers who gain the customers on Change of Supplier as this would have implications for competition (potentially forcing the use of specific systems) and compliance with security obligations (mandating the use of systems over which a supplier can have little control or oversight).

However, we believe the following points should be considered before any such licence conditions can reasonably be placed on suppliers:

- DECC should assess the risk of delays to programme delivery (such as asset specification and availability, DCC availability) that could either delay the start of mass roll-out or place constraints that inhibit the efficiency of roll-out. Such assessment should include reconsidering the proposed end date for the roll-out. Delays or constraints will increase the cost of the roll-out and reducing the duration of the roll-out period (which is already shorter than the optimum period) will erode value in the Impact Assessment.
- Technical solutions (e.g. SMS assets and HAN / WAN) must exist that enable suppliers to comply with the obligations at reasonable cost;
- The obligations should apply once a supplier has exceeded the threshold for Effective Switching (or a smaller, but reasonable threshold for suppliers that would not fall into the Effective Switching requirements);
- For the reasons given above, the obligations should not apply to gaining suppliers on Change of Supplier at the end of 2019 if the SMS cannot be enrolled into the DCC.

Chapter 7 – Next Steps

Q45. Do you agree with the proposed changes to the smart metering regulatory framework to reflect the CSP-led model for communications hub responsibilities? Are any other changes necessary?

EDF Energy agrees with the proposed changes to the smart metering regulatory framework to reflect the CSP-led model for communications hub responsibilities. We believe that the best way to implement these changes is through changes to a number of regulatory documents;

The DCC Licence – The DCC will be required under Licence to provide a Communications Hub compliant with the Communications Hub Technical Specification (CHTS). We would expect this requirement to be backed off in the Communications Service Provider (CSP) contracts. Additionally we feel that the DCC licence should also be amended to also oblige the DCC (via its CSP contracts) to install and maintain the communications hub.

Supply Licence Conditions – Assuming DECC decide to retain their position on Supplier responsibility for installation and maintenance of the communications hub, an obligation for Suppliers to install and maintain the relevant Communications Hub procured and provided by the relevant geographical CSP. . Our detailed comments on the provision, installation and maintenance of the CHTS are found in our response Question 14.

SMETS – The corresponding requirements in SMETS 1 for Suppliers to provide the communications hub would need to be removed for SMETS 2.

Q46. Do you agree that the equipment development and availability timelines are realistic? Please give evidence.

We believe the proposed timescales for development are very challenging and are concerned that there are many factors that have not been fully considered that challenge the prospect of a timely completion.

It is also clear that without an end-to-end design baseline and without thorough testing of the entire system (including all SMETS; interfaces, functional and non-functional capabilities, operational performance and failure modes), significant risks exist which could lead to wholesale equipment replacement and loss of confidence in the programme.

There are now considerable concerns emerging about the lack of agreed security standards. If as suggested these will not be available until late in 2013 then there is a risk that product development cycles might be disturbed in order to accommodate newly emerging but previously unknown requirements. It is also apparent that the establishment of the Security Assurance Regime due to start in October 2012 does not appear to be ready to commence its operation. Further to this there are concerns about emerging changes to the security requirements,

which need to be cemented before the design and establishment of the Security Assurance Regime can commence.

There is also concern that great reliance has been placed upon all manufacturers making assumptions on the outcome of the various EU notifications (SMETS 2, Companion Specification, Equipment and Security Specification and CHTS.). Clearly manufacturers must do this in order to maintain their competitive position but should any unexpected outcome(s) emerge from one or more of the notifications then availability of compliant equipment could be considerably delayed. Should there be a delay to the availability of compliant smart metering equipment then this will inevitably delay the commencement of CHTS communication hub testing, which in itself will delay commencement of DCC operations and mass roll-out.

With regard to paragraph 237 it is difficult to see that the development of a HHT is straightforward. Of late there have been numerous debates principally around functionality and most notably security. Clearly the Industry needs to agree as to exactly what will comprise a common and secure base functionality for a HHT.

With regard to testing and trialling, EDF Energy has concerns about the availability of sufficient laboratory resource. There are around six potential meter manufacturers who are likely to each produce three different products (E Meter, G Meter and IHD) leading to a requirement for at least 18 test slots. Each of these products will have to be tested against an Industry agreed set of golden units. If sufficient test resource is not available then there is a possibility of insufficient product availability. In such a situation it would be unwise to commence roll-out since manufacturers who were ahead in terms of product availability would be able to charge a premium price. Furthermore, only suppliers who were able to acquire products would be in a position to commence, others would have to await the market gaining momentum following the accreditation of more products. EDF Energy suggests that DECC should take the necessary steps now to identify and acquire sufficient available resources for future testing. Ideally there should be one overall test programme that should include all aspects relating to compliance, i.e. Security, SMETS 2, Companion Specification, current regulatory requirements and any relevant aspects of CHTS.

The development plan presented at this juncture by DECC is unclear. Over the last 18 months there have been numerous changes in terms of policy and requirement. To a great extent this has been accepted and recognised by EDF Energy as arising from the myriad complexities associated with this massive project. However, it is now necessary for DECC in consultation with the Industry to develop and publish a fully baselined roadmap.

Q47. Do you agree that SMETS 2 should only be designated when the Government has confidence that equipment to satisfy the new requirements is available at scale? Should a further period of notice be applied to ensure suppliers can manage their transition from SMETS 1 to SMETS 2 meters?

EDF Energy is of the opinion that the Government should only designate SMETS2 equipment once there is confidence throughout the Industry that suitable equipment is generally available at scale. In this respect it is important to define "available at scale". EDF Energy defines this as when:

- Several different manufacturers have equipment available
- All items of SME are available from the market to any Supplier within reasonably short lead times
- Testing and certification has confirmed that there is a general level of interoperability such that meter procurers can purchase SME products from different sources and have the necessary level of confidence that such items are fully compatible with one and other.
- That the design of the communication hubs are stable and have been proven to interoperate satisfactorily with all SME that has been deemed to be SMETS 2 compliant.
- Ideally the DCC should be available but in any event CHTS compliant communication hubs must be generally available for installation. Furthermore, there should be sufficient confidence within the market to the extent that Suppliers can confidently install SME.
- While it would appear reasonable for a transition period to be available there should be a volume cap on the number of SMETS 1 meters that can be installed by any particular Supplier after SMETS2 has been designated. This is necessary in order to prevent Suppliers unnecessarily hoarding SMETS 1 equipment to in order to delay their obligation to comply with SMETS 2 requirements. Failure to apply such a ruling will lead to increased numbers of non interoperable smart meter systems.

Q48. What are your views on when responsibility for the SMETS modifications process should transfer from the Government to the SEC?

EDF Energy believes that the responsibility for the SMETS modifications process should transfer from the Government to the SEC as soon as a version of SMETS 2 is designated by the Secretary of State, contracts are in place with the DSP and CSPs and the governance framework of the SEC is in place and active. Primarily, we see no reason how the governance and modification process for SMETS could transfer any sooner.

EDF Energy believes that a SEC modifications governance framework should be developed that provides the full delegation of modifications to a Change Board, with the Panel providing an 'executive committee' function. This would allow:

- The Panel to act as an executive committee function, focussing on operation and finances of the code;
- The Change Board to have fully delegated responsibility for overseeing the modification process. This would include ensuring modification proposals are rigorously assessed against the code objectives and the commissioning of a full, unbiased modification report to assist the Authority in making its decision. We would expect Change Board members to be free to represent the interests of individual parties or party category, and;
- The creation of specialist sub-committees to deal with the development and assessment of modifications relating to security / assurance / technical standards such as SMETS.

We would expect that changes to SMETS will be required throughout the duration of the Smart Metering Implementation Programme to ensure that the specification provides technical interoperability, interchangeability and facilitate an optimum roll-out until such times that the technology is stable and fully developed. However, DECC must ensure that the SMETS 2 specifications are detailed enough in the first instance to ensure that manufacturers and Suppliers have confidence in what they are building or procuring. This will minimise the risk of asset stranding and ultimately lessen the impact on the impact assessment.

Q49. Which of the options (standing sub-committee or non-standing sub-committee) would you prefer in relation to modifications to the SMETS?

The roll-out of smart metering is a large and complex industry programme. The development and subsequent governance of SMETS forms an integral part of the smart metering arrangements. Given the size and complexity of the programme it is possible that the arrangements will need to reviewed and modified during the early years of implementation to cater for experience gained and to address any unexpected shortfalls in security etc. Given this, we believe it would be appropriate at the outset to establish a standing committee composed of suitably experienced representatives with a view to addressing any such risks in an efficient and robust manner.

As stated in our response to Question 48, we believe that a SEC modification governance framework should be developed that provides for a Change Board to be provided with full delegated responsibility for overseeing the modification process, with the Panel providing an 'executive committee' function. Within this framework, the Change Board should be empowered to appoint both standing and non-standing technical or expert committees for specific areas of the SEC modifications process. These committees should report directly to the Change Board.

Q50. Are there any particular areas of expertise that the sub-committee will need to fulfil its role, in terms of membership composition?

EDF Energy believes that the governance of SMETS will require expertise from a number of different parties and industries due to the very technical nature of the subject.

We would expect the sub-committee to be made up of experts from;

- Metering device manufacturers
- Communications device manufactures
- Communications service providers
- Software designers
- Asset Providers and Installers
- Suppliers
- Networks
- Security
- Testing and Trialling
- Assurance and Accreditation
- DCC

EDF Energy
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