Smart Metering Implementation Programme
Roll-Out Team
Department of Energy and Climate Change
3 Whitehall Place
London
SW1A 2AW

A consultation on draft licence conditions and technical specifications for the roll-out of gas and electricity smart metering equipment

Thank you for providing SSE and SGN with the opportunity to comment on the proposals set out in the above consultation. We welcome the continuing engagement with the Smart Metering Implementation Programme. I have set out our response to each of the questions in the attached appendix.

SSE has a number of ongoing issues that it wishes to bring to the attention of the Programme. I have summarised these below with more detail available in our response to the individual questions.

- **The Programme must mandate a single set of HAN standards.**

SSE is completely opposed to multiple HAN standards being adopted by suppliers. Failing to narrow down the HAN solutions make interoperability inextricably and therefore competition in supply more complicated. This will also reduce manufacturers' and suppliers' confidence to roll-out smart metering equipment during the Foundation phase contrary to the suggestion being made within the consultation document.

- **Assurance and testing regime**

This is a key aspect which will be essential to confirm device interoperability and must be operational at the beginning of the Foundation period. We have yet to see a baseline plan but believe this must be a critical path activity.

- **SSE believes that the roll-out term should be 5 years commencing after key criteria are met e.g. DCC services operational.**

As SSE has consistently stated in previous submissions to DECC, we firmly believe that the completion date of smart roll-out should be five years from the beginning of mandated roll-out. We strongly believe it is better to devote time to up-front preparation so that mandated roll-out by suppliers will start when all market participants are prepared and can deliver the expected customer experience necessary for sustained benefit.

- **Network operators being required to make extra customer visits as a result of smart metering must be included within their recoverable costs and be suitably reflected within the Impact Assessment.**

DECC also need to consider the potential impact that reduced timescales for roll-out could have on gas and electricity Distribution Network Operators (DNOs). The duration of the roll-out will have an impact upon the timing and identification of supply point issues not to current standards and service alterations, i.e. if meter exchanges occur at the rate of four or five (or according to some of our analysis more) times than the current rate then there will be a similar increase in the number of sites requiring remedial action by the DNOs. This will inevitably have an impact on DNOs' resources and will vastly increase the cost and resourcing requirement of the smart roll-out.

SSE would recommend to the Programme that this issue is given the appropriate forum in which to discuss these serious implications for network operators.

In conclusion, SSE welcomes the ongoing engagement with the Smart Metering Implementation Programme through the various industry forums. We look forward to the Government's response to the various issues identified above and throughout this response.

Appendix

1. The Government is seeking new evidence and views on the impacts of specifying a completion date that is in the earlier part of 2019.

As SSE has consistently stated in previous submissions to DECC, we firmly believe that the completion date of smart roll-out should be five years from the beginning of mandated roll-out. We strongly believe it is better to devote time to up-front preparation so that mandated roll-out by suppliers will start when all market participants are prepared and can deliver the expected customer experience necessary for sustained benefit.

The effective start date must give due consideration to DCC services being available throughout Great Britain and being capable of commissioning the anticipated roll-out volumes. DCC will also be required to adopt a number of existing contracts in place for existing compliant smart meters installed within consumers' premises. This will further increase the pressure placed on DCC to ensure capability.

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2. Do you think the licence conditions (AA1-2) as drafted effectively underpin the policy intention to complete roll-out of Smart Metering Equipment by a specified date? Are there any areas where you consider further clarification is required necessary? Please explain your reasoning.

We consider the licence conditions to achieve the policy intention are satisfactory, however, we do not support the proposal to set a completion date as detailed in our response to Q1. We suggest that DECC should, with stakeholder input, establish criteria that must be met prior to the mandate taking effect.

3. Do you agree that the licence conditions as drafted effectively underpin the policy intention to deliver Smart Metering Equipment with the functionality and interoperability required to meet the business case? Please explain your reasoning.

Yes, defining Smart Metering Equipment as only that meeting the requirements of the SMETS will ensure that all meters are compliant and by introducing an „all reasonable steps' obligation should lead to full interoperability. The „reasonable steps' must lead to the establishment of an assurance and testing regime which will ensure that smart devices are compliant and certified/approved as such by an appropriate body. Clearly the delivery is dependent on the DCC services and SMETS being available, with appropriate lead times, prior to the mandated roll-out of smart metering. Also, without a defined HAN specification interoperability is not guaranteed (see response to question 36).

4. Do you agree that Smart Metering Equipment should be compliant with the SMETS extant at the time of installation and that it should continue to be compliant with that version of the SMETS through the operational life of the equipment? Please explain your reasoning.

Yes, we agree that the equipment should be compliant with, and maintained to, the version of SMETS extant at the time of installation, otherwise it would be very difficult to maintain interoperability.

5. Do you agree that in some exceptional circumstances suppliers should be required to retrofit Smart Metering Equipment that has already been installed? Please explain your reasoning.

Yes, however any significant changes to the SMETS will further impact on previous roll-out commitments. There may be circumstances where this is necessary, for example where a security threat is imminent that may only be addressed through the physical replacement of the meter. Licence condition AA9(b) should be modified to include a process that identifies the appropriate body to bear the costs of any retrofit. We are also concerned that any significant requirement for retrofitting could compromise the completion target, there would be potential for this to completely undermine the business case.

6. Do you think that the licence conditions (AA3-6) as drafted effectively underpin the policy intention for the new and replacement installation of Smart Metering Equipment? Please explain your reasoning.

Yes, SSE agrees that the licence conditions meet the policy intent.

7. What period of notice do you think would be appropriate before the new and replacement obligation comes into effect? Please explain your reasoning.

The notice period will depend on the SMETS being defined and agreed as it will not be possible for suppliers to install compliant smart meters before this becomes available. Meter manufacturers will need a grace period to ensure their meters are up to a specification that meets the SMETS. This timescale could vary dependent on the state of the meters available at the time the SMETS is agreed and how much upgrading is required to meet the SMETS requirements. We would also require the assurance and testing regime to be operational to ensure that smart devices are compliant and certified / approved as such by an appropriate body.

We would suggest that a period of 9 months is acceptable to allow the supply chain to develop.

8. What contribution do you think the interoperability licence condition as drafted could play in ensuring that suppliers work together to ensure Smart Metering Equipment is interoperable? Please explain your reasoning.

The introduction of an „all reasonable steps' obligation should lead to full interoperability. The „reasonable steps' must lead to the establishment of an assurance and testing regime which will ensure that smart devices are compliant and certified/approved as such by an appropriate body. If the SMETS was to provide a defined set of HAN standards then this would ensure that all parties were able to make all equipment interoperable. If another supplier was unable to support the HAN module currently installed within a consumer's premises this would be in contradiction with licence condition AA8(b). SSE would therefore suggest that DECC should define an acceptable HAN standard.

9. Do you think the licence conditions as drafted effectively underpin the policy intention to ensure Smart Metering Equipment is interoperable? Please explain your reasoning.

See response to question 8.

10. What role could a dispute resolution mechanism have a role in ensuring interoperability? What key features should such a mechanism have?

SSE agrees with the proposal to introduce a dispute resolution mechanism. A key feature of the dispute resolution mechanism should be members with the appropriate technical knowledge in order to determine which party is at fault.

11. For the smaller non-domestic sector do you agree that where there is a Current Transformer meter then suppliers should be required to install advanced rather than Smart Metering Equipment? Please explain your answer.

The requirement should be that where CT metering is installed in any premise included in the mandate (domestic and SME) that advanced metering shall be installed or metering that is approved that may have some derogation of smart functionality. There are technical and cost issues but there should also be arrangements to allow innovation such that more feature rich metering can be provided, over time, subject to compliance testing and support service availability from the DCC.

12. Do you think that the licence conditions as drafted effectively underpin the policy intention for Current Transformer meters? Please explain your answer.

Yes, however, we also believe that the obligation should also cover domestic customers as the issue is technical and not related to customer type.

13. Do you think under the new and replacement obligation gas suppliers should be given the option to wait for the installation of electricity Smart Metering Equipment before installing the gas Smart Metering Equipment? Please explain your reasoning.

We agree with the principle of this proposal. Upon visiting a customer's property to install a gas smart meter without the electricity equivalent also installed will not provide the customer with a very good experience of the smart proposition due to the lack of availability of information. The Gas IHD will only be updated every thirty minutes and if it is installed during the summer months, when gas usage tends to be very low, the customer will not gain much information to affect consumption or to understand the benefit of the IHD.

However, Government should also put in place tight controls over electricity suppliers to ensure they are not unnecessarily delaying their installation which would prevent the gas installation going ahead.

14. Do you think there are any other barriers to gas Smart Metering Equipment being installed before electricity Smart Metering Equipment? Please explain your reasoning.

There must be an agreement reached with gas and electric DNOs and Meter Operators as to how a communications hub is safely installed and powered from existing supply termination or metering installations. The means of isolation and DNOs' ability to recover the cost of any additional losses must be addressed.

15. What do you think the implications would be of extending the new and replacement obligations to the licences of other relevant parties in relation to installing Smart Metering Equipment in new developments without the involvement of a supplier? Do you think mechanisms other than licence conditions should be considered to achieve the policy objective? Please explain your reasoning.

Government decided that the roll-out of smart metering would be a supplier-led process in order to ensure engagement with customers and to assist with the Government's low carbon targets. If other parties (i.e. DNOs) are also obliged to install smart metering equipment this would undermine the work being done by suppliers to ensure positive engagement with customers.

Also, if Government obliged DNOs (or other parties) to install smart metering equipment this would require significant investment in systems, equipment and training. However, this should not preclude Suppliers contracting with parties to undertake metering work where services are offered.

The Programme should also give due consideration to the Meter Provider of Last Resort obligation currently provided through licence condition by gas transporters.

16. Do you think the roll-out of Smart Metering Equipment has any specific implications for the provision of emergency metering services? Please explain your reasoning.

The starting position in the electricity and gas markets are different. In electricity, DNOs have already, in the main, devolved metering emergency provision to Suppliers and Metering Businesses. However, in gas, emergency services are more usually provided by the DNO to Suppliers under commercial contracts. These contracts could be extended to cover smart operations where Suppliers deem them appropriate and cost effective in supporting their customers. However, where suppliers deem this to be appropriate it is essential that the requirements are appropriate. It is essential that Gas DNOs are not called to non-emergency situations (with the belief that it is so) on an increasing basis.

17. What period of notice do you think would be appropriate before the obligation to provide an IHD comes into effect? Please explain your reasoning.

The obligation to provide an IHD should be in-line with the timescales of the mandated roll-out of smart metering equipment. We believe this should be aligned with the timescales described in our response to question 7. However, where a SMETS compliant installation is provided during the Foundation period, it should be confirmed that the customer's option to have a display shall start from the date of this installation.

18. Would the consumer changing their supplier raise any particular issues with regard to the approach set out for the provision of IHDs? Please explain your reasoning.

SSE considers that if compliant and therefore interoperable IHDs are provided by the installing Supplier then there should not be any issue at change of Supplier.

19. Do you think the licence conditions as drafted effectively underpin the policy intentions set out for the provision of IHDs to domestic consumers? Please explain your reasoning.

SSE agrees with the intention of the licence conditions.

20. Do you agree that the Standard Licence Conditions identified above require consequential changes in light of the roll-out licence conditions? Do you agree with the Government's proposed approach? Please explain your reasoning.

As the term „Designated Premises' only relates to the roll-out of smart metering equipment this should be kept as a specific term that is only applicable to the relevant licence conditions.

21. Do you think there are any other consequential changes to existing licence conditions needed in order to make the proposed roll-out obligations work as intended? Please explain your reasoning.

SSE is currently involved in the DCCG WG1 and will continue to support this group in identifying any consequential changes to existing licence conditions that may be required.

We would however suggest an obligation to be placed on suppliers to communicate their rollout plans within each gas and electricity DNOs licensed area. This would allow DNOs to reasonably plan there work-load in response to any increased activity.

22. Do you think there are any consequential changes to existing legislation needed in order to make the proposed roll-out obligations work correctly? Please explain your reasoning.

SSE is currently involved in the DCCG WG1 and will continue to support this group in identifying any consequential changes to existing legislation that may be required.

23. Do you think there are any consequential changes to existing codes needed in order to make the proposed roll-out obligations work correctly? Please explain your reasoning.

Yes, SSE will support the DCCG WG2 SGC & BPDG work when it commences to determine the detail as needed.

The changes created by the implementation of the Smart Energy Code, have already highlighted an impact to the rules and processes held under existing codes. This includes, though not exclusively, the DCUSA, BSC, MRA, SPAA, UNC, iGT UNC, MAMCoP and MACoPA. Modifications will be required both in the short term during foundation stage to ensure interoperability and the enduring regime (post Q2 2014).

24. Do you think that there are other requirements that the Government should adopt in the SMETS? Please explain your reasoning?

Some technical aspects require further development. The work to define the operation and security of the Hand Held Terminal (HHT) and the Enhanced Prepayment IHD (EPIHD) were undertaken during the later stages of the DECC Hothouse process and therefore require more analysis to ensure that these will operate as required. The Smart Metering Equipment will provide a complex set of functions so attention needs to be given to the remote diagnostic capabilities and support that shall be available to suppliers and their agents. There are some unanswered questions regarding micro-generation metering for new and existing installations which require consideration alongside Feed in Tariff requirements.

Another important area to consider is the ability for the SMS equipment within the home to provide information, locally and remotely, about how the WAN and HAN are performing. The level of signal being received and link quality information for all the key smart metering components will improve the DCC and Suppliers' abilities to respond when meter readings are not being collected when customers report that their IHD or Gateway device is not receiving the correct information.

25. Do you agree that all the requirements recommended in the IDTS should be adopted by the Government in the SMETS? Please explain your reasoning.

Yes, however some of the items contained within the IDTS need to be re-stated or corrected.

It is also worth noting that the IDTS only covers a scenario where all of the relevant processes are working efficiently. A level of derogation will be required after IDTS has been introduced in order to allow suppliers to manage the potential issues. This could be achieved by introducing a reasonable steps mechanism to allow time for solutions to develop over time. For example, where a communications problem exists and only partial smart functionality can be delivered at installation. This needs to be captured through national processes so that a new supplier understands any technical restrictions that apply to a particular premise e.g. gas meter cannot connect to HAN, WAN not available etc.

26. Do you agree that the security requirements recommended in the IDTS are proportionate to the level of risk that the End-to-end Smart Metering System faces? Please explain your reasoning.

Yes. The security requirements have been based on the risk assessment and so are proportionate to the threats. However, it needs to be remembered that as threats and risks evolve, so may the security requirements that need to be implemented. Furthermore, as the end-to-end system is built out it is possible that further security requirements may be identified.

27. Do you agree that the process outlined above is a suitable way forward to develop the SMETS? Please explain your reasoning.

Yes, however we would welcome further detail with regard to the IDTS review timescale and the changes being proposed so that we can plan our internal development work and procurement activities. It would be prudent of the Programme to allow suppliers to be involved in this process. Following agreement to and development of any proposals deemed necessary as a result of this Consultation, suppliers and industry should be provided with a final opportunity to review the specifications prior to adoption.

28. Do you think that the SMETS should ultimately be governed as part of the Smart Energy Code? What alternative arrangements could be adopted for the ongoing governance of the SMETS? Please explain your reasoning.

Yes, SMETS should be governed as part of the Smart Energy Code.

29. What unit manufacturing cost reduction do you think can be achieved for Smart Metering Equipment over the next 20 years? Please explain your reasoning. Please also provide any other comments (accompanied by evidence) on the estimated costs of the Smart Metering Equipment as set out in the Impact Assessment.

SSE is not in a position to provide detailed costs in relation to the Smart Metering Equipment.

30. Do you agree that the Government should include a requirement for a Communications Hub in the SMETS? Please explain your reasoning.

Yes, SSE agrees with the reasons listed within the consultation, this is the only approach that will ensure interoperable communications that may be changed between meters and remote installation. It will also help reduce the number of meter variants and spare parts to be carried by any meter operative.

31. Do you agree with the estimated costs and benefits for outage detection and the Government proposal to require the Communications Hub to include the equipment necessary to provide electricity outage detection? Please explain your reasoning.

SSE is not currently in a position to comment on the costs associated with outage detection, however, we recognise that it may be difficult to show a positive cost benefit for this functionality when compared with existing fault management procedures. We also appreciate the argument being made by consumer groups to ensure that this should be a requirement of any smart meter and we recognise the benefit that this may deliver in terms of customer service, however, it is also important to maintain a balance between costs any potential customer benefits accrued. It should not be forgotten that significant work would need to be undertaken by Network Operators to modify their existing business processes and supporting systems in order make use of “no supply” notifications derived from the smart metering system. The management of such notifications needs careful consideration, it is likely that managing this data will be complex and potentially expensive. There is also a concern that during times of high fault activity, such as during storms, managing thousands of “no supply” alarms may hinder rather than help with supply restoration work.

Before a final decision is made regarding this aspect of the technical specification further work is required to determine how outage detection alarms will be managed by network operators. It is important that the programme, along with network operators, consider all the associated business process and system requirements and identify associated costs set against the potential customer benefits. If it is decided to progress with this and to establish an industry process then the governance and regulatory framework requires to be established in parallel with the development of the technical solution.

Regarding system architecture, it may be appropriate for the electricity smart meter to identify an outage and transmit this to the communications hub. It will then be possible to identify a low voltage situation or a phase failure on a multiphase supply. The communications hub will require the capability to operate for a period following a supply outage so that it can transmit the outage detection message. The communications hub shall differentiate between a supply outage and a device failure, which could be the hub itself.

32. Do you agree that the DCC Communication Service Providers should specify the requirements for outage detection as part of their general role in specifying the WAN technology? Please explain your reasoning

As DCC Service Providers will be responsible for the service it would seem appropriate that they are able to specify the technical requirements, subject to a set of minimum functional requirements managed by the DCC. However, if outage detection and reporting is required, then it is essential that the communications hub has energy storage long enough to enable the reporting. Adding energy storage will inevitably incur increased costs.

33. Do you think that the Communications Hub should also have the functionality to send a communication to the DCC when power is restored? Please explain your reasoning.

SSE has not yet determined a position on this issue as there are alternative methods that could be used to check upon an individual customer supply status. It may be more cost effective to “ping” individual customers at strategic network locations rather than receive messages from all individual supplies upon restoration. As per Q31 there is a concern that during times of high fault activity, such as during storms, managing thousands of supply status notifications may hinder rather than help with supply restoration effort.

It is however important that network operators are able to receive appropriate supply restoration messages in order to ensure that an accurate picture of network status is maintained.

34. Do you agree with the Government’s proposal that fully integrated electricity meters and Communications Hubs will not comply with the SMETS? Please explain your reasoning.

Yes. It has been a fundamental requirement that the WAN should be capable of upgrading without changing the entire meter. This will allow for the upgrading of the WAN as necessary to provide increased capability as and when this requirement surfaces. Allowing the WAN and electricity meter to be fully integrated will restrict potential technological developments.

35. Do you think the Smart Metering Implementation Programme objectives would be better met by:

a. Using the SMETS to mandate a separate Communications Hub with a fixed WAN transceiver? Or

b. Giving suppliers flexibility over options for configuration of the Communications Hub33?

Please explain your reasoning.

SSE strongly supports option A.

Adopting a standard communications hub specification will simplify all elements of the installation and support smart metering equipment. Any other option will lead to a vast amount of non-interoperable solutions. Meter manufacturers will have no incentive to standardise a single solution. Using option B will cause further customer detriment as it is likely that if a customer was to switch to a supplier that cannot support the functionality of the previous communications hub this may cause further meter exchanges, along with the associated costs of asset stranding and customer inconvenience.

It is envisaged that the separate communications hub could be mounted on or enclosed within the electricity smart meter to reduce the overall footprint and to avoid additional exposed wiring.

36. Do you agree there should be no restrictions on the HAN standards adopted by suppliers, provided they are available as a European (CEN, CENELEC or ETSI) or International (IEC or ISO) standard? Please provide evidence to support your position.

SSE is completely opposed to multiple HAN standards being adopted by suppliers. Failing to narrow down the HAN solutions make interoperability inextricably more complicated. This will also reduce manufacturers' and suppliers' confidence to roll-out smart metering equipment during the Foundation phase contrary to the suggestion being made within the consultation document.

This approach will also make the mandated roll-out of smart metering equipment far more complicated in situations where two different suppliers serve one property and for more complex properties. By reducing to 1 or 2 different technologies the Programme would help increase focus and the speed of roll-out, ultimately to the benefit of consumers.

37. The IDTS has recommended that all standards should be recognised or be in the process of being recognised by 31 December 2014; do you agree with this recommendation? Please explain your reasoning.

SSE agrees that all solutions for technical interoperability for smart metering should be based on appropriate standards. However, it would be preferable if Government would provide suppliers with earlier guidance as to the acceptable HAN standards in order to support earliest implementation of interoperability,

38. Do you think that regulatory obligations are needed to underpin a systematic approach to testing of HAN standards during the Foundation phase? Please explain your reasoning.

We agree, however this should not be an obligation during the foundation stage.

Our reasoning is that the current uncertainty around the options for a HAN standard including how many variations are required to cover the requirements of a GB-wide roll-out, and how these would operate from an interoperability perspective precludes such an approach. If the testing is not underpinned with an obligation to do so then the risk is that decisions will be made based on incomplete information (for instance difficult installations may be avoided). SSE is of the view that enough testing will be undertaken during the Foundation phase, with sharing of the results, to inform the correct decision on both the number and type of HAN standards.

In order to ensure that all scenarios are considered, and that all participants are engaged and contribute as appropriate, we strongly believe this testing needs to be defined and managed independently. A coordinated approach to this testing nationally will ensure that the right

decision is taken with regard to the adoption of HAN standards, for the right reasons, at the right time, which will ensure a positive customer experience and increased consumer confidence in smart metering equipment within the home.

39. Do you agree with industry's recommendation that DLMS should be adopted as the application layer for communications with the DCC? Do you believe there are any consumer, economic or technical issues with this solution which could be circumvented by an alternative approach? Do you have any economic, technical or consumer evidence to assist Government in evaluating industry's proposal?

SSE considers that DLMS is appropriate as an initial application layer for the Foundation stage but recognises that it is not necessarily the most efficient or secure solution. Therefore, provision should be made for changes to occur, over time, such as to minimise the need to replace WAN hubs in each premise and to ensure that DCC systems are developed to manage multiple application layers. A roadmap is required for the application layer protocols to be used on the BG smart metering infrastructure to indicate the possible route forward which will need to be managed by appropriate governance.

40. Do you agree with industry's recommendation that DLMS and Zigbee SEP 1.x should be adopted as the application layer for communications within the consumer premises, provided they install the necessary translation equipment? Do you believe there are any consumer, economic or technical issues with this solution which could be resolved by an alternative approach? Do you have any economic, technical or consumer evidence to assist Government in evaluating industry's proposal?

Ideally, Government should adopt a single end-end protocol which is more efficient than DLMS for WAN traffic and avoids the need for translation within the communications hub. However, if this will not be available in time for the initial mandated roll-out, then we believe all equipment and systems should be required to have an upgrade path to such a solution. It has been established that the current IDTS proposed WAN data protocol (DLMS) is very inefficient in WAN traffic terms as it drives up traffic levels disproportionately for small messages.

Whilst other WAN protocols are still under development, there are other candidates which should be available in time for the DCC go-live which are significantly more efficient in terms of data traffic efficiency.

In order to be able to take advantage of these protocols, it would be worth DECC including the following provisions in any WAN specification:

1. The adoption of IPv6 addressing as part of the smart metering WAN topology; and
2. The ability to carry DLMS, ZigBee SE 2.x, etc as alternative WAN protocols; and
3. The ability to migrate between WAN protocols at given sites as the smart metering topology develops over time.

41. Do you think the Smart Metering Implementation Programme objectives would be best met by the proposed approach above? Or should a single, network-layer technology standard such as IPv6 be mandated? Please explain your reasoning.

IPv6 with addresses allocated for the full suite of devices at each property has a strong benefit: using per-device addressing and a single end-end protocol would simplify the role of the communications hub, and reduce the attack surface for the SMS within the home

42. Is the provision of a single network-layer address for each Communications Hub a reasonable and sufficient functional requirement for the Smart Meter WAN? Will this requirement limit potential future capability or present challenges, for example, in multi-occupancy buildings?

A network-layer address for each device attached to a Communications Hub is desirable but we believe it could be introduced over time as protocol standards are developed. It is therefore important to establish these requirements so that relevant bodies can target these into new releases of their standards.

43. Do you think that maximum and minimum demand functionality should be included in the SMETS? Please provide supporting evidence for your response.

It is important that Network Operators are able to obtain data relating to the demand at individual consumer supply points. It is SSE's view that average demand over each half hourly interval will suffice. This value can be derived from half hourly consumption data providing appropriate access to the data is permitted.

44. Do you think that network registers should be included in the SMETS? Please provide supporting evidence for your response (including the cost implications for Smart Metering Equipment, and any alternative approaches that would provide this functionality).

It is important that Network Operators are able to access relevant data from the smart metering system to perform regulated duties. The ability to access detailed granular consumption (and potentially generation data) has the potential to change existing network planning and investment assessment processes. Whist separate DNO registers would be one means of achieving this, it is SSE's view that a single set of registers could provide this information as long as appropriate levels of access were granted to network operators and that data access/ processing costs were not prohibitive. If additional DNO registers were available and used for Distribution Use of System (DUoS) charges there may be a mismatch between supplier and DNO registers leading to reconciliation issues.

45. Do you think that the prepayment meter contactor switch should be utilised to protect consumer premises from "floating neutral" network faults? Please provide evidence on the costs and benefits to support your reasoning.

We do not believe the meter should be used in this way. We would also question the ability to identify and react to this condition before any damage is caused to a customer's equipment.

Whilst there may be some merit in seeking to isolate affected supplies via the smart metering system, in reality the reliability and effectiveness of an automatic system is unproven. The IDTS proposes the measurement of high network voltages via the smart metering system, if action is required to isolate supplies this can be initiated manually by the DNO.

46. Do you agree with the proposed approach for consumers to access data and transfer it from the HAN via a separate "bridging" device? Please explain your reasoning.

We agree with the proposed approach since it is a practical solution and the other options will increase the cost of the SMS and increase the propensity for security attacks. This is dependent on the bridging device being certified as having a specific profile on the HAN (similar to that of an IHD), and then this solution protects the SMS from interference by inadvertent or malicious access from the device. Providing more direct physical/radio access to ports on the communications hub offers less protection.

47. Do you have any views on the options presented to ensure that electrical contractors can work safely and efficiently between the electricity meter and the consumer unit/fuse box? Please provide evidence to support your reasoning.

SSE has analysed the Electricity Safety Council (ESC) briefing document relating to this issue and is supportive of the proposal that the smart meter should facilitate isolation of the equipment between the meter and consumer's main switch where appropriate. However, we

wish to propose a solution that is dependent on the installed metering arrangement. SSE considers the overall analysis provided by the ESC is a reasonable assessment of the issues and solutions available.

Our rationale is that a solution must be safe and efficient for both industry parties and electrical contractors and service the end consumer. SSE already installs four terminal „dumb' meters with single pole isolation (ESC option 2), on the consumer side, as a facility for new installations. This enables the meter to be fitted prior to the internal wiring being completed and the electrical contractor can make the final connection and energise the premises' internal wiring at an appropriate time. The additional cost of the built in isolator is approximately £6. This is considered cost effective for new installations. However, this could be a mandated requirement for all four terminal meters under SMETS which will cover in excess of 80% of installations. The switch may only be used once or twice over the life of the meter but in our view the cost is reasonable compared with the cost of other options. Electrical contractors shall readily be able to identify when such an isolation facility is available as the meter would be labelled accordingly. Applying this method for the majority of smart meters would enable electrical contactors to undertake remedial/ equipment replacement work on the consumers equipment at the supply point without the need for DNO or metering operative to attend site with all the associated cost.

Where more complex metering is required, to manage additional load controlled circuits, the additional isolators would be difficult and potentially expensive to incorporate into the smart meter design. Separate isolators would also be costly to install, create additional items for suppliers to maintain and potentially create problems for electrical contractors who would have to recognise that there were multiple points of isolation. In these cases, much fewer in number, our proposal is that the isolation should be the DNO cut-out fuse which provides a single point of isolation. Either DNOs could authorise electrical contractors to withdraw and replace this fuse and reseal (ESC option 4), or attend site themselves as they consider appropriate. Should "last gasp" notification be included within the SMETS then the electrical contractor, when authorised, would be expected to contact the DNO (via an agreed contact number) to inform it of imminent fuse removal so that the loss of supply alarm could be linked with an authorised event.

Although this is a hybrid solution SSE believes that this is a pragmatic approach. It reduces DNO involvement and provides electrical contractors with workable solutions whilst minimising disruption to consumers.

48. Do you agree with industry's proposals for an overall architecture of an application layer standard with translation through a Communications Hub to a HAN? Do you believe there are any consumer, economic or technical issues?

This is not the most efficient or secure architecture but is an appropriate means to enable the foundation deployment to commence. Removing the translation requirement at the Hub would provide a simpler technical solution and reduce future costs to deliver new requirements going forward. SSE has indicated that an application protocol road map will be helpful to identify the steps and timescales that are required to achieve a target architecture.

49. Where do you believe that translation is best managed:

a) At the Communications Hub; Or

b) At the DCC?

Do you have any economic, technical or consumer evidence to assist Government in evaluating the options?

We believe the best option is to ensure end-to-end communication from head-end providers via DCC to devices, with no translation, as this will help to ensure maximum bandwidth and traffic efficiency. This will help to reduce cost and secure the system as a whole.

50. Do you agree that the IHD should only be required to display ambient feedback based on energy usage? Please explain your answer.

We agree that ambient feedback based upon energy usage is important. However, we believe that the type of ambient feedback should not be mandated as this should be left up to the supplier to ensure that the most innovative solutions are presented to the customer as part of a competitive offering.

51. Do you agree that Smart Metering Equipment should be designed to support the calculation and/or display of account balances as described above, even though suppliers may not initially be mandated to invoke such functionality for credit customers?

There are inherent issues in bringing non-prepayment "account balances" to the smart meter and / or the IHD and these have been duly noted in the consultation document. It is our view that suppliers should be able to make a commercial decision in respect of offering such a service.

It is also SSE's view that "real time" account balances would cause undue confusion to "on demand payment" and Direct Debit customers, in particular where the meter is showing a debit balance. Although this will be quite normal and could be more significant during the winter period, this may not be understood by customers and create unnecessary concern.

There is no definition of what an "account balance" is and this would need to be clarified if this is to become a mandated requirement.

52. What do you think the costs and benefits are of mandating suppliers to display an account balance (over-and-above those arising from display of information on cumulative cost of consumption) for credit customers on their IHD?

Costs far outweigh the benefits as already shown in the evidence presented by the SMDG Working Group. Suppliers have other means by which they can more readily provide this information e.g. web services. These solutions are aligned with the supplier's billing system and can present additional details such as standing charges, VAT, loyalty rewards, payment history etc. with relevant explanations. An IHD will have limited display capability. It is therefore our preference that financial information is provided as indicative on an IHD, enabling the customer to receive billing information via alternative and more appropriate services from their supplier.

53. Do you agree with or have any comments on the Government's proposals for the outstanding issues from the Response? Please explain your reasoning.

Yes, however as we have highlighted throughout this response we believe that there are many outstanding issues, particularly for gas and electricity DNOs.

54. Do you think that an assurance framework, underpinned by regulatory obligations, is needed to support the delivery of the required functionality, interconnectivity, interoperability, and security of Smart Metering Equipment? Please explain your reasoning.

We agree that an assurance framework is required and should be developed by DECC and the industry. The smart metering equipment must be fully interoperable and due to the complex nature of the end-to-end solution an assurance regime is the only way to ensure reliable compliance. Furthermore, market entrants seeking to compete through an increased acceptance of risk need to be managed to prevent their activities disproportionately affecting the end-to-end system as a whole.

55. Do you agree that as part of any assurance framework adopted, there should be a testing regime in place to support the delivery of the required functionality, interoperability and security? Please explain your reasoning.

Yes, we also consider it to be of the utmost importance to have in place a minimal level of end-to-end and security testing prior to the commencement of the Foundation stage. SSE would also welcome the establishment of an accreditation scheme as early as possible (after the IDTS is finalised) in order to provide market participants with the certainty that they are installing a compliant smart meter. For this reason, we would support the early establishment of an industry body that is able to deliver and govern a testing and certification regime. This will provide market participants with the confidence to install meters which could potentially enhance the speed of roll-out.

A well structured regime is the only realistic means of providing confidence in the solutions chosen across the industry and their ability to interoperate. Concerns such as data security will come under intense public scrutiny and this should not be put at risk and must be thoroughly proven throughout the various equipment combinations as soon as possible.

56. What are your views on the options outlined for a testing regime? Are there other options that should be considered?

Option 1, the market led approach, would be the easiest to implement but also the most risky in terms of desired outcomes.

Option 2, a mandatory industry code and body to deliver and govern a testing regime is SSE's favoured approach for the foundation phase. This solution would provide a structure that facilitates coordinated and thorough testing for security, functionality, interoperability and message handling. This approach also allows for an exploratory testing approach that would inform strategic decisions on standards based on a complete set of information.

Option 3, certification or accreditation, would be more suited to the later stages once exploratory testing has been completed and requirements and standards have been defined and are stable. At this stage a process of certification or accreditation against these would remove unnecessary burdens on suppliers whilst providing participant and consumer confidence.

57. Do you think that a different approach to assurance is necessary for the Foundation and enduring phases? Please explain your answer.

SSE is of the view that earliest stages should focus on exploratory testing to better inform the strategic national programmes decisions and help define the requirements and standards for the smart metering equipment.

During the enduring phase this level of testing would not be required and would be an unnecessary overhead providing, at best, limited value. At this point, with clearly defined requirements and standards, a method of certification or accreditation would provide the required level of confidence for participants and consumers that any new equipment or solutions meet with what is expected and is fit for purpose.

58. Do you think that the activities outlined above are a suitable way for achieving interoperability across Smart Metering Equipment cryptographic functionality? How else could this be achieved?

Yes, without the adoption of these activities the appropriate solution will be more complex, expensive and risky.

59. Do you agree that cryptographic/ key management is necessary to secure the End-to-end Smart Metering System? Please explain your reasoning.

Yes, please see our response to question 58.

60. Do you agree with the Government's assessment of the advantages and disadvantages of the cryptographic solutions identified above? What other options should the Government consider? Please explain your reasoning.

Yes, however further work should be done to understand the routes that parallel industries have taken towards similar solutions. Telecommunications and satellite and cable industries are good examples.

61. Do you think that it would be appropriate for the DCC to be responsible for cryptographic key management for the End-to-end Smart Metering System? What other options should the Government consider? Please explain your reasoning.

SSE agrees that it is appropriate for the DCC to be responsible for cryptographic key management due to the need to maintain a central body that is trusted by all parties.

62. How do you believe the security approach should be applied to opted out non-domestic consumers? Do you see any issues with the approach? Please explain your reasoning.

SSE believes that a risk assessment must be carried out in order to understand the extent to which the established security requirements need to be applied to non-domestic customers. Where common infrastructure and services are utilised then a security risk will persist. Furthermore, the extent to which non-domestic customers are encompassed may increase the necessity for more security requirements.