Smart Metering Implementation Programme
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Consultation Document – Smart Metering Implementation Programme

RWE npower is pleased to have the opportunity to respond to this consultation. Our answers to the questions are enclosed. In this covering letter, we would like to make some general comments.

The IDTS document - The Industry Detailed Technical Solutions (IDTS) document is not yet in a form that can enable the Smart Metering Equipment Technical Specification (SMETS) to be submitted to the European Commission. There remain key decisions to make – the Home Area Network (HAN) in particular. In addition the output and evidence from the Programme Development Operations Group (PDOG) and the "Hothouse" have not yet been fully incorporated into the IDTS, and some critical subjects, such as outage management are still in process of iterative discussion. This is notwithstanding the efforts of the industry and the positive and collaborative working relationship with DECC.

The Home Area Network – The HAN selection remains the greatest outstanding issue to suppliers. We do recognise and support the general government approach not to "pick winners", but we do not believe that censuring non interoperability through supply licence conditions is an effective way to enable interoperability. Companies are limited both through commercial confidentiality and competition law in the way that they engage with each other. Hence we believe that on balance it does behove government in this instance to use industry input to make a technology choice rather than expect the industry to arrive at a choice.

Timescales – We believe that moving back the Data and Communications Company (DCC) start date from Q3 2013 to Q2 2014 was the right decision. In doing so, the compression of programme timescales for mass rollout was an acceptable compromise to maximise the chance of the best long term technical solution to smart. Given that the programme timescales are tight, we believe that any benefit of bringing forward the programme completion date is greatly outweighed by the costs and risks of further compression to the programme.

The business case – All changes must be judged in relationship to the solid benchmark of the Impact Assessment. Some proposals put forward by government, particularly those emerging from the Consumer Engagement Rollout Group in terms of Foundation trialling and benefits assessment, are very likely to increase the complexity and thence the cost and risk relative to the Impact Assessment figures.

Risk from the change in scope of Foundation – The original scope of Foundation was to engage I volume trials with compliant meters and architecture. The emerging requirement to roll out meters without the surety of a known compliance specification both leaves suppliers with disproportionate stranding risk and increase the likelihood of the dominant meter/architecture type in Foundation becoming the de facto standard.

Licence conditions – The release of the draft supply DCC licence conditions has lagged the equivalent supply licence conditions. Suppliers cannot assess their interoperability requirements until both sets of draft licence conditions are visible.

This response is not confidential.

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Question 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.

Adverse impacts significantly exceed benefits

Moving the completion date to earlier during 2019 would increase costs and risks for a number of reasons, as outlined below:

i) Increased field resource costs through a higher ramp up (training etc.), peak (constrained national labour resource), ramp down (attrition/ redundancy/ redeployment).

ii) Increased cost to maintain Health & Safety risk standards whilst operating to more stringent timescales on the ground

iii) Increased number of stranded assets through the shortening of the life of traditional meters

iv) Increased amount of stranded capital resource associated with the rollout.

v) Reduced opportunity to apply lessons learned in early mass rollout, as the accelerated end date drives up the early ramp rate. Such lessons learned include installation quality, exception management, and visit and reappointment scheduling.

vi) Limited pace flexibility and no steady state. The impact of exceptions, repeat appointments, job time, and other factors on installation is not known and hence requires some flexibility to be built in. This flexibility is reduced by the accelerated end date.

vii) Customer experience – Acceleration of the early stages increases the risk of poor consumer experience, and there are various international precedents that indicate that this can lead to programme stalling.

viii) DCC processes failures – the ability to manage early stage failures is reduced if the transaction volumes are very high

ix) DCC capacity – there is risk either that capacity constraints will compromise communication latency or that capacity costs increase through required overbuild.

Accordingly we believe that at least 5 ½ years are required for programme completion after DCC go-live.

Given that one possible way of policing progress to 2019 completion in the next few years is to apply interim targets, we would to express our reservations here about such an approach, for the reasons given above.

Question 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?

Yes, at high level

Are there any areas where you consider further clarification is necessary?

Yes

At the degree of detail provided with the draft licence conditions, the wording appears to us to support the policy intention. Further detail or changes could naturally change our answer in this regard.

Terminology - The consultation paper and the draft Licence Conditions refer to the term “Smart Metering Equipment”, which is defined within the draft Licence Conditions as being “as defined within the SMETS” however the term “Smart Metering Equipment” is not defined within the IDTS, which is the document that is planned for being converted into the SMETS, and this inconsistency needs to be addressed.

At this point, the licence conditions do not reflect dependency on the DCC. In particular, rollout has a dependency on the DCC availability within geographical areas. Limited availability of robust communications would naturally have an impact on rollout and on customer experience. It is important that licence conditions do not place obligations on suppliers that cannot be achieved with all reasonable steps, as this risks adverse policy outcomes.

Question 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?

No

We do not believe that the current IDTS as it stands guarantees interoperability.

We do believe that the SMET should effectively guarantee interoperability and therefore it must be prescriptive and detailed, and provide an unambiguous basis for the efficient procurement of assets. This would include clearly specifying the 'other requirements' section referred to in Paragraph 47.

We believe that the licence conditions should support the SMET and use its capability to guarantee interoperability, rather than attempt to do this directly through the licence conditions

The SMETS needs to guarantee interoperability through the delivery of the requirements specified within it rather than specifying within the SMETS itself the details of interoperability.

We believe that some clarity in clause 7 would be helpful. As it stands, the phrase "reasonable steps" may leave the impression and potential scope for the smart equipment to be deemed compliant if reasonable steps had been taken to make it interoperable, even if it were not interoperable. There could be a very significant impact to the costs of the Programme if a 'compliant asset' does not, in fact facilitate a level of interoperability that the Impact Assessment implicitly presumes.

Finally, we believe that our obligations around interoperability and adoption are contingent on a meter complying with the SMETS. Deployment of meters before SMETS clearly risks interoperability failure and must therefore be at the risk of the installing supplier.

Question 4

Do you agree that Smart Metering Equipment should be compliant with the SMETS extant at the time of installation …

Yes

….and that it should continue to be compliant with that version of the SMETS through the operational life of the equipment?

No

Compliance with SMETS – We believe that all Smart metering equipment being compliant with the SMETS version prevailing at the time of installation

SMETS version and development – we believe that a meter should not necessarily have to be compliant with the current version of SMETS

Meter stock and pipeline – We believe that SMETS versions should have sufficient notice not to strand uninstalled meters and manufacturing capacity, and that transition arrangements and derogations can deal with shorter notice periods for the effective dates of SMETS versions.

Meter asset information – Whilst one solution to ensure compliance is for industry databases to hold the SMETS version to which the meter is compliant, we do not support over-engineered solutions. For example the meter installation date will commonly provide an accurate proxy for the SMETS version, and meter asset information held locally or at the meter can provide further detail as appropriate.

Supplier discretion – We believe that a supplier should have the discretion to bring a meter to compliance with a SMETS version later than the installation date, and for that version for SMETS to prevail for that meter unless and until a supplier once again elects to bring the meter to compliance with a later version

Question 5

Do you agree that in some exceptional circumstances suppliers should be required to retrofit Smart Metering Equipment that has already been installed?

"Yes" is the only possible answer for this question, but proper interpretation of "exceptional" is essential

Consumer experience – It is clearly of paramount importance that consumers receive energy through the meter, and that the meter has functioning metrology.

Definition of exceptional – The DCC is required to provide communication and data services to suppliers (and consumers and signatories to the smart energy code and regulatory bodies). If this service cannot be provided for reasons exceptional or otherwise, it is for the DCC to remedy. If the compliant meter does not function as originally specified then this is for the supplier to address. It is possible to envisage circumstances in which both supplier and DCC can function as required but nevertheless that a service is compromised – for example a security matter, or an unforeseen and unforeseeable health and safety matter. Should the situation be generic then a policy solution may be required.

Consultation – Where the issue at hand can be in the public domain, and where the number of meters affected is material, then proper consultation on resolution of the issue should follow.

Question 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?

Yes, provided that the obligation remains linked with the start of mass roll out

It is recognised that the 'business as usual' activities for new and replacement installations will play a major part of every Suppliers rollout plans, both in terms of meeting the overall rollout targets and in achieving a cost effective rollout by minimising stranded asset risk where possible. These BAU volumes will be an important supplement to the accelerated deployment plans of suppliers. For example, npower performs an average of 393,000 meter exchanges a year (both gas & electricity) as part of BAU. During Rollout we will need to continue to perform these exchanges in parallel with the accelerated rollout targets.

Question 7

What period of notice do you think would be appropriate before the new and replacement obligation comes into effect?

18 months

Agents, manufacturers and supply chain– Our best understanding is that this lead time would be required if volumes are substantial

Shorter periods – For small volumes, a period as short as 12 months could be countenanced

Effective date – This should be aligned to mass roll out commencement.

Question 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?

It should require interoperability of Smart Meter Systems, rather than supplier to supplier relationships – but interoperability is driven through clear technical standards and an assurance framework rather than an explicit obligation on Suppliers.

Inclusion – It should apply to all suppliers

Specific – The interoperability requirements should be as specific as possible, as distinct to the general requirement to be interoperable. We do not believe that market forces alone will guarantee interoperability

Link to SMETS – The licence condition should refer directly to the SMETS and require compliance with it

Security – As with the SMETS, the security requirements should be referred to directly. The licence condition must be clear that if any part of the SMS is replaced that, as well as it being interoperable, it must not compromise the security

Devices in the Smart Metering System (SMS) – Each part of the SMS should be comprised only of approved and accredited devices. It must be made clear that interoperability of SMS components does not guarantee interoperability of the entire SMS. Interoperability must therefore be required at SMS level, not component level.

Requirements on suppliers working together – The licence conditions must require suppliers to work with the equipment, the DCC, and industry processes. There should be no requirement on suppliers to work together as any requirement here that is clear enough to be acted on will be clear enough to be specified in terms of equipment, processes and the DCC. What requirements there may be on suppliers to work together must not in any way place them in a compromised position regarding the Competition Act.

Enforcement – The SMETS does not refer back to licence conditions to make them enforceable. The licence conditions (which are enforceable) should require compliance with SMETS (and thereby make non compliance enforceable in licence)

Question 9

Do you think the licence conditions as drafted effectively underpin the policy intention to ensure Smart Metering Equipment is interoperable?

This cannot be answered without sight of the draft DCC licence conditions

End to end interoperability – In order to maintain a focus needs to be on the end to end architecture, it is essential that the corresponding condition are placed upon the DCC. The supply licence conditions can then be drafted so that the two sets of licence conditions guarantee interoperability of the whole. The current drafting does not address the issue that the DCC is a key component of delivering technical interoperability.

Technical interoperability of SMS components -The current drafting does ensure that equipment is technically interoperable

Overall SMS interoperability – The current drafting does not ensure that all components within the SMS on the premise are interoperable

Due process – We do not believe it appropriate for suppliers to be bound by interoperability licence conditions that cannot alone guarantee interoperability. It is therefore absolutely y

Question 10

10. What role could a dispute resolution mechanism have a role in ensuring interoperability?

None

What key features should such a mechanism have?

The industry arrangements should be augmented within the Smart Energy Code

Industry arrangements – The industry has evolved arrangements for queries, escalations and disputes. The Smart Energy Code can either contain the mechanisms directly or required accession to and compliance with current industry arrangements, augmented for smart. An example is the shipper reads escalation process

SMETS – SMETS should be well enough specified, prescriptive and robust for the all outstanding issues to be resolved and sound technical assurance to be in place . Hence interoperability disputes would be rare. If they are not, then SMETS should be revised.

Risk of introduction of new dispute resolution - Key processes such as Change of Supply could be impacted greatly by the introduction of a dispute processes. It leaves the door open to “gaming” by suppliers when losing customers.

SMS components - The resolution to rectify a customer issue relating to a dispute could lead to the need to exchange a component of the SMS which may conflict with statement in section 8a page 85

Overall outcomes - Any mechanism put in place to handle such disputes need to have a balance between rigorous investigation and speedy resolution if the Change of Supply process is not to be adversely impacted . This may not fit with the existing industry agreements and the process would worsen timeliness whilst not necessarily enhancing rigour.

Question 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 an advanced rather than Smart Metering Equipment?

Yes

Materiality – We expect the numbers of CT meters found in smaller non-domestic are expected to be very low.

CT meters in domestic premises – We support the proposition not to introduce explicit obligations or exceptions for the very small number of domestic properties with a CT meter. Suppliers will deal with these on a case by case basis, either by installation of a smart meter or an advanced CT meter.

Other non standard meters – We believe that the approach for CT meters should be followed for other non standard meters

Gas meters – We believe that the issue of Gas U16 meters in domestic and smaller non-domestic properties is more material than that of CT electricity meters. At present there is no guidance on how to address these. The issue of U16 meters is compounded by their relatively high use in Independent Gas Transporter networks (for pressure fluctuation management), and the remaining regulatory issues for metering in IGTs. Our understanding is that no U16 smart meters being developed / manufactured

Question 12

Do you think that the licence conditions as drafted effectively underpin the policy intention for Current Transformer meters?

Yes

Question 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?

No – except for exceptional technical reasons

Interdependence of suppliers – This would create excess dependence of suppliers on the rollout plans of other suppliers. There may be exceptional technical reasons why this option should be exercised.

Distortion of competition -Single fuel gas suppliers would not have to pay for the Communications Hub and the IHD. This cost is significant and would favour suppliers with a large portfolio of single fuel gas customers.

Policy – The policy benefits of gas smart metering generally precede those for electricity. Hence there should be no encouragement to install electricity smart meters ahead of gas.

Question 14

Do you think there are any other barriers to gas Smart Metering Equipment being installed before electricity Smart Metering Equipment?

Yes – the DCUSA as currently drafted, and the current regulations on safety inspections and policy exchanges for metrology

The Distribution Connection Use of System Agreement (DCUSA), as currently drafted, prevents gas Meter Asset Managers (MAM) working on any electricity installation. In order to install gas first as per the published architecture, with a separate communications module, we believe that the main fuse would need to be pulled in order to complete this type of installation. This issue is compounded by the fact that, even if gas MAM had appropriate electricity certification, they are not on customer's premise as an agent for the electricity supplier, only for the registered gas supplier, and so are not entitled to touch the electricity meter.

Safety inspections and policy exchanges – both of these require visits to households which before go-live may result in the replacement of a traditional meter for a traditional meter. This then pushes back the latest exchange date for smart. This can be solved by a risk based approach to safety inspections and a proportionate approach to the enforcement of policy exchanges.

Question 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?

Installation by non-suppliers (or their agents) is fraught with adoption risk.

Do you think mechanisms other than licence conditions should be considered to achieve the policy objective?

Yes

The risks – Where a supplier is registered to the meter point at distribution service termination (MPAN/MPRN), the supplier is clearly responsible for the meter and its functioning. We do understand that it is quite possible for a supplier to become registered to a new property (i.e. the meter point), and that, apart from the common problem of crossed meters (meters registered to the wrong property in a block), that this is generally problematic. We also believe that the builder has some responsibility for building configuration that enables the installation of meters with functioning communication. The meter ideally requires a degree of testing before the building works are finalised, but only if the developer is a signatory to the DCC can it connect to it to test the communications. A developer who is not a signatory to the DCC has a responsibility to configure the property, its wiring/piping, and the meter siting to be capable of accommodating a functioning Smart Meter System. Clearly some thought is required on how to bind the builders to this. Since new buildings are not sold to consumers without functioning energy supply, then there is the opportunity to bind them (or their accredited agents) to ensure that any connection is made conforms with certain rules (to be determined). One solution may be for the developer to agree with a supplier to be assigned to the meter point, and to pay the supplier (who may then commission agents) to install a functioning SMS before/at

registration. We do not believe that there is any alternative to licence conditions. A supplier always becomes in new connections – initially as the Supplier to the Developer and, subsequently, as supplier to the domestic customer as properties are occupied.

We strongly believe that there should be no instances where metering is installed without the involvement of the supplier.

At the point where smart metering is to be universally applied then exception will be simply causing an additional cost

At some point, smart meters should be the cost effective solution in any case, but this point can be brought forward by avoiding the situations where meters are fitted without the involvement of a supplier.

Generally, there are issues with IGT's that need to be resolved. The current practice is that an IGT will install metering as part of building the new gas network. This situation needs to be understood in terms of metering and, as previously mentioned, the set of components that make up the Smart Metering equipment. Potentially this could involve multiple visits to fit metering and meet obligations to provide and demonstrate IHDs.

The security of the Smart Energy Code – This provides comfort not only to consumers and regulators but the DCC and all other signatories to the code that the smart energy system as a whole and in its entirety has integrity. We do not believe that any non signatory to the Smart Energy Code should have any access to the smart meter system and the information in it.

The Supplier Hub – The supplier hub principle, in which the supplier not only leads the rollout but is the backstop for consumers, underpins the integrity of energy supply to consumers, in terms of physical and metrology integrity of the metering system, financial integrity of paying and paying the right amounts, and elements of consumer safety. Consumers need not be aware of the support that they receive from the Supplier Hub principle but it is essential that they receive this support and that it is not undermined by meters unsupported by it.

Question 16

Do you think the roll-out of Smart Metering Equipment has any specific implications for the provision of emergency metering services?

Yes

Legacy of 1998/RGMA/REMA – The liberalisation of domestic supply (1996 in gas, 1998 in electricity and commonly called "1998" overall), followed by the Revised Gas/Electricity Metering Arrangements unbundled supply from distribution in way that is unique to Great Britain. The loose ends of these are still being worked through and the Post Emergency Metering Services (PEMS, in gas) and Urgent Metering Services (UMETS, in electricity_fall in this category.

Customer experience – The common goal of the energy industry is to optimise the customer experience. This entails some specific goals such as minimum time off supply, minimum time without functioning metrology, minimum duration of industry

presence at their property, and minimum number of visits that require their presence. Accordingly, effective coordination and handoff between distribution company and supplier (generally their agent) is essential.

Communication continuity – We believe that where there is a smart meter in situ, the emergency service is not concluded until the smart communication is functioning.

Vulnerable consumers – The key driver for vulnerable consumers is to act quickly to remedy safety and to maintain supply continuity. This requires 365 day 24/7 response within the smallest number of hours practical. The immediate need for safety and supply continuity and the ongoing need for functioning metrology and meter communications are to some degree in tension, and this is complicated by the division of responsibility of the electricity and gas acts (which predate 1998/REMA/RGMA). We believe that the right approach here is first to design the optimal consumer experience and thence to work backwards to change regulation and legislation (including primary legislation) as required.

Meter tampering – Meter tampering or unauthorised bypass is highly unsafe. However the current industry arrangements are not fit for purpose, as the rights and responsibilities of suppliers and distribution companies do not support adequately the detection, immediate prevention and ongoing prevention of theft, and restoration and cessation of supply where theft is or has been an issue. The advent of smart presents a significant opportunity to sort out this problem. As with vulnerable customers, we believe that the right answer is to work through the optimal solution and then work backwards through the required legislative changes. We believe that the driver of the solution should be gas safety, particularly prioritised above supply continuity where theft/tampering ahs been present.

The roles of suppliers and distributors – The philosophy of 1998 was that the supplier provided a single face to the consumer and that the supplier contracted for a series of services (power, transmission, distribution, etc.) rather than play a substantial physical role. Smart metering, supplier obligations such as the Carbon Emission Reduction Target (CERT), and the development of energy services, have driven increases in the physical activities of suppliers. However, particularly since they commonly discharge their obligations or conduct their activities through agents are unlikely to become more qualified in safety than the distribution companies. This is particularly the case in gas, where the distribution companies are both more qualified to diagnose the source and reason for and seriousness of gas leaks and capable of isolation supply at the right point. The distribution companies' responsibilities however end at "make safe", and they would only provide a functioning smart meter system if they had Meter Asset Provision and Meter Operation contracts with the supplier (as well of course of necessarily being Smart Energy Code signatories to connect to the DCC).

Smart for smart – We do not believe that the installation of a domestic credit meter should be allowed where the meter in situ is smart.

Traditional for smart – We believe that the rules on replacing traditional meters after an emergency need careful consideration. Certainly the ideal is to install a smart meter, particularly since this can resolve theft, but there are issues of minimising time off supply whilst ensuring that the smart meter solution works for the property and resident.

Independent networks – As we noted in our response to the Review of Metering Arrangements, our view is that the regulatory arrangements for independent

networks remain unsatisfactory, and that there is the opportunity to remedy this in Smart. We believe that the customer experience on independent networks should be the same as that for those directly connected to the main distribution networks.

The “default mode” – The Smart Meter technical specification currently includes a default mode (which we support) that facilitates emergency arrangements. The use of meter functionality outlined in OP.6 in the IDTS requires both the Smart gas and Electricity meters to be able to operate or revert to a simple mode of operation. In the case of both meters this means operating in credit mode. In the case of electricity, the meter then records the active energy flow on the total cumulative import kwh registers and HH import KW measurement (as deifned in ES2 & ES6). In the case of gas the meter records the gas consumption on the total cumulative m3 register and HH m3 measurement.

The default mode will allow an emergency exchange to take place and the customer supply be restored, but will require the Supplier to send down the customers full configuration down to the meter as soon as possible in order to ensure that the correct tariff is applied and the customers IHD shows accurate information.

In order to ensure that the Supplier can configure the meter remotely and not have to send an engineer out to the customer it is essential that any emergency meter replacement MUST include the recommissioning/reconnecting of the WAN communications to the DCC.

Wider emergencies – We believe that regional/national emergency planning (floods etc.) should gradually take into account the presence of smart meters. Smart meters can help in diagnosis and present extra challenges in remediation.

Question 17

What period of notice do you think would be appropriate before the obligation to provide an IHD comes into effect?

After mass rollout commencement, none

Before mass rollout, 18 months, and resolution of issues noted below

Management of IHDs – There remains a lack of clarity around the management of In Home Displays once they are in situ. For example, it is not clear whether the warranty should be transferable following a change of supplier, the asset tracking obligations are still uncertain, as is the role of the DCC in identifying whether an IHD is in the property. Depending on the final determination of management responsibility, then the lead time may differ.

Change of Supply – Details of the responsibilities of the losing and gaining supplier need finalising, for example for faults unreported to the losing supplier, or product recalls.

Asset Tracking – Asset tracking arrangements are not yet designed.

Design/ development/ testing/ procurement – These depend on the factors noted above and hence have a lead time

Before mass rollout – For the reasons above, the obligation to provide an IHD with a smart meter before mass rollout should not be less than 18 months and certainly not less than 12 months

Question 18

Would the consumer changing their supplier raise any particular issues with regard to the approach set out for the provision of IHDs?

Yes

Asset tracking - We believe that suppliers should have clear visibility of IHD assets centrally to manage Change of Supplier, faults and warranty issues. Without this visibility of warranty data, consumers could be subjected to an extended resolution timeframe and customer dissatisfaction.

Inter-supplier commercial issues - where a Change of Supplier has taken place after the provision of the IHD, there remains the question of ground rules for remediation or commercial arrangements such as compensation. Industry arrangements will need to be agreed.

Premium IHDs – The new supplier should only be required to provide an IHD according to SMETS specification. For circumstances where supply changes when there is a premium IHD in situ and possibly associated premium services, it will be important to manage the customer experience and also to minimise stranding costs. There will need to be framework agreements between suppliers that facilitate both goals.

Self connect of the IHD – For the IHD to be able to “plug and play” improves customer experience, removes the need to the customer to accommodate a visit, and reduces costs for suppliers and thence consumers. Similarly, on change of supplier, it would be ideal for no visit to be required.

Question 19

Do you think the licence conditions as drafted effectively underpin the policy intentions set out for the provision of IHDs to domestic consumers?

No

Drafting – The current drafting does not fully represent our understanding of the policy intent.

Warranty period - The current drafting implies that if an IHD warranty commences for 12 months from the Smart Meter System install date. However if the IHD was not requested until month 11 then this would imply that the IHD was only covered for the remaining 1 month. We believe that the consumer will expect the duration of a standard manufacturers guarantee of 12 months from initial provision of the equipment.

Effect of SMET change on IHD - Section 9b page 85 appears to imply that if the SMET was changed in such a way as to impact IHDs, then suppliers would have to retrospectively exchange all previously installed IHD’s that do not meet the requirements outlined in the new version of the SMETs. Please see also our response to questions 4 and 5

Question 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?

Not consequential changes

We agree broadly with the approach

Question 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?

Not at this stage

There will be lessons learned in rollout, and it may be that some licence condition changes will be required in the light of experience.

Question 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.

Not specifically

We do note that the Electricity and Gas Acts predate domestic liberalisation, and that elements of these are somewhat out of date, particularly with respect to the relative responsibilities of suppliers and networks. As with the licences, we believe that there will be significant learning in rollout, and legislative changes may follow. We do not believe that there are any changes now.

Question 23

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

The Codes – We believe that the following will require amendment;

- Balancing & Settlements Code
- Master Registrations Agreement
- Data Transfer Services agreement
- UK Link
- Supply Point Administration Agreement
- UNC
- IGT UNC
- Radio Teleswitch Agreement
- Distribution Connection Use of System Agreement
- Distribution Code

Identifying the changes - the Consequential Amendments group is due to meet this month

Question 24

Do you think that there are other requirements that the Government should adopt in the SMETS?

Yes

Interoperability – We believe that the IDTS as currently drafted does not guarantee interoperability due to the lack of certain (detailed) requirements and a full end to end treatment of architecture. Specifically;
We believe the following elements are missing from the draft Technical Specification:

- Detailed requirements for the Gas Mirror, where it is located and its functionality
- Detailed requirements for the Communications Hub (See our answer to Q30)
- One standard application layer from DCC to meter (WAN & HAN)
- A standard transport layer to support interoperability (HAN selection), otherwise there will be a need for multiple flavours of comms hub and meter and IHD carried by installers to allow for all potential permutations across different suppliers
- Requirements for Firmware upgrades to Comms Hub
- Requirements for Firmware upgrade to IHD for comms updates
- Inclusion of statement that SMS equipment should **not** interfere with any electronic equipment being used in the home (where that equipment conforms to the necessary standards)
- Requirements specifying the interfacing methods between the SMS equipment and the consumer HAN bridging device – the consumer will purchase and be responsible for the device, however the method for transporting any data to that device (not from it) will fall within the technical specification of the SMS
- Standardised commissioning processes and status messages for all SMS equipment – without this there will be differing processes for installation for e.g. different meter types/ handheld terminals etc

Question 25

Do you agree that all the requirements recommended in the IDTS should be adopted by the Government in the SMETS?

No

There are a number of requirements in the SMETs, such as those listed below, that have not been subject to a robust CBA or where a firm requirement has not been set out.

Outage Management – please see our response to Question 31. A robust business case has not yet been arrived at. At this point the benefits of less than £2m per annum identified by the Energy Networks Association are exceeded by the costs of around £3 to the cost of every electricity meter.

Home Area Network (HAN) technology choice – please see our response to Questions 39 – 42 We remain concerned that there has been no decision on a HAN technology and the process for making that decision is still far from clear. Without a clear HAN decision, there is little guarantee of interoperability.

Network Registers – please see our response to Question 44

Maximum and minimum Demand – please see our response to Question 43

Question 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?

Yes - based on our current understanding of the level of risk (which will change)

The evolution of requirements - At this stage the security requirements are evolving in response to the on-going risk assessment work and the issues identified as design activities progress down from the highest levels. This is a dynamic situation, though we consider the current security requirements to be proportionate to the risks identified to date. Security risks evolve and change with technological and organisational developments.

Question 27

Do you agree that the process outlined above is a suitable way forward to develop the SMETS?

Yes, with reluctance

Timescales – We recognise the need for some compromise to meet the very challenging timescales of the smart programme. At the same time believe it to be imperative to minimise any dilution of the technical requirements through the translation from IDTS to SMETS. It is also important to recognise the risk of the process stalling .

Question 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?

Yes

Metrology – The National Measurement Office should remain the governing body for metrology

Question 29

What unit manufacturing cost reduction do you think can be achieved for Smart Metering Equipment over the next 20 years?

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.

This cannot be answered at this point, given the remaining uncertainties specified in this response

Open Standards - Open Standards in the Smart Metering System would allow the greatest competition between metering manufacturers, and thence lowest cost

Interoperability – This is key to cost control. Without technical interoperability any potential for economies of scale would be jeopardised.

Home Area Network Trials – we support the scope and governance of the HAN trials as currently described by DECC. We believe that this will provide a suitable evidence base upon which a HAN can be selected.

Question 30

Do you agree that the Government should include a requirement for a Communications Hub in the SMETS?

Yes

The importance of the Support Communications Hub - This is arguably the core piece of equipment in the SMS, as without it there would be no remote communications capability. Yes – whether the comms unit is a stand alone unit or is a modular element of a meter, it is the part of the architecture that provides the connection to the WAN. There is currently no clear statement of requirements for the WAN module contained within the SMETs and we believe that there should be). Based on the current proposed architecture there is a need to have (detailed – see strongly disagree) requirements outlining what this comms hub needs to do / include etc within the SMETS

Adequacy of the current drafting of the SMET - The level of requirements currently specified in the SMETS relating to the communications hub is inadequate as currently drafted. In order to guarantee interoperability there needs to be much more detailed requirements about what needs to be in the communications hub, how each of the different components will work together within the communications hub where the communications hub should be situated (i.e. what architecture will be taken forward). Please see also our answers to questions 34 and 35

Interoperability – This is a key consideration for the communications hub

Question 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?

No, the matter of outage detection still requires further work

Designing for the future – There is a real dilemma in deciding now whether to include in a meter technology that may not be fit for purpose or even be redundant, or whether to omit the technology and hence the service that it could provide. Any decision made now will be found later to have flaws and the decision will be have to made on likely functioning and likely cost. At this point in time neither the Planning Delivery & Operations Group (PDOG) nor the hothouse have recommended the provision of distribution outage management capability in the meter.

Consumers We understand that there would be a consumer perception issue if in the smart system, the distribution network were not alerted when a meter point lost supply. At the same time it is important to recognise the difference between real benefits (e.g. improved remedial response) and matters of perception (important though these are).

Networks – Network diagnostics are generally at primary substation level, and hence information received from further down the network has the potential to be very useful to the smarter grids.

Suppliers It is important to recognise that suppliers gain no operational benefits from network outage management, and yet they incur both capital and operational costs from inclusion of this feature

DCC technology – Both the required function of the meter and of the DCC to diagnose network outage without any specific outage management function in the meter are highly dependent on the DCC technologies, which are not yet determined.

Cost benefit analysis – The full end-to-end operational and capital cost should be considered when making decisions regarding outage management. The costs should also include any requirement for a battery (or supercapacitor etc.) in the communications hub, and any routine testing that may be required

Question 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?

Yes – but this will depend heavily on decisions regarding outage detection

Question 33

Do you think that the Communications Hub should also have the functionality to send a communication to the DCC when power is restored?

This question can only be answered in the round regarding decisions on outage management

Please see our answer to question 31

Technical solutions- For the communications hub to send a signal to the DCC on power restoration is one part of one solution for outage management. Some solutions require no outage management functionality in the meter.

Question 34

Do you agree with the Governments proposal that fully integrated electricity meters and Communications Hubs will not comply with the SMETS?

Yes

SMS component swap out – With a fully integrated electricity meter it will not be possible to 'swap out' the WAN/ HAN without affecting rest of SMS components. This possibility is a requirement in the Technical Specification (Tech Spec Requirement IM.3."The Smart Metering System shall support in situ exchange of WAN communication technology (without removal of meter).")

Question 35

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

a) using SMETS to mandate a separate Communications Hub with a fixed WAN receiver

b) giving suppliers flexibility over options for configuration of the Communications Hub?

"a"

Modularity of the communications hub - Our preferred architecture is that of a modular comms hub that is "intimate" (i.e. adjacent to, and physically connected) with the meter, as it is envisaged that there will be premises where a separate communications hub would not be practical/ work due to the physical characteristics of the property e.g. properties with thick walls/ meters in basements etc.

Alternative configuration - We would also support having a separate communications hub with a fixed WAN receiver as this allows for gas first installations, will have a more reliable WAN as hard wired and not modular (having modular comms can degrade the performance of WAN).

DCC/Supplier procurement provision responsibilities – In order to stay faithful to the overall design (DCC managing data and communications and suppliers managing meters, consumption information and consumer interface) DCC should procure and provide the entire communications hub. In particular we do not support the DCC procuring only the WAN chip to go into the supplier's communications hub.

Separate communications hub with interchangeable WAN chip – We do not support this as this compromises both the physical security and the performance of the WAN (having modular comms rather than hard wired can have an effect on the performance of the WAN)

Timing – There is the issue of availability of Smart Metering Equipment that meets the requirements of the SMETS. There are currently no agreed standards for a WAN module or Communications Hub that could be universally replaceable or exchangeable, including physical interfaces, such as connectors and case work configurations, against which manufacturers could design equipment. It is estimated that a further twelve months might be necessary for industry to agree on a set of standards for this type of communication equipment. As such, with options 2, 3b and 4, which have exchangeable components for which there are no agreed standards, Smart Metering Equipment would not be available at least until mid-way through the Foundation phase.

There is also an additional cost of having a separate communications hub which hasn't been accounted for in the predicted cost of the communications hub as outlined in the Impact Assessment (£25.60). It does not include the cost of the various components that need to go into the comms hub to make it work – in particular copper and brass (source – Onstream) – and so the this may influence supporting a separate comms hub when/ if the real costs were known

Question 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?

Interoperability - If there are no restrictions on the HAN standards available to suppliers by time of mass rollout this would increase the risk of having equipment that is not interoperable in the home. As suppliers take on customers whose premises equipment is working to a HAN standard not used by the new supplier or the selected SMS equipment of the new supplier this is likely to cause problems with interoperability. By Government specifying a 'few' HAN standards (or even a single HAN standard), the industry would be able to prove / disprove interoperability much more quickly and easily and ensure that, going forward, all SMS equipment will work regardless of which of the selected HAN Standard is installed. It would also make it much easier for manufacturers as they would have a firm steer on which HAN chip sets need to be installed in the equipment rather than having to offer equipment which works to every possible standard out there.

HAN standard selection – Notwithstanding the Government's preference (which we support) not to "pick winners" we do believe that DECC should select a single GB wide HAN standard. This would mitigate the risk of lack of interoperability completely because of the HAN standard selected i.e. if there was only one, all manufacturers would build there SMS equipment accordingly, and so all SMS equipment across GB would be using the same standard and should therefore work with any other SMS equipment.

Each chosen HAN solution provider (whether a single solution provider or several) need to provide all SMS equipment manufacturers with chip set installation instructions. If these are not followed correctly, or are interpreted differently by different manufacturers, there is the risk of the equipment not working or not being interoperable e.g. if the power requirements of the chipset are inadequately specified, this could effect the performance of the HAN. Therefore, we feel that there should be a requirement in the SMETS stating that all SMS equipment manufacturers must follow HAN chip set installation instructions, as provided by the chosen HAN solution provider[s] (this should therefore be included as a missing requirement in the answer to Q24) - This potential issue was raised by the HAN Working Group.

We could also ask that there be an inclusion for HAN solution providers to publish the HAN chip set installation instructions in order to try and mitigate the risk of ambiguity through open forum, and to aid in any testing of HAN/SMS equipment/ interoperability.

Question 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?

No

Multiple standards – We do not support multiple standards . Please see our answer to question 36

HAN providers - Suppliers are working on the assumption that they will be able to procure compliant meters (and SMS equipment) in volume by Q1 2013. It is therefore a fair assumption that the compliant SMS equipment will have the chosen HAN solution (if a single GB HAN solution is agreed) or one of the selected number of HAN solutions (if there are several solutions agreed upon by the government) already built in. Therefore, from a supplier perspective we would expect all standards to be recognised prior to Q1 2013 when we begin procuring compliant SMS equipment.

SMS equipment manufacturers – They will need to know what standards are to be used prior to them developing/ building the equipment, and so their requirement for having recognised standards will be much sooner than supplier requirement

Question 38

Do you think that regulatory obligations are needed to underpin a systematic approach to testing of HAN standards during the Foundation phase?

No

HAN standards – we believe in a single standard

Responsibility for HAN testing – We believe that government should make an impartial HAN decision and therefore be responsible for specifying (and funding) testing. We believe the key testing responsibility for suppliers involves volume testing of the government solution.

We believe that

HAN test criteria - needs to be robust and proven to a level that guarantees the quality and resilience of the HAN. Whilst the HAN recommendation and HAN testing submissions from the HAN WG go some way to address this, it was identified by the Working Group that there is a need for more robust testing criteria in order to be confident of selecting an appropriate HAN provider.

SMS equipment manufacturers - Selection of the HAN has to be made before the SMS equipment manufacturers can start development. Therefore, the HAN standard testing discussed in this question needs to be carried out and completed to allow enough time for manufacturers to deliver compliant equipment by the end of 2013 as per the current DECC industry plan

Question 39

Do you agree with industry's recommendation that DLMS should be adopted as the application layer for communications with the DCC?

No

Do you believe there are any consumer, economic or technical issues with this solution which could be circumvented by an alternative approach?

Yes

Do you have any economic, technical or consumer evidence to assist Government in evaluating industry's proposal?

Single application layer protocol – We support a single application layer protocol but only in the event that there is a single application layer protocol used on every device in the SMS. To date DLMS / COSEM has been discounted for gas meters because of the impact on battery life. This is a significant impact for which no evidence has been made public (to the best of our knowledge); if the solution is to be complicated by multiple application layer protocols, npower believes that the evidence of DLMS / COSEM adversely impacting battery life should be made public / confirmed.

SEP 1.x -Use of SEP 1.x across all devices could be considered, although use of SEP 1.x seems to be linked to a HAN decision (ZigBee / HomePlug being the only HAN type technologies npower is aware of that currently support SEP 1.x).

Native application layer protocol or translation in the communications hub – We believe that the DCC should communicate with each device using its native application layer protocol and that translation in the communications hub should be avoided.The reasons for this position are as follows:

- DLMS / COSEM and SEP 1.x are underpinned by object models that are different - attempting to translate one to the other introduces unnecessary change complexity and risk:
- as changes to the one may become dependent on the other;
- both protocols are standards based and need formal change processes - the 2 processes are not aligned and may never be aligned.
- Protocol translation introduces risk:
- the translation may not work as required and may be complex to fully test and assure;
- objects and related attributes across the different protocols may have different data definitions;
- difficulties with translation are likely to result in proprietary extensions to one, other or both protocols.

Native, end-to-end use of an application layer protocol – We believe that this should be a design principle. This should ensure the highest degree of confidence that integrity of device and market / critical UK infrastructure operation is achieved.

Translation in the communications hub – We believe that this is suboptimal approach that would result in the point of change management and control moving from the centre (the DCC's head end system(s)) to 27 million homes – any problems with the protocol translation would require software updates to be distributed to (up to) 27 million homes. Problems with translation could have minor or major implications on market and / or retail operations). Npower is also of the opinion that introducing a design decision that increases the likelihood for software upgrades (and by implication, increased costs) should be avoided.

SMETS – We believe that the SMETs should specify the application layer protocol to be used by each device.

Notwithstanding our preferences described above, we recognise that the choice of communications standards should ultimately be subject to a full "end to end" cost-benefit analysis. This should be informed by evidence provided by the telecommunications service providers, possibly as part of the "procurement dialogue" process. In this way, we can be sure that innovations in technology and the unique requirements of the different physical networks are properly accounted for.

Question 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?

No

Do you believe there are any consumer, economic or technical issues with this solution which could be resolved by an alternative approach?

Yes

Do you have any economic, technical or consumer evidence to assist Government in evaluating industry's proposal?

Single end to end application layer – We believe that this is necessary to reduce risk of not achieving interoperability. – see question 39…therefore selecting Zigbee SEP1.X and DLMS does not achieve this

Testing - Independent, non biased testing is required to prove that any given solution is the best for the GB energy market taking into account such things as ability to cope with interference, effects on gas meter battery life, protocol overheads, future proofing etc

The status quo – Zigbee SEP1.x/DLMS is currently the dominant solution and we recognise the merits of selecting a technology mix which has enjoyed a measure of success. However, in national terms, the number of smart meters installed remains low, and is in the pioneer population and generally in homes that present the least technical challenges. It is important that the national solution/s work for the whole population.

Development – Like other protocols, Zigbee 1.x will develop, and selection should take anticipated developments into account.

Risks of the DLMS/Zigbee SEP1.x solution. This would leave the industry with a number of risks that need to be addressed;

- There is potential for higher 'exceptional/ difficult properties' due to a restricted range and interference/ penetration issues through e.g. thick walls on the current Zigbee 1.x using 2.4 ghz bandwidth. This could mean that Zigbee 1.x will not meet the current aspiritation of being able to work in 80% of homes but is selected anyway because of the reasons outlined in paragraph 1 of this section
- Having two solutions in the home increasing the risk of interoperability
- The risk of SEP 1 not being 'interoperable' with another technology that the government/ industry may decide to change to in the future e.g. SEP2 - assuming there could/ will be situations in future where both are present in the same premise and needing to talk to each othe. For example the original SMS equipment fitted with SEP1.X, communications hub needs changing and has SEP2.0 and therefore still needs the ability to talk to the IHD and Meter which are still on SEP1.X
- The implications of the industry having to migrate to SEP2 in the future - e.g. swap out of SEP1 devices and the associated costs etc.

- By specifying SEP1.X there is the risk of ending up with some equipment being on SEP1.0 and some on SEP1.1 . If SEP is selected then it should be the latest available supported version

Relationship between HAN and application layer protocol – It may be that there is a tighter relationship between the HAN and the application layer protocol selection than this recommendation suggests (for example we can only find evidence of SEP 1.x being implemented on ZigBee and HomePlug). Even if there were no technical reasons why an application layer protocol cannot be used on any HAN technology there are likely to be the practical considerations regarding development and implementation.

SEP 2 - Our understanding is that SEP 2.x is not a replacement for SEP 1.x. However, if UK Smart Metering will require SEP 2.x longer term, there are concerns about whether an upgrade path exists. This is an example of the need for a principle to be established about how the UK's smart metering implementation is likely to evolve over time. This principle might cater for new applications layers being implemented without backward compatibility (we accept that it's unreasonable to expect a day-one solution to last indefinitely).

Detail in the SMETS – at the current level of detail within the SMETS, interoperability is not guaranteed. For example specific requirements for the communications Hub and the other SMS equipment which includes things like the HAN standard to be used.

Upgrades - Although there is a requirement in the IDTS for the meters to have the capability to support firmware upgrades (but it does not specifically have a requirement for meters to be able to do remote HAN upgrades), there are no requirements for allowing firmware upgrades to the other SMS equipment i.e. IHD, Communications Hub – firmware upgrades could be to the HAN chip set or the HAN standard in any/ all of the SMS equipments e.g. from SEP1 to SEP2. This could lead to future swap outs of equipment that are otherwise in good working order, thereby creating stranded assets.

Question 41

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?

The closed nature of the network - The most important consideration is that the DCC and its service providers implement robust and reliable communications mechanisms that meet the industry's requirements in a secure manner. In this regard, given that the network will be "closed", we support the approach to decisions on the network layer on the assumption that alternatives to IP provide the same or better degrees of robustness, reliability and security.

The Wide Area Network – Whilst we can see no reason to mandate IP or IPV6 on the WAN, if the DCC were to use IP, having an upgrade path IPV6 on the WAN probably makes sense.

The Home Area Network - We can see no reason to mandate the use of IP on the HAN and see potential management issues should IPV6 be mandated end-to-end.

Question 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?

Yes

Will this requirement limit potential future capability or present challenges, for example, in multi-occupancy buildings?

It is too early to tell

Addressing - We agree that the Communications Hub needs to be directly addressable on the WAN and that a unique identifier should be used over the WAN to address each Communications Hub. Whether this requires a single network layer address for each Communications Hub is less clear and may be dependent upon the WAN technology being implemented

Multi-occupancy - Insufficient work has been conducted to understand the implications of multi-occupancy buildings and their related requirements. Further work is required to understand roles and responsibilities with regard to WAN and HAN provision in multi-occupancy buildings that cannot be supported by the "standard" HAN. We believe that it will be impractical for energy suppliers to be responsible for the implementation of WAN connectivity and HAN infrastructure in multi-occupancy buildings that cannot be supported by the standard WAN / HAN configuration.

Question 43

Do you think that maximum and minimum demand functionality should be included in the SMETS?

The case has not yet been made

Benefits case – Whilst there may be benefits to consumer, suppliers and networks, there has not been sufficient work done to quantify these

Question 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).

The case has not yet been made

Question 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

The case has not been made

Prepayment meters – This is not specifically a prepayment meter issue. All smart meters can have their supply curtailed remotely, and there are various reasons for doing to.

Question 46

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

Yes, in principle

The bridging device - We agree with the principle of an approved/ accredited bridging device assuming such a device can be manufactured and that the device does not create complications with the equipment in the SMS or its ability to communicate/ be interoperable. This will be dependant on manufacturers being able to deliver in time

SMETS - There are no requirements in the SMETS covering the communication to the bridging device within the SMS HAN. There is no need to include requirements for the bridging device itself in the SMETS as this will not be part of the Smart Metering System, however the communication to get the information onto the bridging device is, and therefore needs the relevant security requirements etc outlining. Please refer to question 24 for these missing requirements

Question 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?

SMETS – without robust cost benefit analysis this should not be included in the SMETS

Option 4 – This is beyond the remit of the Smart Meter Implementation Programme

Question 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?

We do not support translation – Please see our response to question 39 including our view that communications standards be subject to an end to end cost benefit analysis.

Do you believe there are any consumer, economic or technical issues?

Question 49

Where do you believe that translation is best managed:

At the Communications Hub; Or

At the DCC?

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

Translation between the DCC and its Users - We support Option b (Translation is best managed at the DCC) as this means one that there will be one central point for ongoing management of translation thus ensuring that interoperability can be centrally managed through one point as opposed to via about 30million nodes.

Translation between the WAN and the HAN - We are expecting a single application layer in order to guarantee interoperability and therefore there will be no need for any translation.

Question 50

Do you agree that the IHD should only be required to display ambient feedback based on energy usage?

Yes

Core function of the IHD - The representation of consumption to the consumer and the industry is the core function of the IHD. The requirement should not extend further. Representation of cost to the consumer will develop naturally in a variety of ways and should not be specified by regulation.

Thresholds – We believe that suppliers should retain the option to be able to set the ambient feedback thresholds at appropriate levels for each customer

Question 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?

No

Account balance – We recognise that for smart meters to be able to operate in prepayment mode, that a degree of account balance functionality is required. However we do not believe it helpful for the IHD to be regarded as an electronic bill, particularly as it will not reconcile perfectly to the bill. Items such as time related discounts and payments cannot be captured and presented with the full amount of required information, and be presented with certainty if users configure the display.

Costs to consumer – Account balance polling incurs transactional costs which would be passed on to the consumer.

Please read our response to question 52

.

Question 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?

The costs (millions of pounds) outweigh the benefits

Supplier costs – These find their way to consumers and are comprised of;

- Information technology to test, development and implement
- Ongoing operational expenditure to support the functionality
- DCC transaction charges
- Customer Services from resulting enquiries

Question 53

Do you agree with or have any comments on the Government's proposals for the outstanding issues from the Response?

Yes

Progress from now – *we* look forward to receiving a detailed workplan as to how and when these outstanding issues will be progressed. Where we have specific areas of concern we have identified these within our answer to the applicable consultation question.

Question 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?

Yes

To ensure a consistent implementation across all parties there must be appropriate, formal arrangements in place. The criteria that each party, process, system, device must meet before being allowed to enter market operations need to be consistently, objectively and independently assessed. Where any criteria are not met the impact needs to be assessed for risks to market operations and decisions based on those risks.

One of the keys to success of the SMIP will be to ensure that interoperability in its broader sense (technical, commercial and field) is achieved. This will maximise the opportunity to realise the benefits of Smart Metering identified in the business case while minimising costs and any adverse impact on customers.

Question 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?

Yes

For these reasons;

- The sheer scale (breadth and depth) of change being implemented.
- The scale of impact on existing industry operations - metering related changes have many critical touch-points across the entire energy supply operation.
- The number of new technologies and processes being integrated and implemented.
- The scale and complexity of the solution architecture / design - this will be one of, if not the, largest distributed computer system implementations in the world.
- The number of parties that need to have consistently implemented the changes required for market operations to remain robust and fit-for-purpose.
- Reliance on new parties playing a fundamental part in market operations.
- The potential for adverse impacts on critical supplier (e.g. billing) and industry (e.g. change of supplier, balancing and settlements) processes.
- The potential for adverse impacts on customers.
- The potential for adverse PR to the industry and government should there be major problems.
- The industry must be seen to be assuring the new market operations appropriately. Given that Smart meters are expected to be installed in approaching 29M homes and businesses the level of assurance must be very high.

The only way to guarantee interoperability is to undertake testing at both a technical and an end to end industry level.

Question 56

What are your views on the options outlined for a testing regime?

We support the mandatory industry code

Are there other options that should be considered?

Not at this point

The option of a mandatory industry code and body to deliver and govern a testing regime:

This is the option that we support. The mandatory industry code and body should deliver and govern an accreditation and certification scheme for the manufacturer's testing of any SMS equipment to ensure that the equipment meets all the requirements within the SMETS. Gaining this accreditation/certification should be a pre-condition to entering the emerging smart market.

This would be broadly in line with other industry practices. This could be governed independently of any other mechanisms or it could be delivered as part of the Smart Energy Code. It provides a high level of assurance and shares costs. However, a disproportionate regime could lead to undue burdens and governance overheads. It should be noted that a similar approach was developed to deal with similar assurance issues for the digital television sector. An entity was established by interested parties to deal with development and maintenance of necessary technical specifications, testing requirements/plans and laboratory conformance testing; and

Views as follows:

- This is considered the only approach that will deliver the level of assurance and quality required to deliver robust market operations - and should be conducted on an end-to-end basis.
- A disproportionate regime could indeed lead to undue burdens - so this needs to be avoided; the regime needs to be aligned to the level of risk associated - the need here is to get the right scope of tests specified that deliver confidence in the robustness of market operations and quality of the customer experience.

Market-led approach:

This would rely on participants' own testing arrangements, commercial incentives and enforcement of contractual obligations to ensure that the required technical specifications standards were met alongside delivery of interoperability and security requirements. This would be faster to deliver, potentially less expensive, less onerous and would have less of a regulatory burden. However, it might have the disadvantage of favouring larger participants and offer a less certain outcome;

Our views are as follows:

- Assuming that the end result is some sort of self-accreditation, this is too open to deliberate or accidental abuse.
- This option could be considered an abdication of joint responsibility (industry and UKG) re: the level of diligence employed to ensure that market operations are not compromised.
- If left to individual organisations to self-govern there would be unacceptable levels of risk to quality due to commercial and cost pressures within individual organisations to implement.
- This approach is unlikely to deliver the requisite level of consistency and quality to ensure robust market operations and consistent customer experience.
- The SMIP needs to avoid adverse publicity as the impact on the roll-out could be significant (ref: PG&E); a market led approach is considered less likely to deliver a consistent and high quality customer experience.

Certification or accreditation scheme:

Where products and systems demonstrate compliance with a set of requirements, they are certified or accredited with a "stamp of approval" by approved bodies or test houses. Such a scheme should give consumers and suppliers confidence that equipment has the required functionalities and performs as expected. As with an industry code approach, proportionality is important.

Our views are as follows:

- There should be an accreditation process for devices that is independent of and one of the gates to entering market entry testing.
- The scope of the accreditation should at least cover interoperability on the HAN and functional conformance.
- Whether wider interoperability should be considered is less clear - the DCC will be responsible for ensuring that devices inter-operate to specification across the WAN to the HES - whether this testing should be formalised and independently observed needs some consideration (there will be commercial pressures on the DCC to implement to time - so there may be a necessity for formal independent observation if the industry and UKG wants genuine assurance of this level of interoperability). Completion of such testing should be a gate to market entry testing.

Question 57

Do you think that a different approach to assurance is necessary for the Foundation and enduring phases?

No

The approach to assurance for Foundation and End-State should be very similar. Our reasoning as follows:

- Foundation is the commencement of the roll-out of Smart Metering in the UK and is predicated on the use of compliant metering systems meeting all the requisite standards and functionality mandated in the various SMIP requirements specifications.
- The smart metering systems used must be assured in the same way for Foundation as they will be for End-State if the risk of asset stranding / removal is to be avoided and to ensure that interoperability is delivered; the fact that there may be a different approach to interoperability between Foundation and End-State does not remove the necessity for this assurance.
- The detailed scope of formal end-to-end Market Entry testing undertaken as part of the assurance framework may be different between Foundation and End-State but this testing is a considered essential for both phases to ensure that market operations and customer perceptions are not compromised.
- The detailed governance arrangements managing the assurance framework may need to change between Foundation and End-State but the scope of and approach to assurance should be very similar.

Question 58

Do you think that the activities outlined above are a suitable way for achieving interoperability across Smart Metering Equipment cryptographic functionality?

Yes, we support fully

How else could this be achieved?

We do not have a different proposal

The cryptographic functionality as described in §223 and §224 should be developed as a single design through a co-operative activity involving the interested parties. It should be subject to a thorough peer review by CESG and independent subject matter experts. We believe this is the only approach that will lead to a coherent secure design. Conversely, the design should not be based on federated independent designs because this would almost certainly result in a weak and insecure system with increased risk of non-interoperability. We do not believe there is any other realistic approach.

Question 59

Do you agree that cryptographic/ key management is necessary to secure the End-to-end Smart Metering System?

Yes, we support fully

In any situation (other than 2-participant simple point-to-point encryption with guaranteed non-interception of keys) a key management system is necessary and unavoidable to protect the overall cryptographic arrangements. Without key management there is no guarantee that the cryptographic arrangements are secure which nullifies the whole point of introducing such arrangements.

In view of the diversity of function, design, information, devices and participants in the Smart Metering System, a key management system is the only way to secure such an end-to-end architecture. The alternative, which would be to provide separate and independent encryption arrangements (or other controls) to data within each element of the architecture, would lead to the following problems:

- There would be multiple encryption keys, significantly increasing the likelihood of key loss
- Data or commands would potentially need to be decrypted / re-encrypted at each stage potentially causing transmission delays
- Increased vulnerability of the data at each intermediate transmission point

Overall this means such an approach is likely to compromise the validation of the identity of individuals and devices, the integrity of data and the authorisation of instructions.

Question 60

Do you agree with the Government's assessment of the advantages and disadvantages of the cryptographic solutions identified above?

Yes

What other options should the Government consider?

None

Additional advantages of the asymmetric approach - If a device is compromised, it is less likely that the entire key hierarchy will be exposed

Additional significant advantage of the hybrid approach: -It facilitates key renewal and key revocation, which are both critical processes

We do not believe there are any other viable options. From our knowledge of the research and development that has gone into cryptographic approaches in the last four decades, our assessment is that there are no other real options available

Question 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?

Yes, with caveats

What other options should the Government consider?

We do not have any suggestions

The root authority - We would strongly disagree with any suggestion that an existing established 3rd party cert authority act as root authority for the Smart Metering System. This is because if such a root authority is compromised (cf the RSA incident) then the impact will be much wider than just Smart Metering so (a) the RA may choose to not disclose the compromise which would leave SM unknowingly vulnerable and (b) the recovery time may be much longer. The root authority could be a third party dedicated to the UK Smart Metering System, in which case any compromise is unlikely to have the same implications as with an existing third party root authority. However this would appear to have no advantages compared with the root authority being part of the DCC but internally separated by Chinese walls to ensure that only a small dedicated group in the DCC has access to the root authority systems.

Question 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?

No