



THE ASSOCIATION FOR THE BRITISH ELECTROTECHNICAL INDUSTRY

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

13th October 2011

Consultation Reference: URN 11D/836

Smart Metering Implementation Programme: consultation on draft licence conditions and technical specifications for the roll-out of gas and electricity smart metering equipment (August 2011).

Dear Sir/Madam,

The British Electrotechnical and Allied Manufacturers Association (BEAMA) provides leadership, expertise and independent influence in the areas of product safety, performance, energy efficiency and sustainability. BEAMA represents ~150 manufacturers with a significant presence in the UK through a combined annual turnover of ~£14 billion.

BEAMA works with other industry groups, the UK Government and European Commission and also manages research and development projects. It has three sector groupings consisting of Energy, Installation and Power. BEAMA members' products have an impact right through the UK electricity supply chain, from generation through to building services equipment,

BEAMA has already provided a significant support role to DECC throughout the development process of the Smart Meter Roll-Out programme and this has been mainly through its Smart Metering Association members who represent the vast majority of meter manufacturers in the UK.

However, as the roll-out progresses it is becoming clear that there is a need for BEAMA to engage on a wider industry remit not least of which is the In Home Display (IHD). In response to this need BEAMA has engaged with the major IHD manufacturers and has gained agreement to form an authoritative product group to help DECC address any issues going forward which relate to Energy Displays.

Collectively we believe a coordinated voice for the energy display industry has been missing from the discussion table and the formation of this new group should provide knowledgeable, expert input into the smart meter roll-out development process. BEAMA would welcome the opportunity to discuss the role of this new industry group with the DECC development team in the near future. In the meantime, the comments below represent the collective response from the major IHD manufacturers to the DECC consultation document.

THE BRITISH ELECTROTECHNICAL AND ALLIED MANUFACTURERS' ASSOCIATION

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Membership of this new industry group currently includes: AlertMe, Onzo, GEO, Chameleon, Navetas, Ewgeco, Landis & Gyr and Siemens. These represent the majority of UK in-home display manufacturers. The following represents the consultation response from the IHD manufacturers.

- 1) We believe that Consumer insight, engagement and buy-in will be vital for a successful Smart Meter roll out, and future Smart Grid strategies
- 2) Data flows from Smart Meters in two ways. It is essential that consumers have access to **both** these kinds of Smart Meter data:
 - a. Over the WAN (low time-resolution data for billing and grid-management)
 - b. Over the SMHAN (high time-resolution data with great potential consumer value)
- 3) For many households, an IHD is an appropriate way to view live SMHAN data. Industry research has demonstrated that growing numbers of consumers are also keen to see information on their connected devices (e.g. their SmartPhone or Web, anywhere, anytime) and so both mediums need to be made available (for reference: over 75% of UK homes have broadband, and half of all new phones are SmartPhones).
- 4) This is achieved by connecting a consumer gateway (or bridge) device, which takes the high-resolution SMHAN data and sends it to an online energy service. Several companies now provide such a gateway. including all the members of this group.
- 5) This gateway opens the door to a vibrant new market in Energy Services, including for example:
 - a. Performing Analytics on the data, to identify opportunities for consumers to save
 - b. Remote control of heating and other appliances
 - c. Automation of the low-carbon home
- 6) This gateway is already a part of the proposed SMHAN communications architecture, but has not yet had sufficient attention to ensure it achieves its objectives. For example:
 - a. What exactly is the set of information that can be exchanged with the gateway – is it identical to that of the IHD? We believe the consumer gateway joining the SMHAN must have access to data at least equivalent to that of an advanced IHD in order to meet its ends.
 - b. Security must be balanced with Simplicity. Adding such a gateway to the SMHAN should be as simple as adding an IHD. Truly appropriate SMHAN technologies, including the proposed ZigBee SEP 1.x, are able to deliver the appropriate security in a simple user experience.
 - c. Should a consumer be able to continue to receive energy services through such a gateway even if they switch their energy supplier? We believe for the gateway to deliver sustained consumer value they should be able to do so.
 - d. Where such a consumer gateway also requires access to the WAN for low resolution billing type data (to supplement the rich real time and local SMHAN data) what form does the data exchange between the gateway and the DCC look like? We assume the WAN physical and application link layers will deliver the necessary flexibility and transparency to enable the consumer functionality made possible by the gateway device.

- 7) Getting this right will distinguish UK Smart Meter rollout from everything that has gone before, create a vibrant competitive market for energy services, and:
- benefit the Consumer (empowerment and choice)
 - benefit Utilities (augmenting commodity energy retail revenue with value-added energy services, helping transition to low carbon)
 - benefit Government (successful Smart Meter rollout, and achieving carbon targets)

In addition to the points above, there are two specific questions in the consultation which the industry is best placed to comment on (Q17 & Q 50) as follows:

Question 17: *What period of notice do you think would be appropriate before the obligation to provide IHDs comes into effect?*

We can see no reason why the IHD obligation should be introduced in a “switched off” form in the Foundation Phase and submit three reasons why it should come into effect immediately:

- Suitable units will be available when the licences are introduced.
- The Foundation Phase is about preparation to ensure a smooth roll-out. If this is to be achieved the provision and installation of the IHD including engaging users and learning how best to deliver the Installation Code of Practice all need to be major elements of this phase.
- The manufacturing scale up required to meet the roll-out in 2014 is not inconsiderable. To expect IHD manufacturers to be able to deliver the volumes required from what would effectively be a standing start is highly risky. Our industry needs the Foundation Phase to prepare every bit as much as other participants in the smart meter programme.

Question 50: *Do you agree that the IHD should only be required to display ambient feedback based on energy usage?*

The Group agrees with the statement for ambient feedback based on *energy* usage based on the reasoning of the SMDG IHD Group. However, we do not agree with the IHD Group’s recommendation that it should be based on *Instantaneous Electricity Demand* for three reasons: first it is limited to electricity, second its relevance is transitory and tells you little about actual consumption and third it is highly prescriptive and does not facilitate innovation. We therefore would like to see Function 2 of the IHD Minimum Specification altered to “Function 2 - Ambient (non-numeric) Visualisation of Energy Usage” and the text amended to reflect this.

This new industry group within BEAMA is at an early stage of development but it already has a lot of expertise to help DECC address the points raised above. BEAMA will keep DECC advised as to how this new industry group progresses and of the relevant technical and commercial opportunities that can be linked with the IHD.

I trust you find this input useful and we look forward to the opportunity to engage directly with the DECC development team in the near future.

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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.	This is mainly an issue for Energy Suppliers and their metering operations. As BEAMA we can support this target. However, given that the UK has not undertaken the sort of centrally-coordinated pilots that have been undertaken in other European countries, our conviction is that such an acceleration will only be achieved if DECC provides appropriate clarity and certainty to support an aggressive and effective Foundation period deployment.
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 necessary? Please explain your reasoning.	No comment, this is for Energy Suppliers to respond.
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.	No comment, this is for Energy Suppliers to respond.
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.	BEAMA agrees with this. The smart metering equipment should be compliant with SMETS at the time of its certification. There will also need to be appropriate advance notice of changes to the SMETS to allow manufacturers to run down stocks that comply with the previous version of the SMETS and get new versions manufactured and certified. It will be important to differentiate between revisions to SMETS that can be implemented via a firmware upgrade and changes that require a hardware change. There will need to be different processes to manage these changes.
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	BEAMA accepts that there could be certain circumstances that demand a retrofit. These should be strictly limited to circumstances such as those referenced in the consultation, "The Government expects that changes

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	your reasoning.	<p>would only require retrofitting if strictly necessary, for example to protect against <u>newly emerging security threats or safety issues.</u>” and where a retrofit is generally unavoidable. It follows that this should depend on a careful appraisal of the associated commercial impacts; e.g. the relative costs of doing nothing and carrying out the retrofit, who benefits and who pays for the exercise.</p> <p>BEAMA believes that if there is a general provision for requiring a retrofit without meeting a strict necessity requirement then energy suppliers may be very reserved about entering into trials and a meter rollout programme for which they will be financially liable if “the industry” deems that a revised meter spec is established. This could slow down the deployment programme for reasons of caution and specification change.</p> <p>It would also need to be clearly defined where the responsibility lay for those residential users who have changed supplier. Does the responsibility for upgrade lie with the original supplier?</p>
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.	No comment, this is for Energy Suppliers to respond.
7.	What period of notice do you think would be appropriate before the new and replacement obligation comes into effect? Please explain your reasoning.	This is for Energy Suppliers to respond. However, based on BEAMA’s previous submission on manufacturing timelines, BEAMA considers that, from a manufacturing perspective and assuming the necessary specifications are published, then the notice period for the New and Replacement obligation could be targeted at decision-plus-9-months. The notice period will also be dependent on the details and scope of the obligation.

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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.	<p>BEAMA strongly supports the interoperability licence condition as drafted because this should ensure that the Energy Suppliers align on the supporting technology and specifications where these are beyond the SMETS, for example a short list of preferred HAN technologies. There is concern amongst BEAMA members that a number of Energy Suppliers have placed very high expectations on the degree of clarity and assurance necessary from DECC before they will commit to support the Foundation phase with realistic customer deployments. We believe that this position is short sighted and fails to recognise the very valuable information that the UK and the Suppliers will gain from these early deployments.</p> <p>BEAMA assumes that the Application Layer will be in scope for SMETS but the Licence condition will support industry in working together within protocol groups to ensure the preferred application protocols are developed to meet the requirements in the SMETS.</p>
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?	This is primarily for Energy Suppliers to respond. BEAMA members consider that the licence condition as drafted does effectively underpin the policy intention to ensure Smart Metering Equipment is interoperable. However, delivery of the policy intention will depend on industry initiatives and BEAMA members would like to support further work assessing how technical and commercial interoperability can be achieved for both foundation and DCC rollout phases (for instance, via SSWG).
10.	What role could a dispute resolution mechanism have a role in ensuring interoperability? What key features should such a mechanism have?	BEAMA believes that a full definition of interoperability is likely to evolve during the Foundation phase, as the interface specifications are agreed, completed, implemented and deployed in real environments. Following this there will be work to get the new data objects in these GB companion specifications approved through the relevant standards bodies. In parallel, the design of test specifications can be started to provide common

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		<p>reference points for manufacturers and a full test assurance process can follow. The target should be to ensure this is in place for the “enduring” phase.</p> <p>The governance around conformance to specifications is critical to this process. Ultimately we expect Energy Suppliers to procure to SMETS plus their own additional specification preferences where such preferences exist. However, it is inevitable that real-life operation will identify areas where even the best described interoperability requirements allow for differences in interpretation and implementation (ETSI standards for telecommunications, Bluetooth and USB have all shown this to be the case). Although industry can be expected to act in a reasonable manner when such differences arise, a dispute resolution process would be extremely useful in helping to resolve intractable differences of view where the commercial implications of any resolution are significant to one or more participating parties. We would therefore support the establishment of an appropriate process to guide industry in such eventualities.</p>
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? Please explain your reasoning.	<p>BEAMA agrees that where CT operated meters are installed that it should be required to install advanced meters. Advanced meters are already available and the data collection systems are already in place to collect the data. The installation of this type of meter will allow much of the data and functionality that is required from ‘Smart Metering Equipment’ to be achieved. The key area that will not be achieved is the disconnection functionality as it is not practical to implement this on a CT operated meter.</p> <p>BEAMA suggest that the specification for Advanced meters is brought in line with the UK’s smart metering specification set once complete. This would mean data collection, management and security requirements for these</p>

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		meters can then be aligned directly with the capabilities being implemented to support the much larger volume of domestic smart meters, ensuring the optimum value is derived from the DCC but this should not delay the introduction Advanced meters as this will provide early benefits to the market.
12.	Do you think that the licence conditions as drafted effectively underpin the policy intention for Current Transformer meters? Please explain your reasoning.	No comment, this is for Energy Suppliers to respond.
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.	No comment, this is for Energy Suppliers to respond.
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.	This is primarily for Energy Suppliers to respond. The installation process/procedure for standalone communications hubs for Gas first installations have to be agreed. . BEAMA has some concerns on how a standalone Comms Hub will be powered from the network side of the electricity mains for Gas first installs within the current industry codes.
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.	No comment, this is for Energy Suppliers to respond.

No.	Question	BEAMA Response
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.	No comment, this is for Energy Suppliers and their metering agents to respond.
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.	No comment, this is for Energy Suppliers to respond.
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.	No comment, this is for Energy Suppliers to respond.
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.	No comment, this is for Energy Suppliers to respond.
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.	No comment, this is for Energy Suppliers to respond.
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.	No comment, this is for Energy Suppliers to respond.
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.	No comment, this is for Energy Suppliers to respond.

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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.	No comment, this is for Energy Suppliers to respond.
24.	Do you think that there are other requirements that the Government should adopt in the SMETS? Please explain your reasoning.	<p>We believe the core requirements from the IDTS and, where directly related, the Industry supporting documents, should form the basis for the SMETS. These will also need to take into account:</p> <ul style="list-style-type: none"> • Outputs from the Business Process work in the DCG groups e.g. for end to end messaging, • Resolution of the Comms Hub modularity issues, • Assessment of DCC to Comms Hub access (Push Pull), • Updates to the security requirements, • Further work on the requirements for Hand Held terminals (HHTs), • Further inputs from industry to ensure the data modelling is more closely aligned with the preferred application protocols to avoid excessive rewriting of protocol standards to fit the GB model.
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.	<p>Yes. BEAMA recognises the considerable work that has been done by industry experts in the IDTS. However, the IDTS is still a raw document in a number of aspects and the following should be addressed in generation of the SMETS:</p> <ul style="list-style-type: none"> • Check for requirements that may have become over-specified through the industry committee process. There appear to be a small number which could significantly impact development time and delay delivery of compliant interoperable equipment; e.g. some of the Prepay options and configurability, especially the debt collection options should be further examined. • As described in the answer to Q24, an exercise should be carried out to assess the data model with the preferred application protocols to

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		<p>avoid excessive rewriting of protocol standards to fit the GB model. This should include assessment by experts within protocol groups such as SSWG.</p> <ul style="list-style-type: none"> • Ensure requirements are not duplicated across several different requirements (SBGI and BEAMA will highlight where they believe this is the case). • Provide clear identification of the degree to which the requirements affect each device in the SMS. The architecture supporting document holds a reference for this which now needs to be carried forward from? the detailed ESoDR requirements in the IDTS. • A thorough review and alignment of the document details by Technical Authors. <p>BEAMA has already supplied an initial analysis of the IDTS highlighting obvious errors and some high level concerns.</p>
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.	<p>BEAMA believes that the security requirements are, in the main, appropriate to the level of risk, but that DECC should focus on the core high level requirements to allow Foundation to proceed effectively.</p> <p>BEAMA has some concerns that the IDTS proposes details that will cause some problems for meter manufacturers and propose that the determination of appropriate security mechanisms should be done jointly with Industry group work on selection of the appropriate HAN and WAN application profiles. Our views on this are expanded in the answers to questions 58 to 61. Specifically, whilst BEAMA agrees that the cryptographic cipher functions need to conform to a standard (e.g. FIPS), the specification, as written, might be interpreted to require additional hardware security modules which will add cost and potential delay to the programme. It is</p>

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		<p>preferable that the cryptographic algorithms for the GB solution conform to standards within the preferred application protocol and we believe the option should remain for these to be implemented in firmware inside physically sealed devices.</p> <p>It is inevitable that Security will be an area that consistently evolves during both Foundation and Enduring phases of the GB rollout; as such, understanding and agreeing the primary underlying characteristics of the SMETS security requirements will be absolutely key to ensuring a successful learning experience during Foundation in preparation for the Enduring phase.</p>
27.	Do you agree that the process outlined above is a suitable way forward to develop the SMETS? Please explain your reasoning.	BEAMA supports work along the lines of the example shown but would urge consideration of the answers to questions 24, 25, 26, 27 above.
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.	BEAMA considers that governance of the SMETS will not be straightforward to achieve. A requirement that suppliers use SMETS – compliant equipment can be achieved by Supplier Licence Condition; however, managing, maintaining, and providing guidance on the SMETS will require a technical panel with representation from across industry. A past example of this has been the relationship between MAMCoP and the standards organisations, IGEM, BSI, etc; and it may be that a similar structure is best suited to the SMETS.
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.	BEAMA members will provide individual responses to the commercially sensitive question. However, in general, BEAMA contends that the 13% reduction assumption is too high. Meters are not subject to the same volumes and volume ramp rates as electronic consumer goods (ECG). Nor are meters subject to the same production design cycles as ECGs and will not be subject to the same high frequency of re-design. Meters are also

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		<p>required to use higher specification components than ECGs and meet longer lifetimes.</p> <p>A more appropriate index might be to look at the cost of the electronics components in industrial control systems, automotive engine control, or military applications, all of which use electronics designed to operate with high reliability over extended temperature ranges and time. There are a number of market forecast estimates for these sorts of equipment and we would recommend that DECC consider these indices as a means of establishing smart meter price reduction curves.</p> <p>Generally, it would not be appropriate for an industry to set price erosion objectives on manufacturers for a product which has yet to be fully specified.</p> <p>Interoperability, an open market and competitive supply base will be the main determinants to drive price down.</p>
30.	Do you agree that the Government should include a requirement for a Communications Hub in the SMETS? Please explain your reasoning.	BEAMA members believe that a Communications Hub will probably have lower costs over the longer term but will initially be more expensive. There are possibly a number of practical advantages to the communications hub and there should be a study to ensure that these benefits are justified by the higher costs. Whatever the outcome of that study, BEAMA believes that the intimate hub will offer a more cost effective solution and a simpler installation process.
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	Properly implemented outage detection should not only deal with the discontinuity itself but also the network events preceding that event. This level of management will be vital as we move closer to an environment with

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	provide electricity outage detection? Please explain your reasoning.	<p>20% renewable energy (where a residential outage may well also form a generation loss) and volume deployment of EVs as both loads and sources.</p> <p>On the cost side, BEAMA believes that the £1.00 figure for costs is optimistic. The actual figure will depend on the WAN comms it is supporting; the highest cost would be associated with GPRS. Also the IDTS proposes that, as part of last gasp, the Comms Hub should check connection with the electricity meter and this could increase costs further.</p> <p>The comms Hub or comms module or WAN Module is best positioned to detect an outage and send a notification. However the electricity meter, as the measuring device, is best positioned to detect the loss of power. The loss of power indication from the electricity meter will start the process of detection of a power outage within the comms hub, comms module or WAN module.</p> <p>The assessment of the commercial viability of last gasp will need to include the cost of a large number of communications alarms arising from a simultaneous power outage.</p> <p>BEAMA is also aware of other mechanisms that could be employed to detect power outage, dependant on the network solution, and these should be investigated further before mandating Last Gasp.</p>
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	The requirement should be defined by the users (and funders) of the service; the Energy Suppliers and Energy networks. How this is delivered and the assessment of commercial viability should be in the DCC Communication service partner's domain.
33.	Do you think that the Communications Hub should also have	BEAMA believes that, if you are going to have outage alarms, then you

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	the functionality to send a communication to the DCC when power is restored? Please explain your reasoning.	should also provide restoration events as well. This will let DNOs know which customers no longer need actions to have their service repaired in order to optimise repair time. It should be noted that many meters will try to respond at a very similar time and therefore thought has to be given to ensuring that all the messages are received accurately if this is to try and identify individual outages. This issue is, however, common with notification of power outage.
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.	BEAMA notes that the 2 most favourable options in Table 5 on the Cost comparison show the Fully Integrated and Intimate Comms Hub to have the highest NPVs. Therefore it would be appropriate to review this requirement when there is progress with the rollout and more mature knowledge in terms of performance and operation of WAN and HAN technologies.
35.	<p>Do you think the Smart Metering Implementation Programme objectives would be better met by:</p> <ul style="list-style-type: none"> 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? <p>Please explain your reasoning.</p>	<p>BEAMA believes that there should be flexibility of options to ensure a cost effective environment. BEAMA supports the positions from the Architecture group / Hot house discussions:</p> <p>We believe that Energy Suppliers should have the choice of technology to fit for the Comms Hub to be stand alone or intimate to the electricity meter. We believe the Foundation and Mandated DCC needs both options to maximise the rollout volumes and optimise the installations for electricity only, gas only and dual fuel. This also provides flexibility for whether the meter cupboard is suitable for an electricity meter with intimate hub or smaller base meter with a separate hub etc.</p> <p>We note that a number of Energy Suppliers have expressed preferences for both architectures and that the intimate Comms Hub is more cost effective based on the revised impact assessment. However, freedom to choose between options must be balanced against possible damage to GB's ability</p>

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		<p>to optimise its deployment and minimise costs.</p> <p>Some concerns have been expressed that the lack of standardisation progress for intimate Comms hubs could cause field issues. We understand this was reviewed in the Hot House and solutions are in the resultant Architecture supporting document.</p> <ol style="list-style-type: none"> 1) For Intimate Comms Hubs to be compliant they should be field upgradeable so that the installation can be switched to a mode to work with a new standalone Comms Hub 2) Where an alternative HAN transceiver is needed for problem sites the Comms Hub should also support the standard SM HAN transceiver for interoperability with the field staff's HHT. 3) We support further work on standardisation of the Comms Hub to meter interface that the ERA is proposing. We have some concerns on the time to develop such a standard so this should be in parallel with using existing available interfaces.
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.	BEAMA considers that there should be no restrictions on HAN standards, as the market should be able find the best solutions for particular situations. However, operational practicalities dictate a limited number of options. We would therefore like to see agreement by Energy Suppliers to work together for common solutions for Foundation, the results from this can then determine whether SMETS should be updated to define the preferred and alternative SM HAN technologies.
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.	Yes BEAMA supports this, however, Smart Metering standardisation is rapidly advancing as is expected with the markets reacting to the US and EU regulatory initiatives and it should be possible to add newer standards in the future as agreed by stakeholders.

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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.	<p>BEAMA believes that there should be a limited number of HAN options and that there are available solutions that will be suitable for a large majority of consumer properties, with a combination of two options covering almost all sites. BEAMA supports further work to build evidence on HAN performance across different property types and, in particular, solutions of difficult property types. This could initially be by industry co-ordinating on radio module testing.</p> <p>Any test approach needs to be carefully designed to avoid delays to Foundation deployments as it is the Foundation phase that will provide real field evidence as well as testing other parts of the processes that need to be robust for high volume deployments. There should be a mechanism set up to systematically collect learning from the Foundation stage.</p>
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?	<p>A majority of BEAMA members are working in the SSWG to develop interface specifications and whilst trying to stay application layer agnostic they have selected DLMS COSEM as an initial option for the application layer and are confident that there are no consumer, economic or technical issues with that selection.</p> <p>BEAMA acknowledges that the UK market requires features not previously supported by many EU standards and that both BEAMA and the SSWG will have to continue to build on these foundations to meet those requirements.</p>
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	<p>BEAMA members provide a number of different application layers and BEAMA cannot recommend a single option. However, whatever option is chosen must comply with the IDTS and manufacturers will be prepared to demonstrate this to DECC and customers.</p>

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	approach? Do you have any economic, technical or consumer evidence to assist Government in evaluating industry's proposal?	
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.	BEAMA members agree with clause 154; the choice of transport layer should be left to the communications provider to allow innovation. IPv6 is an appropriate standard and should be an option but it should not be mandated. There are costs associated with implementing IPv6 and, if it is considered, there should be a cost benefit analysis to see if its benefits outweigh its costs.
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?	While this is appropriate for Comms Hubs in single households it should be reviewed further for potential solutions for multi-occupancy buildings as it may limit potential future capabilities. Depending on the architecture chosen, a single primary address per communications hub may well be sufficient for initial deployment, with sub-addressing being added as required/desired by the network management functions of the communications solution chosen. Equally, communications providers offering more IP-centric solutions may well opt to provide multiple device addresses. Single addressing should not be mandated until there is more certainty with regard to the nature of the DCC.
43.	Do you think that maximum and minimum demand functionality should be included in the SMETS? Please provide supporting evidence for your response	The IDTS already includes a number of features for DNO requirements such as voltage monitoring (minimum and maximum, with an unusual definition), voltage profiling, kvarh profiling etc...). While the monitoring of maximum and minimum demands is possible it should be appreciated that this additional functionality needs to be implemented, tested and transferred across the network and the costs need to be assessed against the benefits. BEAMA members are keen to take part in such an assessment. If these requirements are to be considered as part of the metering specification they

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		should not be a requirement for the Foundation stage.
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).	<p>The reasoning for separate registers is unclear. If access to the registers is non real-time then the data is unlikely to provide the DNOs with any improved ability to manage renewable energy sources and the like over what the centralised data collated by the DCC would otherwise afford. If the registers are to be read/updated in real time then the assumptions on traffic etc in 158 – 162 are unrealistic and the cost implications for all aspects of the system are far more onerous.</p> <p>A more cost effective way is to allow the DNO to have direct access to the data via the DCC. Additional network registers, where associated with a completely independent tariff structure, require a considerable amount of work to implement and no metering product in the UK currently works in this way. The introduction of independent tariff structures and registers would also have an impact on the access rights to the meter.</p>
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.	BEAMA does not believe that the contactor should be used to protect against floating neutrals and consider this to be a very significant change in the functional requirements for GB smart meters and one that would undoubtedly lead to increased cost, complexity and difficulty in gaining EU approval for the GB specification. BEAMA has already submitted strong arguments against this.
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.	BEAMA believes that the gateway/bridge provides a good balance of security and flexibility. The proposals maximise future flexibility without adding cost to the core components. We anticipate the development of enhanced IHDs to facilitate this bridging link.

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		<p>BEAMA is strongly of the view that the gateway/bridge should have access to the data from the SMS within the property and not depend on data being up-hauled to the head end and then re-sent to the SMS via the WAN and, via the gateway/bridge, to the customer HAN. If that option were chosen it would severely limit the availability of data to the customer as only data uploaded from the meter would be available. This will not exceed 30 minute resolution data and there is no requirement that even this data is uploaded (and hence made available). Sending data via the WAN will, in addition, add unnecessary communications cost and time delay, greatly reducing the value of the data to the customer and limiting the customer applications that the data could be used in.</p> <p>BEAMA believes that an agreed data set should be made available via the bridging device direct from the SMS and is keen to work with DECC and other stakeholders to work out how this can be done in a secure manner.</p>
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.	BEAMA does not believe that the electricity meter should be used as a safety device. To achieve this, different contactors would be required and ideally an additional manual isolation switch which would add considerably to the cost and complexity of the metering unit. BEAMA has already submitted a response to this issue.
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	BEAMA agrees with the main proposals put forward by the industry group work and the Comms Hub concept is critical to the architecture. . For a Stand Alone Hub this will require DCC data to/from electricity meter to be tunnelled through the HAN. However electricity meter data for the IHD should be in the local HAN application layer so this will need some translation in the Comms Hub (e.g. for Intimate Comms Hub) or electricity meter (for a peer to peer IHD connection).

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49.	<p>Where do you believe that translation is best managed:</p> <p>a) At the Communications Hub; Or</p> <p>b) At the DCC?</p> <p>Do you have any economic, technical or consumer evidence to assist Government in evaluating the options?</p>	<p>Industry should be aiming for interoperability and therefore reduce the need for translations;. However, in general, it is cheaper to carry out any data translation in the main IS systems. However, best practice in the IT world is to carry out translation or encapsulation at the originating device (although this could depend on the comms medium and whether you are looking to reduce the size of data for that process).</p> <p>The DCC will need to provide an interface between applications protocols on the WAN and industry participants for some of the data items. It is not clear from the data available whether the DCC scope is considering extending the WAN application protocol formats for data objects between the DCC and Energy Suppliers and there may be some element of local translation for this.</p>
50.	Do you agree that the IHD should only be required to display ambient feedback based on energy usage? Please explain your answer.	The IHD should be compliant with SEP 1.X to offer customers maximum benefits. Consumers must be supported in their attempts to move peak consumption to lower tariff periods and that can only happen where the relative cost of consumption is clear.
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?	This should be designed into the display rather than each meter. This would be more cost effective since it is not needed everywhere. The account balance should not be calculated by the meter as many factors may need to be taken into account such as discounts, different VAT levels etc. It should be possible for the Supplier to send account information to the In Home display.
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 cost of local calculation of estimates of 'spend to ..' is relatively low as it is offered by many displays today. The cost of messaging an account balance to the In home display should be low.

No.	Question	BEAMA Response
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.	<p>BEAMA members have some significant concerns on the data catalogue. To date there has not been any work carried out to assess this against standard application protocols for WAN and HAN (e.g. DLMS and SEP 1.X). We propose that DECC considers the approach here and requests assessment from groups looking to offer metering equipment protocols.</p> <p>There is a risk, if this work continues based on the existing data catalogue without attempts to align with the existing protocols and planned extensions, that manufacturers will incur a significant (e.g. 6+ month delay) in defining the data items and protocol data objects required to be referenced from the SMETS.</p>
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.	<p>BEAMA believes an assurance framework should be developed for the Enduring phase, using the recommendations of the Interoperability Test working group as the starting point together with the current certification process used within adopted protocols.</p> <p>However BEAMA has concerns over this approach for Foundation phase as it is likely the underlying standards will be still be developing and we risk the volume benefits to GB PLC set out in the impact assessment in these early years. There should be an assurance framework for the Foundation phase but it should be of a different nature to the Enduring Assurance Framework. If the Foundation phase is to be used as a basis for decisions made with regard to the Enduring programme, it is essential that deployments have some common, assessable basis against which to assess the impact of the (likely significant number of) non-fixed elements.</p> <p>The Foundation phase should be a test ground for Enduring phase and we expect manufacturers to be working with protocol groups to agree the interfaces to meet the DECC/Industry IDTS/SMETS requirements. Many</p>

No.	Question	BEAMA Response
		<p>BEAMA (and SBGI) members are already very active in industry groups to ensure solutions meeting the IDTS are based on common open specifications. BEAMA members also provide input to CENELEC TC13 and CEN TC 294 via the mirror groups in BSI and other protocol groupings to support standardisation work for GB requirements.</p> <p>During Foundation we would expect to see the shift in the work within industry groupings from agreeing GB companion specifications, through to work defining test specifications for interoperability which can then provide a basis for an initial level of interoperability and the work to define an assurance framework for Enduring.</p>
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	<p>BEAMA agrees a testing and certification regime will be needed. We would recommend the development of test specifications aligned with the use cases, and interface definitions defined down to protocol, and data object level. These can then be used together with “golden units” as the basis for certification. The output from the Interoperability Test Working group is a reference point together with the current process for ZigBee certified devices.</p>
56.	What are your views on the options outlined for a testing regime? Are there other options that should be considered?	<p>BEAMA believes that this will evolve from a market-led approach developing during Foundation e.g. based on industry offerings working with Energy Suppliers. However we anticipate that it is likely that this will need stronger governance in the transition from Foundation to Enduring phase.</p> <p>BEAMA recognises the work undertaken by the Interoperability Test Working Group and this needs further assessment along with assessing roles of test houses similar to the existing protocol certification. We have some concerns on governance under the Smart Energy Code where the SEC directly impacts the specifications and assurance, unless manufacturer</p>

No.	Question	BEAMA Response
		<p>representation is introduced.</p> <p>BEAMA believes there is a role for certification of specific aspects e.g. to demonstrate compliance with protocol and security interfaces.</p>
57.	Do you think that a different approach to assurance is necessary for the Foundation and enduring phases? Please explain your answer.	As set out in the answers to questions 54 and 55, whilst the assurance process should be consistent across the Foundation and Enduring stages, a different approach will be required in Foundation phase and this would be best progressed by industry groups. The processes from this can then feed into a stronger assurance process for the Enduring phase.
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?	<p>While BEAMA broadly supports the work to-date outlined in this section we have a number of concerns relating to clauses 219 to 214:</p> <p>219: While STEG was initially open to a wider review body, the DCC procurement restrictions make it difficult for most manufacturers to be part of the current process. We urge DECC to reconsider how manufacturers can be engaged in any further work to ensure the requirements will be applicable to embedded metering devices.</p> <p>224: We support the development of an overall trust model. However we do not believe the cryptographic key management needs to be designed at Government level. Instead, only high level requirements on functionality should be given to the DCC operators and manufacturers (e.g. “devices should support a hybrid scheme using FIPS approved ciphers”). Industry can then support the development of detailed specifications along with work on the application profiles for WAN and HAN.</p> <p>Regarding the specification of cryptographic primitives:</p>

No.	Question	BEAMA Response
		<ul style="list-style-type: none"> • The development of common cryptographic interfaces will only significantly support interoperability as part of the Application Layer protocol and associated data items linking the devices on the WAN and HAN. • A number of BEAMA member companies are already working on addressing these requirements based on application layer protocol standards and where available European standards. Industry groups are well placed to take on this level of detail for the WAN and HAN protocols. • UK manufacturers in SSWG are already proposing a set of cryptographic primitives to be supported following the <i>hybrid</i> model. This should be an area where industry can lead the definition with validation by appropriate DECC personnel.
59.	Do you agree that cryptographic/ key management is necessary to secure the End-to-end Smart Metering System? Please explain your reasoning	<p>BEAMA agrees that key management is necessary. Amongst others, these functionalities will enable a secure firmware update mechanism of devices, the provisioning of trust, on and offline key establishment.</p> <p>However, as set out in question 58 above we do not agree that the mechanisms for key management need to be defined at government level. Instead industry groups are best placed to take forward the technical implementation specification aligned with the work on extending application profiles. The resultant standards or proposals for standards can then be referenced from SMETS.</p>
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	<p>BEAMA agrees with the advantages outlined for the solutions and manufacturers are already developing and defining open interoperable solutions based on the hybrid scheme. We do not believe that further hardware is necessary to be mandated to realise the "asymmetric" or "hybrid" functionality for any mains powered devices and there are already</p>

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		<p>meters and Comms Hubs becoming commercially available that utilise the hybrid scheme completely in firmware.</p> <p>Battery powered devices (e.g. Gas Meters) may also be able to use the hybrid scheme depending on the appropriate use of symmetric and asymmetric algorithms. We agree that, compared to a symmetric operation, the invocation of any asymmetric operation could significantly drain energy from those devices. Therefore, asymmetric operations are only proposed to be applied to critical commands (e.g. monthly billing meter reads, prepay top ups and tariff configuration). This is already the basis of the Security requirements in IDTS and is recognised in manufacturer's work on application protocol extensions.</p> <p>Additionally we do not believe that mandating the use of a dedicated hardware security module will significantly improve security of an architecture where all devices use unique credentials and are physically sealed (tamper evidence), i.e. a physical attack will only affect one particular device. However, a mandatory use of dedicated hardware security could significantly increase the unit price as well as delaying design processes and foundation volumes. The required reliability of the cryptographic function can be achieved with the use of approved cipher implementations (e.g. FIPS).</p>
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.	BEAMA agrees that DCC is the most suitable location for key management responsible for the Smart Metering System, although we suggest this does need to be tightly linked to meter registration. However further consideration will be required to ensure that links to manufacturers are effective to support use cases for secure firmware updates and for return/repair.

No.	Question	BEAMA Response
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.	<p data-bbox="1048 344 1980 443">BEAMA proposes that advanced meters continue under existing schemes, once devices are opted in they should be capable of aligning with the security schemes outline above.</p> <p data-bbox="1048 488 1980 655">BEAMA also recognises that the work to date in STEG and in the IDTS has focused on domestic customers. More work is required reviewing the non-domestic market and avoiding unnecessary constraints on the existing deployments of advanced metering which in turn could delay the benefits to this market.</p>