

Smart Save Energy

Limited

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Smart Metering Response 28 October 2010

Smart Save Energy Limited. Reg. No: 07344455

Project Management • Engineering • Smart Metering • Smart Grid • Facilities Management • BOT • PPP

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28 October 2010

Smart Metering Team

Ofgem E-Serve

9 Millbank, London SW1P 3GE

020 7901 7000

For Attention: Margaret Coaster

Dear Madam,

A. GENERAL

1. This response is on behalf of an organisation, Smart Save Energy Limited.
2. This organisation represents the views of Palace Power System which wholly owns a technology development company Grinpal Energy Management, a technology company that has been involved in the product development, manufacturing, supply, operation and maintenance of Revenue Management, AMR metering and Smart systems since 1999.
3. These views have been assembled by consensus from various people inside the organisation, across the different business disciplines.

B. SPECIFIC RESPONSES TO QUESTIONS IN VARIOUS DOCUMENTS

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Response to “In-Home Display”

CHAPTER 2

Question 1: We welcome views on the level of accuracy which can be achieved and which customers would expect, in particular in relation to consumption in pounds and pence.

Depending on the technology chosen for the wide area network, it would be possible to update the energy tariffs daily without much additional data costs. Most electricity meters have an accuracy of at least 10 Wh, and it would be possible to transmit this data at least every 5 seconds across the home area network. Gas meters have an accuracy of at least 0.01m³ and are generally battery powered, and would probably only be able to communicate every 15 minutes. If we assume a maximum residential flow rate of 3m³/hour, we have a worst-case data resolution of 0.75m³. The IHD could therefore display electrical energy with an accuracy of 10Wh, and natural gas with a worse-case resolution of 0.75m³ and an accuracy of 0.01m³. The IHD could then convert this to a currency value, using the supplied tariff rates.

We believe that customers would be satisfied with an accuracy of 50 pence.

Question 2: We welcome evidence on whether information on carbon dioxide emissions is a useful indicator in encouraging behaviour change, and if so, how it might be best represented to consumers.

We do not believe that carbon dioxide information would be useful to the customer, because most consumers will not understand the meaning of the information – for example, if the IHD reports a carbon dioxide emission of 100kg at the end of a month, how does the customer know if this number is acceptable, or too large? We believe that it would be more beneficial to indicate the current energy usage to the customer, so that he/she can take immediate action.

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

We believe that the IHD should have an ambient setting that shows information that would help a consumer reduce his overall energy consumption, preferable in a graphical format. This should include:

1. Electrical power measured on the last update
2. Electrical energy consumed during the last two updates (typically a 5 second interval)
3. Natural gas consumed during the last two updated (typically 15 minutes)
4. Electricity and gas tariff rate

We also believe that the consumer should be able to configure alarm thresholds on their consumption rates. The alarm could be visual or audible.

Question 4: Do you think that there is a case for a supply licence obligation around the need for appropriately designed IHDs to be provided to customers with special requirements, and/or for best practice to be identified and shared once suppliers start to roll out IHDs?

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We believe that best practices should be shared once the rollout of IHD's has begun. This will reduce the response time for suppliers to provide a solution for the customers with special requirements, as well as ensure a level of uniformity for the consumers.

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

We believe that IHD portability is essential to consumer behavioural change, leading to an overall energy consumption reduction. The consumer must be able to monitor the impact of the appliance/electronic device on his/her overall consumption, so portability is essential.

With regards to powering the portable IHD, we believe that the best solution would be to supply the IHD with a cradle that will supply the IHD using the mains source. The batteries would only be used when the IHD is removed from the cradle, thus reducing the battery energy requirement. The IHD display could therefore be supplied with non-rechargeable batteries, and will require minimal battery changes throughout its lifetime.

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

Yes, we agree with the proposed minimum functional requirements

CHAPTER 3

Question 7: Do you have any views or evidence relating to whether innovation could be hampered by requiring all displays to be capable of displaying the minimum information set for both fuels?

We do not believe that innovation would be hampered. Innovation will be shown on the way the data is presented, and not on data itself.

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

We believe that suppliers have an enduring obligation to the IHD.

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Response to “Data Privacy And Security”

CHAPTER 3

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

Data that is disassociated from personal details of a customer could be released with the permission of the local area authorities. This data is necessary to monitor electricity usage trends and would help decide on tariff rates and voluntary load shedding schedules.

Only data necessary for billing purposes and required by law should be obtained without the permission of the affected customer.

All other data associated to the name and address of a customer could only be used with permission from the customer.

Question 2: We seek views from stakeholders on what level of data aggregation and frequency of access to smart metering data is necessary in order for industry to fulfil regulated duties.

Half-hourly energy demand data (measured in kW) would supply a sufficient sample to determine peak times of energy use. This would allow for the optimisation of Time of Use (TOU) tariff rates and voluntary load switching bands.

Aggregated energy use (measured in kWh) is only necessary once a month for billing purposes. Daily statistics may be useful for seasonal rate determination, but customer information can be removed from such data if privacy is a concern.

Tamper data should be updated at least once a day as well as meter faults.

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

Yes, although this should not be a cumbersome document full of technical terms that would confuse participants. It must be written in a simple, clear to understand language and tell all involved parties what is measured, communicated, secured and who has permission to access and use this data and who has not.

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

The following issues should be addressed:

- Confidence that all personal data will be kept confidential. Specify all security and privacy systems in use
- A compilation list of all data that will be captured by the metering system and the frequency of this capture
- A description of data that is required by regulatory law and the organizations that are allowed by law to access these data

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- A description of data that is optionally required by certain organizations and the purpose to which the data is to be used.
- A thorough user-friendly description of the system to be used whereby the customer can be requested to supply certain information.
- Assurance that personal detail will not be transferred when area data are aggregated.

CHAPTER 4

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

We agree with this approach where security considerations are specified from the start and designed in from the start.

This will require that open industry standards must be followed to facilitate supplier interoperability. Although propriety security solutions allow for competition in the market place, this would also allow for insiders to add Back doors and access private information that they are not authorised to have.

We agree that Government policy on data security should be followed. The weakest link in any security system is human interaction with the system. Access to any data should be linked to privilege/access levels.

All communication links and data interfaces must be encrypted. Open encryption standards should be followed.

Any technological based choices should allow for the eventuality that encryption schemes become outdated and less effective with time.

We agree with the policy where system wide risks are identified.

The central DataCommsCo that is specified to securely collect, warehouse, translate and distribute metering data will be a good central place to secure data, but will be more costly, mostly due to lack of competition, than outsourcing the data warehousing to private companies. It would also prevent the storage of innovative non-standard measurements that could prove a competitive advantage over other metering companies. If all have access to the same data, there is less room for innovative use of data.

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Response to “Communications Business Model”

CHAPTER 2

Question 1: Do you agree that access control to secure centrally-coordinated communications, translation services and scheduled data retrieval are essential as part of the initial scope of DCC?

Yes.

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

Yes. The proposed method of only handling new connections/ and then on the side having an interface to existing suppliers databases is the correct approach. New connection registration should be included from the first phase, and then integrating all other existing customers from different suppliers shortly afterwards. The second process will be more extensive and time-consuming, as all data has to be validated. It is essential nonetheless in order to build a central database of all consumers and have access to all the information to further improve, streamline and expand processes

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

Yes. Initially only data storage and access to it from approved third parties needs to be provided, along with the processing of new customer data. This will then be expanded upon the next phase when all suppliers existing databases are incorporated into the central DCC database. In the end, this is the only way to accomplish long-term goals of smart-grids, where based upon analysis of all data intelligent decisions can be made to alleviate grid-pressure, reduce down-time, and prioritise all other maintenance and expansion related tasks.

Question 4: Do any measures need to be put in place to facilitate rollout in the period before DCC service availability and the transition to provision of services by DCC, for example requiring DCC to take on communications contracts meeting certain pre-defined criteria?

Yes. With the requirement for early rollout ahead of the DCC’s communication facilities being finalized and operational, the need to be on a common page with regard to the end goal and infrastructure requirements are critical. This will ensure a simple and cost effective switch over from one network to the other, and incorporate the entire newly installed infrastructure from the suppliers into the new communications infrastructure.

Therefore a common communications platform, with regard to equipment specifications to be used by suppliers prior to DCC go-live is needed. Also ensuring that all components used are interoperable so that they can function on the same network is essential. To this end the DCC will have to have the master plan for the communications infrastructure in place before the initial supplier rollout of smart meters.

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CHAPTER 3

Question 5: Do you agree that the licensable activity for DCC should cover procurement and management of contracts for the provision of central services for the communication and management of smart metering data?

Yes. With the proposed approach (Option B1), these activities should form part of the DCC license

Question 6: Do you consider that DCC should be an independent company from energy suppliers and/or other users of its services and, if so, how should this be defined?

Yes. Although the expertise of these companies could be valuable in the greater context of the program, the DCC should maintain total independence to assure complete unbiased operations. The DCC should however facilitate a joint working committee in which suppliers and other stakeholders may be involved and have equal opportunity to positively influence the operations and plans of the DCC. By doing this, these companies' experience and expertise could be incorporated and utilised without one stakeholder getting an unhealthy say in the operations of the DCC

Question 7: Do you have any comments on the steps DCC would need to take to be in a position to provide its services and the likely timescales involved?

No Comments.

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

The proposed approach makes sense, but clear cut deliverables and operational efficiencies needs to be in place and these delivered in order to activate the cost reduction incentives. These deliverables will act as a gatekeeper to the incentives. If all has not been met, and full satisfaction was not achieved with regard to these targets, no matter how well the performance was in terms of the financials, no incentives would be paid.

This approach will insure that quality of service is not sacrificed for cost, in order to get a bonus. The smart grid, and smart meter industry is all about service delivery, efficiency and effectiveness. These have to be emphasized above any financial performances, and thus act as a gatekeeper to these incentives.

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Response to “Consumer Protection”

Consumer Protection

CHAPTER 2

Question 1: Do you have any views on our proposed approach for addressing potential tariff confusion? What specific steps can be taken to safeguard the consumer from tariff confusion while maintaining the benefit of tariff choices?

Suppliers should provide comparative examples of different tariff structures offered, and explain the benefits/advantages of each in an easy-to-understand brochure. Suppliers should also allow consumers to switch tariffs on a month-to-month basis (from a specific supplier) in order for them to compare and find the tariff best suited for them. By seeing the benefits first-hand, consumers will be able to make the best choice on tariff for themselves. Encouraging such activity will get the consumer more involved and active in the smart metering scenario and energy savings environment.

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

Yes

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

The marketing and distributing of information should be limited to clear and pre-approved brochures, and only upon the consumer requesting more information should they be further engaged. The consumer are therefore encouraged to “help themselves” in stead of being “force-fed” the information. To further ensure no unsolicited marketing, the consumer should be asked to sign a simple consent form that states that they allow further interaction and marketing activity on the day, in order to make the right choices.

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

Yes. The consumer should allow or be able to disallow these messages from the IHD, or just be able to press a button to access all relevant consumption information and ignore these messages, instead of having to wait for all the messages to scroll through to see the relevant information that they want.

Question 5: Do you agree that consumers should be able to obtain consumption information free of charge at a useful level of detail and format? How could this be achieved in practice?

Yes. The access to this information is the key to energy efficiency and improvement in consumption patterns from the consumers’ side. In addition to the proposed methods, the DCC has record of all or most relevant data, and can provide these through a web interface. Security can be obtained through an

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encryption key sent to the IHD that needs to be typed in on a website hosted by the DCC to access the information, or even on a smart mobile interface with an SMS sent to the consumer with an encryption key to be able to access this information.

CHAPTER 3

Question 6: Do you consider that existing protections in the licence are sufficient to ensure that consumers are not remotely switched to prepayment mode inappropriately?

Yes.

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

Yes. The IHD will act as the necessary interface to the meter. The steps mentioned to ensure that the IHD can talk to the meter, can be taken further by doing a communications test to the IHD remotely before disconnecting or switching to pre-payment.

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

1. IHD notifications
2. SMS notification (if the client has a cell phone)
3. Finally, a delivered notice of change of supply type, couriered and signed for by the consumer.

After all this has been done, a 7 day grace period needs to be given for the consumer to respond to either change the circumstances surrounding the switching (by paying arrears or making a payment arrangement) or agreeing to the switch

Question 9: Do you believe that suppliers should be required to provide emergency credit and „friendly credit“ periods to prepayment customers or whether, as now, this can be left to suppliers?

In the end, the suppliers' interest also has to be looked at. The measures that might be implemented must not adversely affect the suppliers. Therefore an emergency credit period is suggested such that the consumer is given 1 working day to make a payment before being disconnected. Therefore the consumer will not be cut-off over a weekend or at night. By implementing a common policy instead of a supplier regulated policy, uniformity and consistency can be achieved, and all consumers will be subject to the same regulations, and will understand it better.

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

Yes. With a common vending platform and specified meter interface, such infrastructure could be provided for smaller suppliers by third parties or others PES's, at a small fee. With all communications modelled through the DCC, this should be easily achievable, and reduce the capital cost burden of smaller suppliers. This also provides a gap in the market for other companies to supply only payment services, for instance.

Question 11: Is the obligation which Ofgem is proposing to introduce on suppliers to take all reasonable steps to check whether the customer is vulnerable ahead of disconnection sufficient? If not, what else is needed?

Yes, we believe that the proposed methods are sufficient.

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

We believe that the same measures as described in question 8 can be taken, with a 1 day grace period for action by the consumer to pay his balance to be allowed for.

Question 13: Do you have any views on the acceptability of new approaches to partial disconnection and how they might be used as an incentive to pay bills?

Load Limiting will be more suitable as an incentive for reducing peak consumption, with consumers participating in this scheme getting some preferential rates. The periodical disconnection might also be a good way to inform the user that he will be disconnected, in addition to the methods described in question 11. A 1 day or two day period where there is only power 50% of the day (on every second hour for an hour, for example) will prompt the user to investigate and look at the information on their IHD, thereby being informed of the pending disconnection

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

Yes

Question 15: Have we identified the full range of consumer protection issues associated with the capability to conduct remote disconnection or switching from credit to prepayment terms? If not, please identify any additional such issues.

Yes, we believe so.

CHAPTER 4

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

The most critical of the information would be to understand why smart meters are introduced and how it could (and should) benefit them. Next would be information and advice on how to effectively and without detriment to the consumers' health or living conditions save energy.

Support then needs to be given to the vulnerable and fuel poor to ensure that all reasonable measures are taken before disconnection to assist them and accommodate them in terms of bill payments. A dedicated scheme with this regard will be beneficial.

The information should be made available to everybody, so that it is shared amongst communities to further improve the distribution and understanding of the information.

The support scheme should be available to the vulnerable and poor, and as such extra effort needs to be made to communicate this to these groups. The facilities available in this help scheme should however be available to any consumer in need of help.

CHAPTER: 5

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

Another way to recover costs is by installing a different IHD, and selling advertising time to these units. Thereby the consumer can opt to install a higher end system by agreeing to the advertising being broadcast to him, and monies from the advertising can further help in the cost recovery and maybe even negate the need for a tariff increase by the supplier.

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Response to “Non-Domestic Sector”

CHAPTER 3

Question 1: Are there any technical circumstances where only advanced rather than smart metering would be technically feasible? How many smaller non-domestic customers have U16 or CT meters and what scope is there for full smart meter functionality to be added in these cases?

No. To enable a full smart grid program, every meter needs to be a smart meter. As mentioned, CT electricity meters are usually only used for industrial customers, and meters with 100Amp feed-through connections are available. The only exception to this is where the client’s facilities require uninterrupted power or gas for some process, and by losing power (through unexpected remote cut-offs) their processes might suffer critical losses. But usually these facilities have backup power for such a situation.

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

Yes. The “all reasonable steps” test will have to be well thought through, and in the end we do not think that there would be any exceptions. There will always be a way to overcome any problems, even if it is only to delay the installation until a later date so that supporting infrastructure is better established at that point.

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

No other technical circumstances are foreseen, but once again if the “all reasonable steps” test has been well thought out, it would cater for such events.

CHAPTER 4

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

Yes

Question 5: If use of DCC is not mandated for non-domestic customers, do you agree with the proposed approach as to how it offers its services and the controls around such offers?

Yes. DCC should be limited in terms of its service offering, and should focus and optimise data transfer and warehousing and making this data available to service suppliers.

Question 6 To what extent does our proposed approach to the use of DCC for non-domestic customers present any significant potential limitations for smart grids?

Non-domestic customers in principle normally;

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- Has huge consumption
- Is much more aware of their consumption patterns and typically try to optimise their bill
- Already has more sophisticated equipment installed
- Normally has a much more complicated billing arrangement than currently exist for domestic, or even envisaged for the near future for domestic customer
- Normally the cost of energy shifting/ reduction is higher than paying the increased tariff during peak times (working shifts or reduced production)

We therefore hold the view that **little benefit in terms of consumption reduction** will be derived from including them in the overall programme. We therefore maintain that DCC and the programme role specifically on non-domestic users are limited.

Question 7: Is a specific licence condition required to ensure that metering data for non-domestic customers can be provided to network operators or DCC, and should any provision be made for charging network operators for the costs of delivering such data?

DCC seems the logical place to gather accumulated data as required by network operators. License conditions should therefore be considered. Network operators should pay a reasonable fee for data.

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

By ensuring a minimum technical specification is complied with, including availability of data on a common platform / protocol / format.

CHAPTER 5

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

We believe that information for non-domestic customers should be made available by service suppliers via the internet.

We further are of the opinion that minimum requirements should be put into place and that the further customer specific enhanced data provision should be a matter of contract.

The minimum requirements should be the minimum information a reasonable service supplier should provide to motivate the bill.

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

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In principle, yes. At a practical level, consumption and other statistical data may only be distributed to entities that are required this data for billing purposes, and they should commit to privacy of such data. All other data must be kept on the metering device.

Question 11: Is the proposed approach to rollout (for example in terms of targets and a requirement for an installation code of practice) appropriate for the non-domestic sector?

Non-domestic customers in principle normally;

- Has huge consumption
- Is much more aware of their consumption patterns and typically try to optimise their bill
- Already has more sophisticated equipment installed
- Normally has a much more complicated billing arrangement than currently exist for domestic, or even envisaged for the near future for domestic customer

We therefore hold the view that little benefit in terms of consumption reduction will be derived from including them in the overall programme. It should therefore be considered to focus purely on the domestic consumers.

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Response to “Regulatory and Commercial Framework”

CHAPTER 2

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

In addition;

- The regulatory environment should ensure responsiveness of the regulatory and standards environment to market and commercial pressures and changes.
- It should have clear, measurable objectives which should be measured, and performance against that must be transparent.
- There should be some mechanism for network operators and fuel suppliers to participate in change proposals in the regulatory framework

On Point 2.18 : compliance to technical standards should be regulated.

It should be considered to set standards of data delivery to various stakeholders and make the use of DCC optional, to ensure that the services provided does not become prohibitively expensive in the long run.

CHAPTER 3

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

Yes, absolutely needed.

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

The code should also address;

- Customer liaison guidelines and requirements and Customer Care Standards;
- Meter qualifications / standards/ testing requirements
- Service Levels stating reaction or turnaround times
- Conflict resolution and deadlock avoiding mechanisms during Code change requests
- Value system for the Code

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

The code could be managed by a panel, consisting of representatives from all stakeholders. It should be chaired by a full time appointed professional that is independent of any service supplier. The chairman should report to the Government through the appropriate channel. The value system and objectives of the code and code delivery standards as well as code changes must be clearly and objectives stated.

Stakeholders represented should be consumers, all service suppliers and the DCC.

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The panel and process followed should be audited on regular bases by auditors, and any changes from the predetermined value system and objectives should be corrected by appropriate actions from government.

CHAPTER 4

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

On balance it makes most sense as defined.

Question 6: We welcome views as to which other additional data items should be included in the mandated HAN data set beyond the list for the IHD.

Carbon usage and energy use is the same information and directly proportional so the display of carbon footprint/ emission information adds very little value.

What could be useful is a measurement against a pre-set objective on energy use per time period per individual for the household, as well as measurement against a consumption target for a month.

Question 7: Do you agree with the proposal that the WAN and the HAN in customer premises should be shared infrastructure, with the installing supplier retaining responsibility for ongoing maintenance? If not, would you prefer to have an arrangement by which if the gas supplier is the first to install, responsibilities for the common equipment is transferred to the electricity supplier when the electricity smart meter is installed?

The electricity meter is the logical place for the WAN as well as the HAN hub module.

We do not share the view that the HAN and the WAN should share infrastructure, as it is perceived that the WAN module will be heavily regulated by the DCC in terms of underlying technology, with limited scope of cost optimisation by use of alternative technologies. The HAN, however, could be evolved by different suppliers using different technologies to get optimised cost benefits on the HAN infrastructure.

It is proposed that the WAN module is situated at the meter, and has two TTL inputs, one for gas and one for Electricity. At least two different HAN modules can then be plugged into the WAN, to handle potentially two different HAN's.

CHAPTER 5

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

No, the proposed measures seems sufficient.

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

Data standards, interface specifications as well as transfer of assets.

The biggest challenge is the cost of transfer of the installed meter from one supplier to the other. It is proposed that meters are transferred on net asset value based on a 10 year lifetime.

Question 10: Can current arrangements for delivering technical assurance be developed to gain cost effective technical assurance for the smart metering system? If so, how would these procedures be developed and governed?

Accelerated lifetime tests should be considered, or even HALT (highly accelerated lifetime tests) to simulate performance over longer periods of time.

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

Nothing apparent, our main concern is escalating costs and deteriorating service levels with time in the DCC service domain since it is essentially a monopoly.

CHAPTER 6

Question 12: What evolution do you expect in the development of innovative time-of-use tariffs? Are there any barriers to their introduction that need to be addressed?

Tariff should be inversely proportional to energy surplus at any given time. This energy information and a responsive smart network with escalating loading as lower tariff are communicated and vice versa, could potentially enable an automated, self regulated system in close to real time. A fast bi-directional communication network, loads that can be switched on and off on discretion, distributed capacity to store energy in low tariff times and a tariff that can change in real time are the keys to this vision.

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

Reconciliations can be done on regular basis when individual consumptions over periods of time is compared with check meters in the network. Losses in the system must so be accounted for. Action plans around losses that can be prevented must be enforced on the responsible party, be it the service provider overlooking theft or the network operator allowing high losses through deteriorating equipment, weak operations or theft. Focus on the loss and having the responsible entity accountable will in the long run improve efficiency and reduce consumption.

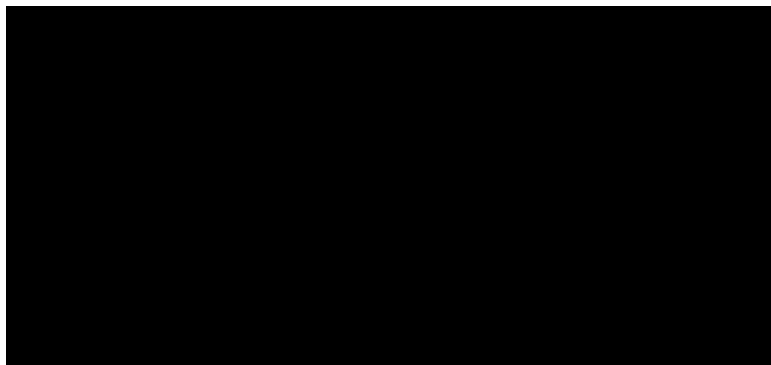
Question 14: What arrangements would need to be put in place to ensure that customers located on independent networks have access to the same benefits of smart metering as all other customers?

The conditions including tariffs or tariff band should be regulated.

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

The whole issue of vending systems and vending system compatibility in the case of prepaid customers seems to be overlooked – and this could be a serious problem. Setting standards and ensuring interoperability of vendors could save substantial amounts, as each service supplier then does not need to set up own vending infrastructure for prepaid customers.



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