

Pilot Systems V3 Public

2nd stage response to DECC/Ofgem consultation ref: 10D/732 on the Smart Meter Implementation Programme

Pilot Systems are pleased to respond to the second part of this consultation. Comments supplement our September submissions, and result from dialogue with industry parties, as well as members of the Ofgem Working Groups. We are also active with the gas ASPcop Data Hub. We have forwarded specifications to both Metering and Communications Design Groups as part of COTEs. We continue to pursue a good working metering market to the maximum benefit of UK PLC.

Note that this response addresses earlier questions in detail, and includes responses to later questions which have not been given a specific answer.

PROSPECTUS

Question 1: Do you have any comments on the proposed minimum functional requirements and arrangements for provision of the in-home display device?

The functions appear comprehensive and well thought-out. However it is extremely likely that they will exclude something we will need later. We believe that we should minimise dependency on defining functionality before roll-out. We not aware of any IT/IS project where the minimum spec does not become the maximum spec. We envisage a mini-browser technology where the IHD supports content provided by the energy suppliers, similar to a mini Internet Browser. Technology is available today where windows-type screens for user input/output can be defined through small foot-print XML data files that can be transmitted (for example) through low-power RF. Broadband scale bandwidth is not needed for this. We believe user requirements (i.e. what a user needs to maximise his benefit in carbon reduction) will vary enormously – some like to monitor regularly, some like to respond to alarms, some like more visual response, some prefer more data table presentation, some like to make their own decisions about how to reduce, while others would prefer to have their hand held. The list goes on. Defining this in a one-fits-all solution will compromise the benefits that can be drawn-out.

We believe the supplier will have major input and stake in the IHD, They will display their logo, and provide a suite of screens to help the user manage his energy consumption. This will be a new value-add from the supplier. Supplier performance metrics should be used to gauge how well each supplier reduces his consumers load. But it must be competitive. Each supplier must be able to offer different solutions.

We agree that a “forever” technology should not be nominated. Specifications should probably assume low-bandwidth 2-way data streaming, and build messages on this. However we do need something to get the process moving. Zigbee is always mentioned, but we have not seen a Zigbee offering that is fit-for-purpose. Signals do not penetrate a single wall in some cases – the

frequency is too high. We believe practical research is necessary here. Taking radio modules from different vendors using different (lower) frequencies and encoding/addressing mechanisms and trialling them. Making use of a specialist consultant to do so. By doing this we will arrive at a technology that we can be confident will work in the majority of installations. But we must be careful that this technology and the XML data stream definition is kept separate, and not inter-dependent. This will ensure that we can migrate to different communication mechanisms in the future.

Question 2: Do you have any comments on our overall approach to data privacy?

We believe the principal of customer choice on who has access (in addition to what is required to meet license obligations) is a wise one, and circumvents the thorny issue of who owns the meter. Data privacy (like security) can be a nuisance in designing new technology – it gets in the way because of something bad that “might” happen but for the majority of cases does not. Nevertheless it needs to be included. The more control the consumer believes he has on this, the less problem it will be for the industry. For example peoples email address lists get sucked into Facebook etc all the time, usually with the consumers consent, but perhaps not in full knowledge of the implications. Public are becoming more aware of this, and are more cautious about clicking such consent buttons. Giving the consumer that control also gives him the responsibility, and reduces the risk of political back-lash of “big-brother”. A supplier contract with a customer (depending on whether HH data is used for settlements) may include a clause like “the consumer consents for the supplier to receive his HH data so he can propose methods of energy reduction”. However the consumer may choose to pass this data on to a 3rd party broker who can help in this way, and perhaps not allow his supplier to see that level of granularity. It will be a commercial decision.

Question 4: Have we identified the full range of consumer protection issues related to remote disconnection and switching to prepayment?

Yes for consumers already on prepayment, but not for everyone else. We have talked at length on this point. We believe remote shut-off should be a separately controlled unit that may be installed at the consumer's option or by requirement if the consumer fails to meet his financial obligations. Again a commercial arrangement between supplier and consumer may be met – a supplier clearly reduces his risk by having a remote contactor – so why can he not pass that on in cost savings to the consumer. A lower rate if you opt for a “Top-Up Gate”. If security of supply is an issue here, then remote shut-off should be the privilege direct control of only the distribution business. A supplier should only have access if the consumer is deemed a prepayment one. Technology (such as CHIRPS) is already available to allow access to the same communication mechanism by different stake-holders, and the HAN can be used to support different access privileges for different parties.

Question 5: Do you have any comments on the proposed approach to smaller non-domestic consumers (in particular on exceptions and access to data)?

We agree that the larger consumers should take the lead on this. We actually don't see much difference between domestic and the rest of the NHH market, except that there is more money and less risk in non-domestic. You will also get better feedback from industry consumers, and bodies such as ESTA. There is far too little attention being spent on meters currently being rolled out in industry. Interoperability is the main problem. Getting it right here, where we can perhaps afford to make a few mistakes is much better than getting it wrong on a full domestic roll-out. Most of the issues are the same. We believe many domestic consumers will prefer to use the internet rather than an IHD. Or their mobile phone, or iPhone. What is the feedback like from the EDRP trials? We haven't seen this yet have we? Is it useful, valuable? As good as what you have been getting from industry? Is there enough quality consolidated feedback from consumer groups representing the majority of society?

Question 8: Do you have any comments on the proposals that energy suppliers should be responsible for purchasing, installing and, where appropriate, maintaining all customer premises equipment?

We see no reason why suppliers should not be vendors of metering equipment and installation services, but they should not be exclusive vendors. Any system or process which relies or depends exclusively on a supplier should be avoided. Again, the key word is interoperability. We must have good standards in place, which are not the exclusive privilege of the suppliers. BSI and standards work from the EU can do a lot for us here we believe.

The test must always be – can the consumer procure equivalent product and service independently from the supplier. If he can, then the process will be competitive, and the best solutions will prevail. If he cannot, then the benefits will be compromised.

Question 9: Do you have any comments on the proposal that the scope of activities of the central data and communications function should be limited initially to those functions that are essential for the effective transfer of smart metering data, such as data access and scheduled data retrieval?

Yes we believe the DCC should be kept as thin as possible. However it is essential that the registration process progresses, because without it we will not be able to roll-out. It is probably more important that the DCC is not supplier controlled than the registration process. Different access to the DCC is required by supplier and distributor, whereas registration is primarily a supplier function, and something suppliers have done well in the past. DCC registration must be limited to network connection only.

Question 10: Do you have any comments on the proposal to establish DCC as a procurement and contract management entity that will procure communications and data services competitively?

Yes but who pays them and how much is the debate. If the suppliers pay exclusively then they will control it, there is no doubt. This would be a mistake because it would require too much ongoing regulation to ensure they are acting in the best interests of consumers and reducing carbon for UK PLC. We refer to our benefit pie in earlier papers. Those beneficiaries pay according to proportion of benefit. Supplier, consumer, distributor, government, etc. The Board of the DCC will be properly represented with power proportionate to that benefit pie.

Question 11: Do you have any comments on the proposed approach for establishing DCC (through a licence awarded through a competitive licence application process with DCC then subject also to the new Smart Energy Code)?

We believe it is an essential approach, but would question the powers of any license arrangement if one stakeholder had the substantial purchasing power. See previous answer – whatever you have in place, if the suppliers are paying, they will control it.

Question 12: Does the proposal that suppliers of smaller non-domestic customers should not be obliged to use DCC services but may elect to use them cause any substantive problems?

We believe the thinner the DCC can be made, the less of an issue this will be. Suppliers should control only registration of supply points. Registration of meters, contactors, and AMR should be a separate network activity.

Question 13: Do you agree with the proposal for a Smart Energy Code to govern the operation of smart metering?

Provided that the Smart Energy Code makes suppliers separately accountable for delivery of energy savings through smart metering, then yes. The difficulty will be comparing that to something else – what the targets should be - different models in different countries we suppose. The importance is that suppliers should be actively competing to be the best at reducing consumption.

Question 14: Have we identified all the wider impacts of smart metering on the energy sector?

There has been comprehensive coverage and good work over the last year, but we believe it is naïve to say that all wider impacts have been covered. New energy issues are emerging each month and we need to ensure the DCC will allow vendor equipment to be installed and services to be provided to meet these issues. Issues we don't know about today. It is not difficult to

properly scope the DCC to do this with XML technology and standards we have today.

Question 15: Is there anything further we need to be doing in terms of our ensuring the security of the smart metering system?

Refer to our answer on privacy. Security it not so much how good the lock is, but how easily it can be changed. We must review the current security offered by existing digital FLAG meters (PIN-sentry type algorithm). Is this meeting our needs? Can we extend it without compromise? Will we need to rely on the smart system so much that a macro security breach will have large impact? Or can safety routine visits include a simple MAR (meter advance reconciliation) check? If there is a security breach, how quickly will we see the symptoms, and how quickly can we act on them? Can we separate national security from individual public security?

These are just questions to help bottom-out our security needs. To a certain extent we will need to try it and see. You can so easily over-spend on security aspects that are never needed. However you can also easily compromise. We need a working system first, and then put in security as the issues are teased out. Designing in security before we have a system will stall the process. Again we have technology and experience in IS now to change security aspects further down the line using well thought-out XML messages.

STATEMENT OF DESIGN REQUIREMENTS

No further comment.

IMPLEMENTATION STRATEGY

No further comment.

NON-DOMESTIC SECTOR Ref: 94i/10

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?

For the purposes of this discussion we assume “Advanced” means available on the free market whereas “smart” means controlled under the Program / DCC.

“Advanced” has done a tremendous amount in showing the industry what can be achieved, and we must learn from this. “Advanced” will be necessary if a consumer requires functionality the Program cannot provide. If “smart” can be designed well enough to ensure the consumer can get what we wants and needs for a reasonable cost and within reasonable time period today and in the future, then there is no need for a separate “advanced” channel.

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

Yes but we believe the exceptions have only been raised because the industry has a greater voice than the consumer, not because there are not issues in the domestic sector. See earlier comments on the importance of flexibility and learning from the industry sector.

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

We believe the FLAG port should be mandated on all meters. It forms today's common communications to any meter. If the HAN is not available, it will be necessary to run diagnostics on the meters contents – the FLAG port is ideal for this purpose. Recent specifications have allowed the port to be excluded, and many digital meters are now being installed without a FLAG port. The effect is that if something goes wrong the meter is immediately replaced. This is an expensive way of fault finding / solving.

The provision of pulses at consumers request should be mandated, but we believe there is justification to make an additional charge for this. Pulses will never give you fiscal data in electricity because the industry does not accept their reliability, so their only use is for energy management. This can be achieved equally by installing a sub-meter independently. The consumer will need to make a decision about the costs, but a sub-meter or pulsing add-on (like the MeterPod™) is likely to be the best option.

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

For optimum effectiveness the DCC should be mandated for the whole industry. However for this to happen the DCC must be in a position to serve the whole industry. Supporting opt-out tracks like "advanced" is one way of ensuring the DCC meets the needs of the whole industry.

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, so long as all services remain on a fair competitive basis.

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?

The problem is access to HH data rather than definition. DNOs should have access to HH data to best help manage the network. Suppliers should not necessarily have access to HH data, unless it is required for settlements (see our response to Elexon's consultation on this), or unless the consumer has allowed them access to give them a better tariff deal. If the DCC covered the

entire market, and provided multiple level access to different parties this problem would go away.

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?

See above. We believe time would be better spent ensuring optimum DCC technology, control and scope than how operation outside the DCC should be regulated.

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

We have made system proposals as part of COTEs that address interoperability, and have written many papers on the subject. We believe supplier and meter vendor inter-operability is key to the proper working of this market, and we should not roll-out until it has been resolved.

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 compare this to the HH market which has been running since 1994. AMR is mandated and the customer pays for this, but many customers still have not seen it. Third parties have entered the market and provide AM&T based on HH data from the supplier. The supplier also provides HH data usually through their own web-site, though usually to try to retain the customer rather than help him save energy. The market works reasonably well, although third parties do find it difficult to get data from the suppliers. This requires additional regulation we believe.

A supplier should not retain a privilege of better access to customer data than the customer himself. If the customer chooses to appoint a 3rd party energy consultant, then that consultant should have maximum access to the data (timing and frequency) and this should not be restricted by the supplier.

How the data is delivered to the customer (whether through supplier means or 3rd parties) must be a commercial decision.

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

See earlier comments on privacy and security.

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?

We believe the more experience we can get for the larger sites roll-out the better. Interoperability and consumer feedback are key to this.

REGULATORY AND COMMERCIAL FRAMEWORK Ref 94h/10

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

Again, these are comprehensive, but we believe it is impossible to regulate today what the energy requirements will be tomorrow. That is why we need to rely as much on market forces against a framework of energy/carbon savings metrics as possible.

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

See above answer.

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

Care must be taken to ensure the specification and its interpretation remains thin, and not dependent on existing supplier exclusive processes.

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

See above on the benefit pie. Governance should be by stakeholders in proportion to what they are paying and how they are benefiting.

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

The WAN should form part of the DCC and its obligations. We would have no problem with suppliers meeting part or all of these obligations, but it should be possible for other parties to do so too. If not you will be in danger of polarising the benefits.

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.

See earlier comment – the HAN and IHD without modification should support new data items as they emerge.

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?

Responsibilities for allocation of duties will lie with the DCC, who should be equipped to address individual cases.

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

We're assuming you mean the "big supplier who has already publicly announced roll-out" (lets call it BSAPAR). Yes test it against the emerging specifications as soon as possible. Can another supplier be appointed whilst maintaining the kit ? Can the meter be replaced by a different vendors meter? Can the display be replaced by another vendors display ? Can a boiler company design a switch-off that responds to its HAN signals ? Does another of the Big 6 have similar plans? If so, is it on the basis of the BSAPAR spec, the industry spec or independent? If Ofgem are going to protect BSAPARs risks, then they must benefit from having a say in what BSAPARss risks are.

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

See all Pilot Systems previous papers on this.

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?

Current HH technical assurance by Elexon using CHIRPS works well. We believe this should be extended.

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

Yes, but we don't know what they are yet. Only by ensuring you have a good competitive metering market will you stay on top of this one.

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?

See our response to Elexon consultation.

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

See our response to Elexon consultation.

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?

If the specifications were not private and exclusive, this would not be a problem.

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

Certainly the whole BMS industry. Linking metering with control will be the key to serious savings.