

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)



IBM Response to Consultation

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Contact Information

This consultation response has been produced by members of IBM's UK and global Smart Metering team. For more information please contact:

1 Introduction

IBM United Kingdom Ltd. is pleased to respond to the SMIP consultation on draft licence conditions and technical specifications for the roll out of gas and electricity smart metering equipment (dated August 2011), although we have limited our response to those questions for which we have a relevant point of view.

IBM has established itself as a global leader in the planning, implementation and operation of Smart Metering technology, successful in over 80 different Smart Metering programmes totalling over 80 million Smart Meters. We hope to bring the benefit of this wide experience from our many clients around the world and the different smart metering technologies that we have deployed to the benefit of the Smart Metering Implementation Programme.

We have played a lead role in many second generation programmes, including (amongst others) Southern California Edison, Oncor, CenterPoint Energy, ASM Brescia, ESB Networks and Oxxio. In the UK, we have been active in shaping the future of Smart Metering, participating in DECC consultations, the definition of the smart metering market model and advising, shaping and defining smart metering programmes for 3 of the “big 6” energy retailers in the UK.

We are pleased to continue with our contribution to the development of Smart Metering in Great Britain, drawing upon our UK and global experience to inform our views in response to the key aspects of this DECC SMIP consultation, including:

- Interoperability;
- SMETS;
- Smart Metering Standards; and
- Aspects of the DCC service.

In summary, our responses to the specific questions posed by the consultation highlight the following key themes:

- The importance of defining and agreeing a set of standards and corresponding governance mechanisms, by the earliest possible date to avoid delays to the overall programme and the risk of increased costs resulting from installation of meters that are subsequently deemed ‘non-standard’;
- This includes specific interpretations of these standards, and governance terms per stakeholder group where they may differ; and further to this
- To ensure that the needs of the customer are central to any dispute mechanisms put in place to handle issues caused by interim interoperability, as well as the needs of industry participants;

2 Responses to Consultation Questions

Q1: The Government is seeking new evidence and views on the impacts of specifying a completion date that is in the earlier part of 2019.

We do not believe that a significant reduction in the deployment schedule is possible without greater certainty over the completion and approval of technical and commercial interoperability standards and finalisation of plans for critical enablers such as the establishment of the DCC and completion of full end to end market testing. In our view, the currently published target date for completion of mass deployment is potentially at risk due to the dependency on outstanding decisions covering areas such as technical standards and industry structure and governance.

Q8: 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.

Metering, and wider technical specifications are clearly an important enabler for the definition of the end to end interim interoperability solution. We believe that the 'reasonable steps' quoted in the condition as stated need to be better defined to allow all parties to work together more effectively. We believe that the interoperability licence condition as currently drafted does not provide sufficient clarity.

Q10: What role could a dispute resolution mechanism have a role in ensuring interoperability? What key features should such a mechanism have?

We believe the ultimate goals of such a mechanism should be to protect the consumer, enable market competition, and protect market players.

In terms of key features, we suggest an extension of the current dispute process, with similar operating rules and procedures to evaluate and manage technical differences, and ensure that customers do not get delayed during a change of supplier. This should include protection around miss-sold products, and / or where they cannot be supported, and instances whereby a supplier fails to live up to service levels offered at change of supplier.

One major feature will be impartiality in terms of who governs dispute resolution. Disputes are currently operated on a practical level by suppliers themselves, governed by a set of clearly defined procedures and principles. As new technologies, processes and tariffs are defined, these principles are likely to be harder to define, and disputes are likely to become more bespoke in nature, requiring a level of mediation. This should encompass:

- Non contractual disputes - supplier to supplier disputes where services are not being provided as per standards / or within agreed parameters of these standards where bespoke services are provided by a supplier.
- Who owns the customer - who is actually serving the customer - how to maintain and track where services are being managed on behalf of another supplier. This is an extension of the existing disputes process.
- Supplier cannot access information to complete registration. In addition to cases where this information cannot be accessed as a result of a physical constraint as per the first point, this would cover instances where this information is deemed to be inaccurate, incomplete or withheld without reason.

Q27: Do you agree that the process outlined above is a suitable way forward to develop the SMETS? Please explain your reasoning.

We believe that the SMETS will require significant additional industry input to ensure that it is detailed enough to allow compliant Smart Metering solutions to be implemented. The following items are examples of some of the major issues that still need to be addressed:

- The end to end security architecture and design (not just requirements) needs to be defined and agreed. This needs to extend beyond Smart Metering equipment, and to include communication, and data service providers. This also needs to include challenges such as key and certificate management;
- The HAN specification needs to be agreed, including the application layer specification that will be used;
- The detailed transport and application layer of the Smart Metering equipment and associated Head End systems needs to be defined and agreed; and
- The detailed specifications for Smart Metering HAN compliant equipment, and the test regime for accessing and certifying such equipment needs to be defined and agreed.

Q30: Do you agree that the Government should include a requirement for a Communications Hub in the SMETS? Please explain your reasoning.

We suggest that the Communication Hub should form part of the Smart Metering equipment, and needs to be specified to a level where all external interfaces are fully defined. We do not believe that this can be done without direct input from potential Communications Hub suppliers, communications providers, and data services providers.

Q32: 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.

We believe that the exact means for determining the outage should be up to the Communications Hub provider, which is expected to be the Communications Providers. The functional requirements that determine under what circumstances an outage is reported need to be specified before procurement for the DCC providers start. This should include the implication this will have on the data provider.

Q33: Do you think that the Communications Hub should also have the functionality to send a communication to the DCC when power is restored? Please explain your reasoning.

Yes we believe this functionality should be included. Additionally, we believe that this should be a configurable option to allow the data provider to disable this feature to prevent such notifications swamping the network.

Q37: 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.

We support any recommendation driving the rapid completion, agreement and approval of relevant standards, as we see this as a key dependency for mass production of Smart Meters and associated assets. We believe that currently published timescales represent the very latest date at which that these standards should be agreed in order to complete mass deployment by end 2019.

Q38: Do you think that regulatory obligations are needed to underpin a systematic approach to testing of HAN standards during the Foundation phase? Please explain your reasoning.

We agree with this approach to testing of HAN standards. We believe that HAN interoperability needs to be tested and certified to ensure that HAN components do indeed communicate with each other, do not interfere with each other, and do not provide security risks. We furthermore recommend that the IFRS developed by The Application Home Initiative (TAHI) should form the basis for such tests.

This testing and certification regime needs to be introduced during the foundation period. Compliant Smart Metering equipment installed during foundation will be taken on by the DCC, and remain in service for a long time.

Q39: 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?

The unique UK market and the DCC approach is dependent on a standard application layer for communication with the DCC for the following reasons:

- The timescale for procurement of the DCC data services provider does not provide enough development lead time for the data provided to integrate the potentially large number of Head End systems that would be required to support non standardised communications;
- There is potentially insufficient time to test a diverse SMS base, all of them with different communication protocols;
- Even if different applications protocols could be accommodated in the timescales, the cost of doing so would be high;
- We believe that DLMS is the best starting point available, and that with extensions, such as those that the SSWG are working on, this promises to be the best solution for the UK; and
- IBM has used the DLMS standard in a number of Smart Metering deployments in Europe. We based our answer on the experience gained from these engagements.

Q40: Do you agree with industry's recommendation that DLMS and Zigbee SEP 1.x should be adopted as the application layer for communications within the consumer premises, provided they install the necessary translation equipment? Do you believe there are any consumer, economic or technical issues with this solution which could be resolved by an alternative approach? Do you have any economic, technical or consumer evidence to assist Government in evaluating industry's proposal?

We believe that the proposed approach is the best option based on the alternatives currently available. Both standards will require extensions to cover the full UK requirements, but present the best starting point for such communication protocols. We are not aware of any standards that are better suited to the UK requirements.

3 Appendix: IBM's Smart Metering Experience

IBM has played a lead role in the majority of the announced second generation Smart Metering programmes globally, which includes amongst others Southern California Edison (California), Oncor (Texas) and CenterPoint Energy (Texas) in the US; ASM Brescia (Italy), ESB Networks (Republic of Ireland) and Oxxio (Netherlands) in Europe. These projects included:

- Smart Metering Systems Integration: Complete end-to-end Smart Meter implementation and programme management, including project planning and justification, management of meter deployment and communication networks, installation of Meter Data Management Systems and integration to utility back-office systems. These projects form the core of our large consulting engagements.
- Centralised Meter Data Services: Planning, developing, connecting and integrating meter data from multiple utilities into an aggregated business model. The Ontario MDM/R and Smart Meter Texas are two examples of this type of service.
- Meter Data Analytics: Applying business analytics to data collected from Smart Meters and other devices to gain insights into site interactions, Smart Meter infrastructure and grid enterprise participants. As the rich data made possible from Smart Meters becomes available, we are increasingly being asked to apply our considerable analytics capabilities to gain more business value from the data.
- Smart Meter Operations: Designing, building, and providing application management and hosting support and services to optimise the support of the Smart Meter infrastructure and related applications. Increasingly, as Smart Metering programmes mature, utilities are looking for ways to increase the efficiency of their operations.
- Metering Innovation: Identification, design, and incorporation of emerging metering capabilities as part of a Smart Grid deployment that needs to integrate with home area networks, electric vehicles, smarter buildings, renewable energy resources, micro-grids and other new grid enterprise participants.

All of this experience is recent, in either ongoing projects or in projects completed within the last two years. As a result of the extensive experience gained we participate in and contribute to a number of organisations around the world that drive policy and industry standards in defining the future of the energy industry, as well as leveraging our global Smart Metering knowledge to inform, expedite and de-risk programmes from a technical and implementation perspective.

In North America, we are the primary systems integrator for seven of the largest Smart Metering programs that are currently underway. This includes all three large utilities in Texas, the two largest investor owned utilities in California, and the lead integrator and operator of the provincial meter data service in Ontario, Canada.

Of particular relevance are ongoing engagements where IBM has managed the implementation and operation of centralised Smart Metering operations, analogous to the proposed central communications model operating within a DCC. In global Smart Metering deployments to date there are few examples of central Smart Metering service provision equivalent to the DCC Market. IBM designed, built and is now managing two such projects:

- In Ontario, IBM was selected to design, build, and manage the provincial IESO Meter Data Management Repository (MDM/R). The MDM/R system is designed to collect and validate hourly interval data from 4.5 million meters every day, then frame this into Time of Use bill determinants for use by over 90 local distributors and competitive Energy Suppliers.

- In Texas, IBM has built a Common Advanced Metering Web Portal and Data Repository that consolidates customer usage and meter data from five different network operators to provide to Energy Suppliers, end consumers, and other authorised parties via a web portal. The system will store four years of 15-minute interval data from 7 million meters, together with monthly billed usage data, and maintain current and historical views of meter attributes, premise and service point information.

A recent report from Pike Research confirmed this dominance; identifying IBM as having a 65% share of the market for Smart Grid deployments in the United States (Pike Research Smart Grid Deployment Tracker Report 4Q10, February 28, 2011).



IBM United Kingdom Limited