SMART METERING IMPLEMENTATION:
REGULATORY AND COMMERCIAL FRAMEWORK
RESPONSES TO:

Ofgem

28 October 2010

OFGEM Smart Metering Implementation Consultation Response and Questions

The following responses are on behalf of Trilliant, Inc. The answers were a collaborative effort with Trilliant's executive management and technical team working on the Centrica deployment.

About Trilliant

Trilliant provides hardware, software, and service solutions that deliver on the smart metering and Smart Grid communication solutions to utilities and their customers worldwide. Trilliant's solutions drive improved energy efficiency, grid reliability, lower operating cost, and integration of renewable energy resources. Since its original founding in 1985, Trilliant has been a leading innovator in the delivery and implementation of energy management systems, including advanced utility wireless data collection for residential and commercial customers, demand response, time-of-use billing, and critical peak pricing initiatives. Trilliant currently has more than 200 utility customers worldwide with over 1.5 million deployed Smart endpoints including Centrica where Trilliant provides the enterprise head-end software system in support of the British Gas Smart Programme.

Regulatory and Commercial Framework (Due 28 October 2010)

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 general, the Smart Metering Regulatory Regime does cover all key elements. However, Trilliant recommends that the Smart Metering Regulatory Regime ensure broad stakeholder participation is included not only in the design and setup of the system, but also in ongoing governance and dispute resolution. Further, there must be effective mechanisms for rapid escalation and resolution of issues. There will likely be decisions made that have unintended operational implications to stakeholders that will require rapid resolution to avoid critical business impacts and breakdowns in market functioning. A cross stakeholder process that can both move quickly and have broad market participation and review will be essential.

CHAPTER 3
Question 2: Do you agree with the proposal to establish a Smart Energy Code?

Yes, Trilliant agrees that this is a critical element to guide both the specification and implementation of the DCC system, and also necessary to form a common understanding across the market participants of the required functionality and performance standards required for effective functioning of the market. These rules will also play a key role in promoting, or stifling innovation and competition in the GB market.

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

Trilliant has the following comments on the indicative table of contents for the Smart Energy Code:

#5 As mentioned above, the modification process should have the capability to move rapidly and efficiency in the event of that elements of the code become incompatible with business continuity due to oversight, security issues, or other unanticipated events.

#15, As somewhat described in #18, the communications code should establish minimum bandwidth, connection and messaging latency, anticipated data volumes, and reliability levels for communication systems.

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

Governance of the Smart Energy Code should include representation by industry participants and OFGEM.

CHAPTER 4

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

In general, Trilliant agrees with the roles and obligations described. It is appropriate that the WAN module be provided by the energy supplier. In addition to the arguments described in Appendix 4 (and not reproduced here), the installation of a WAN hub will most cost effectively be done at the same time as the new meters and IHD. Installation by another party is likely to require a second site visit. Also, the WAN module equally has responsibility for communications with devices inside the home owned by the energy supplier(s) as with the WAN. Troubleshooting and managing this side of the communications will always be the energy suppliers' responsibility. Not leaving this with the energy supplier introduces the need to potentially send 2 different technicians to solve the same problem. Finally, it is correct that a battery powered WAN module for the gas meter is unlikely to be cost effective or provide the level of communications required to meet the overall objectives of the programme, such as upgradable firmware and features, or real time energy consumption information for the IHD.

The WAN communications could be either within the meter casing or a separate box, though a separate box will provide flexibility for who can install and maintain the unit, reduce the number of outages required for repair or replacement, and simplify the integration and testing of new meters and hub configurations.

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.

The specific nature and type of data required for the IHD and HAN will have significant impacts to the design and maintainability of the overall system. It can also trigger potentially significant issues of data compatibility, customer confusion, and loss of confidence in the overall system, and increased call centre costs. It will be critical to define these standards in the Smart Energy Code in close collaboration with the energy suppliers and vendor community to ensure a viable and practical solution that will inspire customer confidence in the system.

Below are our comments on the specific data elements described in section 4.13:

- Presentation of information on current electricity and gas consumption;
    - This is critical and available functionality.

- Presentation of information on historical consumption so consumers can compare current and previous usage;
    - This should be provided for selected, high level periods, such as yesterday, last week, last year. Longer term or more detailed energy comparisons are best made with the benefit of server based web applications that can provide more comprehensive analysis and higher quality presentation, delivered to computers, PDA, Iphone, etc. at the customers option.

- To facilitate consumer understanding, usage information must be displayed in pounds and pence as well as kilowatts and kilowatt hours and the display must include a visual (i.e. non-numerical) presentation that allows consumers to easily distinguish between high and low levels of current consumption. We are seeking views on whether information on carbon emissions should also be included;
    - Translating energy consumption to costs is potentially challenging because it has the potential for introducing inconsistencies between the IHD calculation and the central supplier billing system. Maintaining current and complete compatibility between the two is both expensive and nearly impossible in practice because central billing systems only calculate bills once per month. Often tariff schedules can only be accurately calculated once per month. For example, if a monthly maximum demand is part of the rate, it is only possible to calculate the costs accurately once the maximum demand is known. Inconsistencies are likely to generate increased call volume and costs to energy suppliers, and reduce the customer's confidence in the smart meters, the DCC, their energy supplier, and the regulator. Accordingly, if any costs are to be displayed in the IHD the data should be labeled clearly as indicative for energy benchmarking only, and not to be considered reliable for billing purposes. Accurate previous monthly costs could be provided to the IHD via messaging from the central billing system, but no more frequently than monthly.

- Presentation of accurate account balance information (amount in credit or debit); and

- This can be provided via messaging from the central billing system, or from the meter in a prepay mode

- Capability to display information on both gas and electricity consumption.
  - This is viable in practice, but will have security implications where the energy supply is provided by different companies. In that case, the supplier owning the communications will need to be authorized to process the other meter information, or both parties will need to have access to the device. In the case of real time energy information, the communications hub will need to be authorized to relay all meter data to the IHD, regardless of the ownership of the hub and the meters.

Regarding 4.14:
Accessing historical meter information directly from the meter via the HAN will represent significant security and data standards issues. Each meter contains somewhat differing means of data storage and formatting. It is not currently within the communications hub contemplated scope to provide comprehensive data translation across all meter types within the home; this is likely to be a central data server function. For a consumer to access the data from the meter would require specialized local software that has been configured for their specific devices and firmware versions and introduce more complexity into the communications hub.

Trilliant recommends that energy suppliers be required to provide all historical meter data records to customers via an industry standard data format on the internet via secure user login and password. Energy suppliers should be required to retain this information for a period of time to assure customers have continued access, even if they switch suppliers. Access via on line data request in a standard Microsoft Excel, XML, or other format will vastly simplify both the customers' practical access to the data and eliminate a number of complex security, protocol, and other issues that will ultimately raise costs to suppliers and prove challenging for customers to take advantage of in practice.

Regarding 4.15:
As described above, we agree that the supplier should have an enduring requirement to provide this data, but it should be via a central web access, rather than via the HAN. For example, for confidentiality reasons it may be necessary to erase the contents of the meter during the process of changing energy suppliers. This would make it impractical to comply with this goal via the HAN.

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? 47 Regulatory and Commercial Framework 27 July 2010 Appendices

Trilliant agrees that the maintenance should be the responsibility of the energy supplier. Such responsibility should stay with the originally installer of the equipment unless the energy suppliers specifically agree otherwise as described in Option 2.

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?

Trilliant agrees that the proposed standards and methods are practical to assure fair treatment of all parties and encourage appropriate treatment of prior investments.

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

To achieve commercial interoperability, several elements are required:

1. Technical interoperability. There must be data standards, physical interfaces, security, and communications protocols, that allow practical interoperability of the devices and WAN. Utilizing multiple head ends for the different networks can also make this more practical, or utilization of a head end that is capable of supporting multiple meters and networks can also significantly address this challenge.

2. Functional interoperability: There must be a common and useful set of functionality that can perform equally across multiple energy suppliers. This is as much a requirement on the suppliers back office systems as on the WAN or meters. The Smart Energy Code should establish this common minimum of functionality that is consistent across all suppliers and smart meter systems
3. Practical asset exchange. It must be practical for suppliers to exchange assets without compromising their own security, data confidentiality, and without the requirement for a costly site visit. Defining both standards and work processes for these exchanges will be critical.

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?

Trilliant has no specific comments on this section but believes that the approach discussed is workable.

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

Trilliant believes the items discussed in Question 9 above on the practical exchange of assets and commercial interoperability through common functional approaches is essential to providing basic energy services.

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?

From a data collection and billing perspective, Trilliant believes that the technology available and proposed market structure will support the introduction of innovative time of use tariffs with certain exceptions with respect to data availability and display on the IHD:

- Because TOU tariffs have differing definitions from a data perspective (unlike monthly usage or interval data), it is technically impractical to program IHD's to display arbitrary TOU schedules or cost data, and it is also impractical to have a single data description for such data that would be useful for ordinary customers. As a result, the requirements for data display on IHD's and customer data access via the HAN should be waived for all but a single industry standard TOU rate structure, and managing these complexities should be left to the responsibility and discretion of the energy supplier. Retaining these requirements for all TOU tariffs will significantly impede the development of new tariffs due to the cost and complexity of the systems changes and new firmware programming required to support them.

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

Trilliant has no comments on this section.

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?

Trilliant agrees that interfaces to these systems will be required, but this does not require the DCC to take on the meter registration responsibility, only the development of a data interface.

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 provision for inclusion of communications devices that are separate from meters into the MAP asset base will require alterations to certain industry data flows, and also means that potentially there will be a mix of ownership of

devices that need to interrelate in the home, creating new issues around troubleshooting and maintaining the system. While not insurmountable, Trilliant recommends these issues be considered and addressed as part of the overall framework.

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