



Energy Billing and Metering Consultation - Changing Consumer Behaviour

Joint Energy Services and Technology Association (ESTA) and Energy Institute (EI) response to DBERR consultation - October 2007

Introduction

The Energy Services and Technology Association (ESTA) and the Energy Institute (EI) welcome the opportunity to comment on the changes proposed within this consultation. These organisations generally support the aims of the carbon reduction measures and policies set out in the consultation.

The response below is collected from the views of individual members and from delegates at a combined ESTA / EI meeting held on 19 October 2007. The large array of questions posed within the consultation document made it impossible to specifically respond to them in the context of an open debate. We have therefore framed the event, and our response below, along some overriding headings which we hope BERR will find helpful. It also raises points for further consideration and possible inclusion into policy.

ESTA

ESTA is the leading industry body supporting energy management and has 115 members providing products, systems and services for energy use reductions. Members are primarily energy technology and service companies offering solutions to the commercial and industrial, including SME, segment of the utilities market.

Energy Institute

The Energy Institute (EI) is the leading professional body and learned society dedicated to supporting the advancement of the science of energy and fuels. It has a membership of over 13,500 individuals and 300 organisations and provides an independent focal point for the energy community, bringing together industry, NGOs and academia with governments to develop and facilitate the dissemination of energy-related knowledge. The EI's purpose is to promote the safe, environmentally responsible and efficient supply and use of energy in all its forms and applications. In fulfilling its purpose the EI can address a wide range of topics in detail, from upstream and downstream hydrocarbons and other primary fuels and renewables, through power generation, transmission and distribution to sustainable development, demand side management and energy efficiency.

Summary

ESTA and the EI broadly welcome the proposals and would recommend that this initiative is strongly embedded into national metering policy. Whilst rightly considering the issues and costs for energy suppliers, metering companies and consumers, the Government also needs to ensure that the UK infrastructure is competitive internationally.

The consensus views expressed by ESTA and EI members are summarised below and formulated into an 11-point recommendation plan for driving the policy forward:

1. Users should be given the rights to data provision and a timetable suitable for energy management, with a proposed schedule of a day+1 for non-domestic markets. Balancing and Settlement code needs to be reviewed to give more emphasis and rights to consumers.
2. 'Smart' meters offer a range of functionality settings to adapt to specific requirements – a single 'smart' meter should not be seen as the complete solution. Managing energy is a process supported by smart metering, but the meter must provide appropriate data, and communications to support the management process and development of management services.
3. Displays must be linked to real meters to ensure accurate reading that show actual energy consumption. Clip-on devices are inappropriate as they are unable to read phase and voltage and can only therefore provide an estimate of power.
4. Billing: net-bound energy suppliers should be required to produce bills strictly based on *actual* meter readings. The recommended frequency is: every month for non-domestic market; quarterly for the domestic market.
5. Local displays for non-domestic use are not appropriate but the infrastructure put in place must provide data relevant to users.
6. The issue of stranded assets in the business market must be considered urgently alongside the current discussions on domestic inter-operability. A convergence of standards would be likely with the use of open systems.
7. New procedures need to be able to recognise smart meter installations remotely from through the provision of appropriate data or information.
8. New economic analysis of smart meters and associated processes must cover as many benefits from energy suppliers and users as is technically possible.
9. The gas metering market needs to be reviewed to provide the best possible offer to consumers through increased competition among suppliers.
10. Water meters should be included in a long term plan, giving significant opportunities for reducing water wastage and integrating data collection regimes with gas and electricity.
11. Oil metering should also be included for example for households without gas supply.

Detailed response

Considering the volume of questions posed within the consultation document, ESTA and EI have addressed the issues under the following headings:

1. Smart meter definition
2. Access to information
3. Real time displays
4. Billing
5. Operating Standards
6. Business processes
7. Inter-operability for the business sector
8. Economics

9. Gas
10. Water
11. Energy savings/education
12. Carbon savings
13. Micro-generation
14. Response to specific questions

1. Smart meter definition

There seems to be confusion around the definition of smart meters and real time displays, and a concern that smart meters are driven by the technical need for information, as opposed to what the consumers actually need/want. There is also an assumption that the functionality needs to exist within the meter – which is not applicable in the Industrial and Commercial (I&C) and SME market, and possibly also in the domestic sector. Meter data and communications requirements need to be clearly defined.

For the non-domestic sector, smart meters are only part of the solution and the approach needs to enable provision of timely data to energy managers. This means reviewing the Balancing and Settlement Code in order to give users rights to data for their sites and for the information to be provided in a timeframe suitable for energy management e.g. day+1. (see section 2. Access to information)

There are different drivers between the domestic and the business sector. Work to date has focused on a domestic solution, with a large bias to prepayment, and not applicable to I&C/SME. However, meter local communications should be freely available to user on a common agreed protocol, allowing local access of data as opposed to only through the supplier. Business users would benefit from knowing power factor measurement. This would encourage manufacturers of equipment to be more efficient.

The Measuring Instruments Director (MID) covers gas, water and electricity. It may be a barrier to smart meters.

2. Access to Information

It is felt that users need to have more rights to receive metering data for both electricity and gas in a timetable that enables good energy management. The current regime under the Balancing and Settlement code puts the authority and power over data to the energy suppliers. As a result, even relatively large users find it difficult to get appropriate data from their supplier. Changing these priorities would transform the energy management processes and give users opportunities to save significant energy, cost and carbon.

For example, the areas where lack of accurate information is greatest in the business sector are:

- the availability of a pulse output port from I&C gas meters or ancillary equipment. Many gas meters cannot provide a pulse and would require replacement, which the meter owner might not agree to. Trials of optical devices have so far been unreliable and would require permissions from the meter owner to be added.
- ownership of the meter (Meter Asset Manager – MAM) and authority to carry out Meter Pulse Utilisation (MPU) work due to the complex nature of the contractual relationship between the supplier, MPU installer and the metering asset owner (who could be the MAM or the distribution network or both);
- the utility company/supplier owns the meter and therefore owns the data. Suppliers cannot always provide the data requested by customers.

3. Real time displays

From a domestic user perspective, the display of information would appear to be the main aspect, but for the I&C/SME market, it is essentially about the use of the data. Once displays are understood not to be the final solution then the metering needs of the domestic sector become more similar to other sectors i.e. accurate, timely data etc. Some of the benefits of SME type energy management could be transferable to the domestic sector.

The development of two sets of legislation driving the same end goal but independently of each other might therefore not be necessary.

With the exception of very small users local real time displays have little or no value to business users. The definition of smart meters should be split between Local Displays and Larger Systems (i.e. small business, large business). Larger businesses do need displays but this is best provided via the data collection/internet infrastructure. The proposals should ensure that these 'displays' are made available to users.

Clip-on current transformers for domestic display units are unreliable in providing accurate readings and risk users challenging the bill. The consensus is therefore that the display should only be used with a full metering system. In the business sector, displays at the meter are not relevant but to comply with the directive, the relevant data must be presented to users on a timely and accurate basis. An alternative to a dedicated display, especially in the domestic sector, is to deliver information via other technologies such as the internet or on a TV.

Concerns over real time displays include:

- maintenance (eg. who will change the batteries when they run out?);
- the accuracy of real time displays when based on clip-on devices;
- the safety of the installation (if carried out by unqualified people);
- the fact that they do not address the need to provide automated energy management and Demand Side Management.

4. Billing

It is recommended that within five years, net-bound energy suppliers should be required to produce bills only based on actual readings (on a monthly basis for the non-domestic market - profile class 5 and above - and quarterly for domestic and very small businesses). This requirement would transform the economics of data collection and rapidly encourage the implementation of smart metering. Monthly mandatory billing is currently being ruled out for the domestic sector, but this is felt to be a strong driver for smart meter roll out.

There needs to be a minimum amount of information supplied on the bills. Billing currently varies in terms of information and although a BSI standard for billing exists, only two utility companies are using it. Standards should be recognised and their use promoted among suppliers. Where a smart meter is fitted, it is recommended that a monthly billing of actual reads should be the minimum expected standard.

5. Operating standards

The consensus view is that the lack of operating standards in the change of supplier process combined with the asset stranding risk is limiting third party investment in smart metering technology in the UK I&C/SME market. There needs to be a mechanism for recognising

smart meters. The proposal is for open standards in non-domestic sector to overcome the issue of stranded assets.

6. Business Processes

Business processes will need to be updated and streamlined to account for the new regime for smart meters. Without changes to industry data flows, energy suppliers and service providers will not automatically know:

- whether a meter is a smart meter;
- the identity of the asset owner for the installed smart meter;
- what type of smart metering equipment is installed and whether it is supported;
- which data protocol is used to communicate data and what communications the meter can support;
- what happens when there is a change in suppliers. Suppliers are currently obliged to change batteries and carry out maintenance.

7. Inter-operability

The Ofgem/Energy Retail Association committee is currently considering inter-operability as applied to domestic use, ie profile class 4 and below and gas usage of less than 73,200 kWh pa. The requirements for sites above this usage needs to be urgently considered as well and should not simply 'roll out' from any domestic solution. Inter-operability for business will be difficult to define and restrictive, but the use of open systems is recommended, i.e. meter suppliers must make the interface and protocol freely available so that any data collector can implement collection systems. This would stimulate and encourage further innovation and development of techniques as well as the market.

A number of incompatible operating protocols are now emerging from different I&C smart meter providers. A set of industry-standard smart metering operating protocols is required to allow a minimum level of inter-operability; for example, would a simple table of "meter asset transfer" values (dependent on meter type and age) allow the competitive meter market to accept changes of customers, who have automatic meter reading (AMR) units already installed, without the need to change the meter?

8. Economics

The analysis referred to in the consultation document, which suggests that domestic AMRs via smart meters are not economic, only looks at the benefits and costs for energy suppliers. A more comprehensive UK plc assessment looking at the savings for users is needed.

The consultation does not provide a strong economic case for a supplier-led roll-out of smart metering to the smaller business. Greater transparency about the true cost of meters and services would be required from market players, particularly existing providers. Will the suppliers be allowed to pass on the cost of smart meters to the end consumer and if so under what control?

9. Gas

The basis of gas metering needs to be reviewed to provide a greater level of competitiveness to benefit consumers, both in the domestic and I&C/SME sectors.

Current barriers have been identified as follows:

- the Meter Pulse Utilisation (MPU) processes and framework agreements are complex and lack real clarity;
- large numbers of gas meters do not have a pulse output and will need to be changed;
- the MPU process is costly and time-consuming;
- each installer will have to follow a separate MPU process for each meter asset manager (MAM);
- there are potential delays introduced in installation of smart gas meters due to limitation on who can complete MPU work;
- it is not necessarily desirable or practical to integrate the AMR function in large gas meters.
- There is a question over the funding of the exchange of assets for the roll out of smart technology for gas meters.
- legislation may become a barrier for the SME market
- There is a general need to open up the market.

10. Water

Although not a requirement in the Energy Services Directive, water consumption and wastage is a stated major priority for the Government. Achieving reductions in wastage requires regular and timely meter data. Combining gas, electricity and water into a single communication channel is an economic and sensible approach for many SMEs. The technology exists and is being used now.

Smart metering presents an opportunity to also provide data on water usage – this is relevant to the consultation's aim to reduce CO2 emissions as water purification and distribution requires energy and contributes to the use of carbon fuels.

Water meters are read every six months and feature graphic data over last three readings, which enables users to spot water problem straight away. In many countries, water metering is mandatory.

It would be appropriate for water companies to be given the ability to add water meters to all customers.

11. Energy savings/Education

There is overall consensus that smart meters should be a tool to save energy and should lead to reduction in energy consumption by providing clear data that can easily be interpreted and acted upon by consumers.

However, there is a need to engage and educate end users and inspire greater confidence in the new technology. Many people do not know how to make full use of the meters and how to interpret the data. More information and transparency on the different types of meters available is required as well as systems to help consumers interpret the data correctly and take appropriate action.

The management process of automatic Monitoring and Targeting (aM&T) has been shown to be cost effective in providing data. The metering regime must cater for small, medium and large users in ensuring that all benefit from receiving interval data (usually 30 minutes) in a timeframe that allows energy management (eg. day+1). The current market, particularly gas, does not willingly provide these services and most businesses do not benefit from good metered data – this is the motivation behind the ES Directive.

Smart metering for the majority of business customers will provide a viable and cost-effective alternative to the monthly manual meter reading.

"Should the smallest businesses be covered under the terms of a domestic smart meter roll out?"

Yes however, real time display technology has limited value for all but the smallest user.

Unless they can be linked with the fiscal meter, the wide spread use of these devices will detract from mass rollout of 'true' AMR technology. Smart metering, but not necessarily real time display technology, should be rolled out to all but the smallest businesses.

"Does asset stranding represent a significant commercial problem in the larger business market to which the Government proposes that smart meter be provided?"

The lack of adequate inter-operability standards for smart meters in the business sector represents a significant risk to the development of a smart metering market in the UK.

The commercial impact is that the lack of inter-operability arrangements is restricting investment in the smart metering market. It is common for smart metering providers to require suppliers to enter into long-term (typically five years) commercial arrangements for the installation and provision of the technology. This can only be resolved if the customer has the option to provide the meter himself. Business processes exist for this (independent meter operator) but the costs are not transparent or marginal. If a customer pays an independent meter operator, he should enjoy a realistic discount from the supplier. Use of (for example) a self-installed smart-modem would avoid these costs and allow the customer access to data without dependence on the incumbent supplier.

End consumers are reluctant to tie into their energy supplier outside the term of their supply contract. Without adequate inter-operability arrangements there is a 'churn risk' to the capital investment.

"Are inter-operability arrangements necessary to underpin the roll out of smart meters to this sector?"

A number of different standards have already emerged and these can be costly and difficult to support. A lack of common inter-operability may lead to multiple smart metering systems being fitted to a customer's meter.

However, any move to standards must not limit innovation or cause delays. Inter-operability can be achieved at a system level and by keeping the base product as simple as possible.

Clear defined processes are required to support change of supplier and introduction of new products and services. Any equipment supplier to the Business user must make their protocol open to all market participants.

Conclusion

The consultation document focuses on domestic consumers. The over arching risk is the measures within the consultation will lead to suppliers to provide technology that does not best meet business consumer requirements.

ESTA and EI support the mandatory roll out of smart meters to all business users. On the basis that 50% electricity outside half-hourly is consumed within the I&C and SME sectors, ESTA recommend separate treatment for these customers.

Smart metering should also facilitate the implementation of the certification and building labelling and influence energy efficient design of new buildings.

12. Carbon savings

The ESTA and the EI should liaise with the Carbon Trust to develop labelling to establish the carbon footprint of smart meters themselves.

A holistic approach to setting the carbon footprint of organisations could be through smart metering to also include water and oil.

13. Micro-generation

Smart metering provides an opportunity to restructure systems to allow for on-site generation on a domestic scale for thousands of consumers. The smart metering strategy needs to align with the micro-generation strategy.

An appropriate Time of Day (TOD) pricing structure for micro-generation could encourage the uptake of technologies that compliment the electrical systems and mitigate the issues of over-voltage/spilling of microCHP generators.

14. Response to Specific questions

"Is five years an appropriate period in which to roll out smart meters in the business sector?"

A five-year time scale for the supplier-led roll out of smart metering in the business sector is achievable provided that there is agreement on key issues of protocols and inter-operability. The industry regulator should take on a facilitating role in the implementation and development of smart metering for the I&C/SME segment of the UK energy market.

ESTA would be pleased to offer advice and input from our members to support the rapid roll out and acceptance of smart meters in the I&C/SME market segment.

"Energy suppliers to extend smart metering to all but the smallest business users within the next five years"

Smart metering can be economic for very small business if all of the benefits are taken into account

The consultation proposes statutory changes that will, in the next five years, require suppliers to provide smart metering to all gas and electricity customers with an annual gas consumption of greater than 73,200 kWh and electricity usage within a meter profile class of 5, 6, 7 or 8. This measure will bring benefits in reducing carbon emissions and supply-related costs but there are concerns when applying the proposal to gas consumers.

"What are your views on the segment of the market that we propose will be subject to these requirements?"

There is support for the objective of providing smart meters to I&C/SME customers. The benefit of receiving accurate meter reading on the last day of each month will all but eliminate estimated bills and reduce cost and inaccuracy.

It should be noted that there is currently no supplier trade association for non-domestic customers, the Energy Retail Association (ERA) covers only the domestic sector. The formation of a separate body to cover supply to business customers would appear desirable. This will improve accountability with both suppliers and customers in that sector.

Government should mandate where a smart meter is fitted billing should be an actual read delivered monthly.

The most appropriate smart metering technology for business customers is as yet undetermined. However, there is a need to fit smart metering now. To allow roll out and remove the issue of inter-operability, all providers of such equipment should be obliged to make their protocols open.

There are major issues relating to the business gas user. Barriers and unreasonable cost to accessing a suitable pulse must be removed.

Technology exists to deliver considerable cost-savings and carbon reduction by linking multiple utilities, particularly when extended to include sub meters and data from other parties.

