

**RESPONSE TO OFGEM CONSULTATION ON DOMESTIC METERING
INNOVATION (REF 20/06)
14 March 06**

In this response we have sought to answer the specific questions posed in Ofgem's paper on Domestic Metering Innovation, but have also offered some opinions on the wider considerations of smarter metering. This paper explains why there is currently no compelling business case for a supplier to act unilaterally to offer a smarter metering option to all its domestic customers. Nevertheless, we do discuss the market framework that would need to exist for suppliers to develop technological solutions.

This document is annexed by a more detailed assessment of the features of a common framework that we believe is required to facilitate smarter metering. This is still work in progress and we would welcome Ofgem's future engagement.

The Energy Retail Association (ERA) has established a group of key supplier representatives to develop detailed proposals and the ERA has been informed by the group in preparing this response.

EXECUTIVE SUMMARY

The ERA believes that smart metering will happen and in principle its members support the case for smarter technology. The introduction of smart metering would require a significant change to the existing metering infrastructure and substantial investment to support sustainability. The potential to allow energy to be imported and exported to the grid is not properly catered for by existing metering arrangements particularly if this becomes more widespread as expected. The advances in smart metering have improved functionality and, primarily by innovation in mobile telephony technology, the cost of data collection has been reduced. This is evident in the energy sector in the half hourly metering market.

The ERA expert group has identified the need for industry agreements and standards of interoperability to ensure that assets and services are sustainable. The nature of competition will require this to be constantly monitored as industry processes are likely to evolve and adapt as consumers become more responsive to the opportunities that smarter metering presents. This may require additional refinements to the regulatory regime that is currently in place. For example, solutions to prepayment metering for gas or dual fuel have not been developed, but this may be addressed in the future. In any developments it is important for the supplier hub principle to be maintained.

The benefits of smart metering to suppliers are explored in this paper and include the ability to improve a range of customer services and data integrity. The benefits to consumers depend on customer responses and willingness to embrace the opportunities that are available. Nevertheless, all stakeholders should help to realise the potential of smarter metering, especially regarding energy use and conservation. Suppliers provide support for vulnerable customers, in association with the relevant agencies, and this should be explored further in conjunction with suppliers' social action policies.

The 6 major suppliers under the guidance of ERA are working together to agree a viable commercial framework to encourage investment in smart metering. This will involve a commitment to continue to use the meters following a change of supplier on commercial terms that are fair to both parties. To qualify meters will need to provide agreed minimum levels of “smart” functionality which are currently being defined. There will also be agreement around common data protocols to enable information to be exchanged between suppliers and their agents.

Suppliers will be developing a work plan to help progress key issues such as industry interoperability, standardisation and commercial frameworks that will take note of Ofgem’s forthcoming guidance paper. For its part Ofgem should explore the options for reviewing regulatory restrictions and it should also work with other Government departments to develop financial incentives to aid the introduction of smart metering technology.

Chapter 2

Question 1: Do the innovative metering options outlined in this chapter adequately capture the technologies available and the benefits they can bring?

Question 2: Does international experience of installing and using smarter metering provide any lessons for Great Britain?

The ERA has identified options for the operating model which could apply if the circumstances were created to introduce smarter metering. It is clear that international comparisons cannot provide any conclusive indicators for smart metering in Great Britain. The examples given in Ofgem’s paper are specific to the circumstances prevailing in other countries, which do not reflect the unique features of the British energy market. This is because they are predominantly designed to address problems related to fraud, theft and to smooth load profiles. There is also minimal guidance from other international implementations to assist us in the unique issues presented by the gas industry.

Operating models

The following models reflect Ofgem’s consultation paper and are not in any order of industry preference.

1. Industry based solution

The industry would deliver an operational structure that was dependent on standards and agreements to which all sectors adhered. This would need to include agreement on stranded assets between suppliers and other parties, such as meter providers and operators.

2. Industry based solution with additional long-term metering contracts

Suppliers would need to identify and agree those functions of the meter that would be common to all. Suppliers concerns about investing in what may become stranded assets will be alleviated by putting in place appropriate structures to cover the ongoing use of metering assets.

3. Fully regulated option without competition

Owner of smart meters would revert to the distributors and competition in metering would be unravelled.

4. Fully regulated option with metering competition

The market could revert to its former structure in which smarter metering is the responsibility of distributors. However, the distributor would only own the basic functioning meter. Suppliers would retain ownership of additional smart functions that could be added on to the basic meter package and would compete on these offers. This may incur additional cost to account for non-integrated solutions and the associated multiple site visits to install any additional equipment.

5. Mandatory framework within a competitive environment

The half hourly metering principle would be applied to current non-half hourly domestic metering. This would require a new framework to be developed for process, function and performance of metering.

6. Devolve to Third party

In this model a third party would be appointed to provide, manage and control a single metering infrastructure that operated nationally (or regionally). The model would provide a solution to the problem of harmonising gas and electricity processes, which simplifies the consumer experience.

At this stage suppliers have yet to agree a preferred option (or hybrid of these options). Other operating models have been identified by individual suppliers and the viability of these will be considered by the ERA expert group.

CHAPTER: Three

Question 1: What, if any, issues need to be addressed in the current regulatory framework, if we are to ensure that the market promotes innovation in domestic metering?

We have set out below the areas for consideration. For clarity these are set out in three broad categories: standards; core functionality and add-on services; decisions.

Standards

In order for smarter metering to operate effectively certain protocols would need to be agreed and standards achieved. The highly technical nature of the industry means that certain standards would continue to apply but may need to be adjusted to accommodate smarter metering. Currently the forthcoming MID Directive and existing Code of Practices dictate the metrology of metering. Standards would need to be established to maintain the required level of performance of meters and the new functionality. Equally, safety standards would have to be maintained.

One of the most complicated standards to achieve will be that required to address remote metering communications, particularly to enable cost effective solutions and to provide future flexibility. In order for the smart meter to “talk” to the supplier and/or to the consumer it will require a communications medium. This is likely to be Power Line Carrier (PLC), GPRS, broadband or wireless. Consumers will need to be able to connect to an infrastructure that is compatible with all forms of smarter metering.

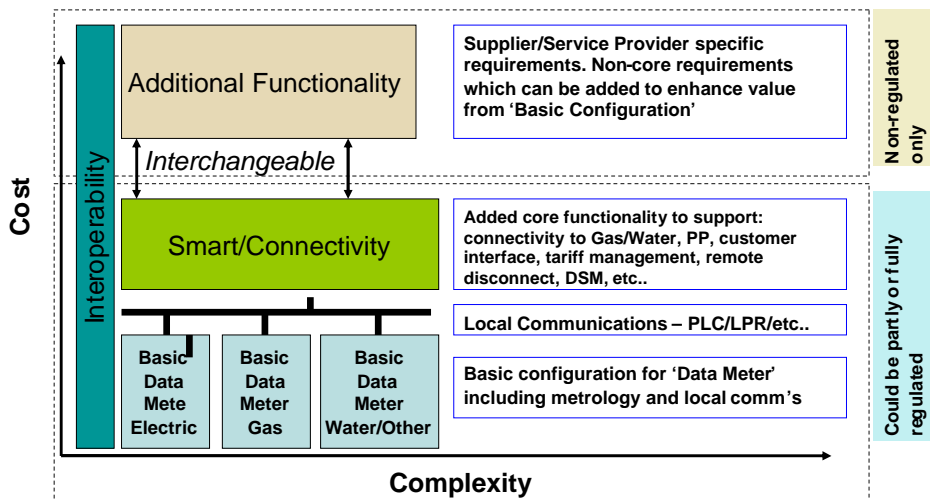
The infrastructure must also allow the consumer to interface with the meter e.g. read outs on a home computer. Such technology would empower consumers and enable them to increase their control of household energy usage and thereby their energy accounts. Moreover there is potential to improve further the processes of the Customer Transfer Programme with regard to opening and closing reads.

However, without standardisation and interoperability designed to meet the needs of a smart metering infrastructure the introduction cannot be progressed. The annex to this paper provides a detailed analysis of the framework structure that would be required.

Core functionality and add-on services

In order to achieve interoperability suppliers would need to agree which functions of a meter should be a universal asset and which should be available at the discretion of the supplier as part of a competitive offer. This is summarised in diagram 1.

Diagram 1: Core Functionality



There are three levels to smarter metering functionality. The first is the basic meter configuration, including metrology and local communications facility. This is common to all existing meters.

A second level of functions is provided by smart metering and connectivity to other services. For example, this function could allow the meter to support other utilities such as water. It may allow flexibility in configuring payment options such as switching between prepayment and credit. It could also provide more detailed consumption information and control.

The highest level of functionality is a range of optional services that can be supported by all meters, but may not be offered by all suppliers. This would be a differentiating feature that allowed consumers to choose their supplier or service provider. For

example, a supplier may offer meters that could import and export energy linked to micro generation products. Additionally, a supplier may market a consumer interface product that indicates the consumption levels of each household appliance. Consumers would choose services according to their requirements and contract with their chosen supplier/service provider. The ERA will be developing a definition of core functions which may, for example, include import/export as basic rather than additional.

Decisions

The options presented thus far cannot be developed without some critical decisions. In the remaining sections of this paper we will discuss what these decisions entail and where the division of responsibility lies.

1. Article 13

The Energy Services and End Users Directive may prove to be a driver for Government action on the smarter metering issue. There is a lack of clarity around whether smarter metering must be installed in only new or refurbished premises or when meters are exchanged or via a more aggressive policy. Suppliers will look to develop the appropriate guidance with the Department for the Environment, Food and Rural Affairs.

2. Operating model

Ofgem proposes some options for an operating model and this paper offers a response to those that may be adapted in their entirety or as a hybrid. Whilst ERA members may individually have preferred options we would seek to work with Ofgem to identify solutions.

3. Industry rules

Once again Ofgem is the arbiter of industry rules such as BSCP and SPAA. The industry needs certainty, which we will work with Ofgem to achieve.

4. Energy Efficiency Commitment (EEC)

There is an opportunity to increase the scope of EEC through smart metering. This could potentially inspire innovative solutions and stimulate consumer demand for energy saving products.

5. Agreement on core functionality

As discussed earlier in this paper, agreement on basic and additional functionality is essential to developing an operational model. Suppliers will co-operate through the ERA to identify common standards and protocols. Once these have been agreed ERA and Ofgem would need to collectively discuss the proposals with other stakeholders.

6. Industry agreements with meter providers

Commercial agreements are critical to the success of smarter metering in the British market. Through the ERA forum suppliers would need to identify areas where common standards would apply. These would need to be agreed with MAPs and MAMs to ensure universal application for all consumers.

CHAPTER: Four

Question 1: Do you think that Ofgem's estimates of costs and benefits are reasonable?

Question 2: Do you agree with the assumptions that underpin them?

Question 3: Are customers prepared to pay more for more innovative meters that enable them to better manage their energy use and allow for better customer service?

Question 4: Do you have any evidence of likely supplier and/or customer response?

The ERA members do not believe that a business case currently exists for a single stakeholder to introduce smarter metering for all its domestic customers. However, this should not be a reason for slowing progress towards smarter metering policy. As part of its further deliberations on the supply licence review Ofgem should consider whether, for example, the two year meter inspection is a potential barrier to developing a business case.

Standardised communications and infrastructure

As demonstrated by diagram 1. interoperability is the key to addressing the problem of future metering stranded assets. The ERA advocates standardised communication platforms and basic meter functions. Suppliers are currently investigating the potential for standardisation. However, we have not yet identified the appropriate communications platform. The options include PLC, GPRS, GSM, broadband and other wireless technologies.

Achieving economies of scale

There is a strong argument for driving down the cost of meters to consumers through economies of scale. Where suppliers wish to maintain the right to choose their meter manufacturer, economies of scale may be more effectively achieved through common infrastructure and communication platforms. However, it is important that competition in manufacturing prevails and suppliers are not dependent on one manufacturer.

Scale and length of roll-out

There is no agreement by suppliers on the timescales and the manner of any national roll-out. There are advantages and disadvantages to a wholesale refurbishment programme or a managed implementation as part of a repair and replacement programme. The ERA will seek to consider with Ofgem whether a hybrid of both options is feasible.

Added value services

Suppliers would expect to compete by offering additional functionality to consumers. These would be services over and above the basic meter that could be either added on through additional technology or included in the basic meter with a capacity to activate them as part of a retail offer.

Existing capital in conventional meters

Recently installed meters would have a long service life. Parties would potentially lose a significant investment in conventional meters if they were removed by dictate prior to their normal operational term.

Distribution and suppliers co-operation

It is not clear at this stage whether commercial agreements could be reached with distributors to achieve the flexibility that suppliers would require. Smart metering services would be dependent on co-operation between suppliers and local network operators. For example, agreement needs to be reached to allow the import and export of energy between individual properties and their networks. DNO's would need to agree a charging regime with suppliers that may be passed on to the consumer. The ERA will include the Energy Networks Association in its deliberations on this matter, for example a national PLC Agreement.

EEC accreditation

There is no existing financial incentive for suppliers. EEC could be a driver for smart metering innovation provided this led to a reduction in energy consumption. Suppliers could be awarded EEC accreditation for offering smarter metering services that reduce consumption. However, as smarter metering is frontloaded by the investment required from suppliers the Government may need to consider installation as an eligible EEC measure to incentivise roll-out.

Mandatory/Non-mandatory metering

In the event that Ofgem decides to mandate smarter metering under EEC or the Energy Services Directive, the Government would need to compensate against any shortfall resulting from the deadweight of existing meters and the integration of new systems.

CHAPTER: Five

Question 1: In the light of the evidence presented in this paper, which of the six policy directions outlined in this paper is the most appropriate for Ofgem to pursue? Are there any additional options that need to be considered?

Question 2: Are there any barriers preventing the existing arrangements delivering more innovative metering? How could they be overcome?

Question 3: Could a large-scale trial significantly improve the evidence of the benefits of smarter metering?

At this stage the ERA is not able to indicate a preferred policy option or offer a position on the need for further trials. The work of the ERA expert group has focused on identifying the most appropriate enablers and the most significant barriers to further policy development.

The ERA expert group has identified the primary enablers for smarter metering roll-out as:

- Industry co-operation to create smarter metering infrastructure
- Agreement on and availability of solutions
- Avoidance of stranded smarter metering assets
- Customers adopting smarter metering related products inter alia, including energy efficiency products
- Infrastructure to develop social initiatives through engagement with relevant third party organisations

In addition the ERA would wish to work with key industry stakeholders to assign specific responsibilities to facilitate the progress of smarter metering. These would include Government, Ofgem and energywatch. Ofgem would set the appropriate regulatory framework and establish suppliers' obligation to consumers. Defra and the DTI would develop policy instruments that facilitated smarter metering, including energy efficiency policy through the Climate Change Programme and the Energy Review. Energywatch could assist suppliers in generating consumer demand and educating consumers on how to make the best use of smarter metering. The ERA would develop industry protocols and co-ordinate supplier engagement with other stakeholders. The Energy Networks Association and ERA would be required to establish a similar forum for distribution network operators to agree protocols. The technical framework for Settlement and interaction with the wholesale market would be determined via Elexon, Xoserve and Gemserv. There are likely to be other stakeholders that enable other elements of smarter metering operations, such as officials in the European Commission and communications service providers.

The ERA expert group has identified the following barriers to further innovation:

Energy Services and End Users Directive, Article 13

Article 13 does not make it clear whether smarter metering is a specific requirement for compliance in Britain. Britain is unique in having a liberalised gas market and its competitive electricity market is far more advanced than in other EU member states. This is fundamental to the timescale and extent of future smarter metering initiatives. The ERA, would work with the Department for the Environment, Food and Rural Affairs to develop guidance.

Warm Front, Warm Deal, HEES

The ERA has concerns about future plans for the Government's energy efficiency initiatives, such as Warm Front, Warm Deal (Scotland) and the Housing Energy Efficiency Scheme (Wales). The future of these schemes may be dependent on the Climate Change Review and the Energy Review. It is important that the policy objectives are consistent with those of other instruments adopted for delivering energy efficiency. We would not wish to see them being used as a lever for the introduction of smarter metering before any genuine benefits of smarter meters have been established.

Interval Metering

Half-hourly metering has operated successfully in the industrial and commercial markets since the market was opened to competition. However, the reasons for not applying the same process to domestic customers still stand. There is no evidence that half hourly metering would benefit domestic consumers. It is unlikely that suppliers will provide bills more frequently because of the cost implications and changes in consumer behaviour to reduce their energy usage cannot be presumed.

Customer ownership of assets

It may be proposed that customers should have the option to purchase their own smarter metering equipment in order to overcome the 28 day rule restrictions. In this case there would be a need to ensure standards of safety and reliability of such assets and to develop an efficient and regularised operational model.

Viability of business case

The need for standardisation and commercial agreement on the functionality of smarter metering means that there is no business case for a single supplier to take the initiative ahead of its competitors for all its customer segments.

Timing

Suppliers have yet to reach agreement on the timescale for rolling out smarter metering technology. Therefore at this time the ERA cannot offer an industry view. However, the ERA recognises that decisions need to be taken ahead of the review of the Energy Efficiency Commitment and the deadline set for EU member states to implement the Energy Services and End Users Directive.

Treatment of existing assets

Suppliers and other parties incur significant capital costs fitting conventional meters, which is recovered over the 15-20 lifetime of the meter. Therefore a wholesale change to smarter metering would need to include compensation for any deadweight arising from new metering processes.

Industry agreement on methodology

The ERA expert group is restricted to developing options for the introduction of smarter metering because there is no industry agreement on the most appropriate methodology.

Standardisation and agreed Codes of Practice

Suppliers agree on a need to standardise the existing systems and processes. However, the detailed work to achieve this has yet to be undertaken. The ERA expert group is developing a common framework that all suppliers agree to work within but a full risk analysis has not been completed.

Customer behaviour change

As set out in Ofgem's paper it has yet to discover substantive evidence that the investment required would lead to a shift change in customer behaviour, either to energy consumption or account management.

Changes to industry data flows

Suppliers believe that smarter metering will provide cleaner and more timely data for managing load demand and improving customer service. However, current metering data collection and data storage is predominantly that required for customer billing, Settlement and meter management purposes. As more complex metering becomes available with connectivity to other devices then additional data items will need to be stored and transmitted. Consideration needs to be given as to how future party systems can be configured to both collect, store and forward this information to relevant parties. Examples of these developments relate to how the electricity meter communicates to other utility meters (wired, radio) and potential slave devices and any additional uses supported by this equipment such as the monitoring of intruder alarms.

CONCLUSIONS

The advent of smarter metering into Great Britain would herald a dramatic shift in the supply of domestic energy. Furthermore, the commercial advantages of smarter metering are not proven and there is no comparative model to assess consumer

behavioural change. Therefore, energy suppliers would be taking a huge leap of faith, which would need to be supported by the Government and the regulator.

Smarter metering would require fundamental changes to the metering infrastructure and substantial investment. In order to create the environment for the necessary evolution that would be initiated by the introduction of smarter metering, regulation may need to be relaxed and legislation revisited. Any regulation would need to be responsive to a dynamic market. For example it is possible that the metering infrastructure would need to support dual fuel smarter meters and offer a multi-service facility, such as the incorporation of collecting water metering data, and possibly internet connectivity and other advanced technology. The industry itself would need to develop interoperability standards and agreements that would be sustainable for both assets and services over time.

Consumers would need to embrace smarter metering and should be encouraged to take an interest in their energy consumption and how they can use energy more efficiently. In particular, vulnerable customers may benefit from the control that they and suppliers will have through smarter metering. A by-product of smarter metering is the highly accurate data that can be collected and analysed to inform suppliers about consumer needs.

The ERA is not commenting on the timescale for roll-out, but once that decision has been made it must become an obligation on suppliers to achieve consistency through common standards. The six major energy suppliers are co-operating under the auspices of an ERA group to develop a solution that embraces key issues such as inter alia industry interoperability, standardisation and commercial frameworks to enable smarter metering to be introduced. We anticipate a regular dialogue with Ofgem in developing this work programme.

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