



## ▶ DELIVERING THE SMART METERING BUSINESS CASE

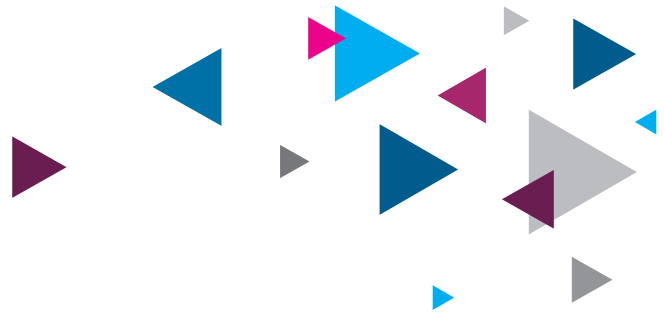
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Having worked closely with most of the major stakeholders from across the industry, Baringa Partners has put together this white paper to look at the overall ambitions of the smart metering programme in the UK. It should be noted however, that the views expressed here are those of Baringa Partners: we do not speak for DECC or for any of our clients across the industry.

This paper focuses on the mid-term programme for smart metering and what needs to be done to ensure that the decision to deploy these next generation meters proves to be the right one so that we are able to make the most of the opportunities offered by that decision on a collective and individual level.

The paper therefore falls into two broad sections. The first is concerned with the macro issues around the cross-industry programme and the implications for GB plc as a whole. The second section goes into more detail on the challenges faced by individual market participants.

However, before looking at the future implications of smart metering, it is useful to place these in context of the work that has been done to date and the current state of play in the industry.



## 1. The current state of play

Smart metering has been a much-debated subject around the world for many years, but although the potential benefits offered by smart meters are clear, they have not yet been rolled out in volume in the UK.

This is primarily because there has been no real business case at an individual supplier level for universal smart metering. While there are strong advantages to be seen at the broader societal level and for individual households, in terms of both cost and carbon reduction, there are simply not enough benefits accrued to suppliers to justify what is a very significant investment. The cost of stranding existing metering assets has not helped, and the potential stranding of new assets where there is no interoperability agreement in place is rightly considered to be a major risk looking forward.

As a result, the debate moved away from a purely market-driven approach and is now centred around the government's mandate to introduce a comprehensive smart metering solution. The pro-mandate argument is that it creates a level playing field across suppliers and will enable the appropriate costs to be passed on to customers – on the assumption that these will be outweighed by other consumer benefits. In a mandated model the issue of 'going first' is also resolved since the whole market will be working to the same timetable.

Consequently, the government's Energy White Paper, published in 2007, highlighted the desire to see smart metering deployed. This was supported by the October 2008 announcement of the government's intention to mandate the deployment of smart meters to all domestic customers by the end of 2020.

The industry now has a clear direction for universal roll out, although a number of questions remain that must be answered before preparation can begin in earnest. These are:

- ▶ What will the market model for the roll out look like? Will it be driven by suppliers, or will responsibility lie with a regional franchise? This issue is important because it dictates how far suppliers need to build up their delivery capability and their ability to manage the pace of the roll out without losing sight of the successful implementation of other change initiatives.

- ▶ What will the minimum meter specifications and customer display requirements be? An informal note on the minimum functional specification has already been circulated for comment by DECC, and covers practical concerns such as the debate about valves on gas meters and customer information requirements. Before meters can be procured, a universally accepted definition of what is meant by 'smart' is also required. This in turn leads to further questions about the 'smart' meters that have already been deployed, and whether these meet minimum specification or not.
- ▶ When will clear guidelines and a timetable be set and what will they look like? This requires clarity around the mandate itself, including a strong indication as to whether it will be more prescriptive than a straightforward 10-year target and whether interim targets or requirements to focus on particular segments are to be specified.

These are fundamental issues that must be addressed if a roll-out programme is to be successful, although they are by no means exhaustive. Other questions around stranding and the extension of the mandate to the SME market, for example, still need to be answered. But although these matter for a number of energy companies, they are not considered prohibitive to the mobilisation of the smart metering change programme.



## 2. The cross-industry programme

As outlined above, the specifics of the nationwide programme for smart metering require further clarification if energy companies are to be in a position to meet the deadlines for mass deployment.

However, what is also required is the development of a cross-industry business case. In the same way that individual businesses require a business case for smart metering, the collective interest, as represented by GB plc, requires a similarly rigorous blueprint for success. But while it is clear who is responsible for the business case at individual companies, it is not apparent who holds similar responsibility on behalf of GB plc.

A central programme is therefore required, and the scope of such a programme is currently being explored by a project team within DECC working with Ofgem. For the purposes of this paper we define 'central programme' in its widest sense; that is, anything that that needs to be done which falls outside the compass of any one market participant.

### Why a central programme?

In the view of Baringa Partners there are a number of potential desirable achievements, of which the following are perhaps the most critical:

- ▶ The creation of a specification for the interoperability of metering systems. Once meters are installed it is imperative that they do not require replacement. Deploying 47 million meters in the space of ten years is a tough enough challenge without suppliers being obliged to replace meters that have already been installed.
- ▶ The creation of a specification for licence changes and the development of the means to ensure compliance with the terms of the government's mandate by each of the market participants.
- ▶ Assessment of whether a new smart metering code is needed and how it is owned – a decision that is linked to the current ownership of industry codes and functions. This will apply regardless of the model that is chosen. In fully centralised and central communications models, however, the central programme should also take on a procurement role for the acquisition of services from the central communications provider and/or regional franchises.

- ▶ An assessment of market readiness and the development of an accreditation scheme to give confidence that the market can function effectively once live.

In addition, the central programme may have a role in creating customer engagement, for example through co-ordinated publicity around the benefits to consumers. There is an argument that this can all be left to energy companies themselves, but many involved in the industry see a level of government involvement as essential. The central government involvement in the switchover to digital television serves as a useful comparison.

### Creating a business case

In order to achieve these aims, the central programme will require a very clear remit. The work that Baringa Partners undertakes for its clients has been conducted on the basis that complex business and IT change programmes require an unwavering focus on delivering the targeted business benefits. The central smart metering programme is no exception. Indeed its very complexity means a clear remit is even more necessary.

We would argue therefore that if there is one fundamental tenet of the central programme it is simply to deliver the business case, and if this is to be the criteria by which the central programme is to be judged then that case must be clearly defined.

DECC has already identified and developed a societal-level business case as part of the work done to date. This is known as the Impact Assessment (IA) model, and was carried out in order to understand whether smart metering was a positive undertaking for GB plc. It was the conclusions of this analysis that underpinned the intention to mandate smart metering, announced in October 2008.

However, it can be claimed that the IA model is limited in its ambition, certainly from a benefits perspective. It identified some of the operational benefits for energy companies, primarily the decrease in costs associated with meter reading and, to a lesser extent, a reduction in the number of customer queries thanks to more accurate billing. The IA also identified the cost and carbon benefits to consumers from reducing and/or altering the timing of consumption.



But the full potential benefits of managing demand to a profile in support of the future UK generation portfolio are not fully understood and have not been built in to the IA. There are more benefits within the customer services businesses to be accrued through simplifying industry processes and aligning gas and electricity processes, for example. There are also potential network benefits around the creation of a smart grid that have also been omitted from the IA.

### Defining an end vision

One of the first actions to be taken on by the central programme, therefore, is the definition of the ultimate end 'vision' for the market. Once this has been completed, it may become apparent that there are parts of the business case that cannot be delivered in isolation by the energy companies, but will require a market-level change. It is the identification of these aspects of the business case that must be understood.

We may discover that the limited ambitions of the business case in the IA are justifiable. A 'minimum mandate' can be a legitimate choice, even as an end-game. It is almost certainly an option for an initial delivery programme – a Stage 1 delivery – with the view that later stages of the delivery will bring additional benefits once the programme is successfully up and running.

However, this needs to be a deliberate, unambiguous decision, regardless of the programme's parameters, since there is no possibility of achieving success without careful definition. By having a clear picture of the end vision the industry can ensure that it doesn't make Stage 1 decisions that will be regretted.

Furthermore, without criticising the valuable work of the IA to date, the potential of smart metering and what it may help to achieve is far more wide ranging.

There is consequently a clear need to identify and articulate a comprehensive end vision of the nationwide smart metering programme.

### Managing stakeholder input

It is not an easy task: first of all, there are many stakeholders with diverse interests who are directly affected. These include: government and regulator; consumer groups; large and small suppliers; electricity networks and gas transmissions companies; metering asset owners; and metering service companies. Aside from these groups there are, obviously, a number of other market participants who have a strong interest in the outcome of any mandated programme. These groups include, among others, meter manufacturers, communications providers and software companies.

The real challenge here is to ensure all stakeholders are engaged and have the opportunity to influence the debate, without resorting to design by committee and the flawed system that will be the inevitable result. It is also important to note that although all those consulted may agree that maximising the GB plc business case is the appropriate end goal, their individual interests may not be directly aligned with achieving it.

The practical solution is likely to involve some form of strategic design council to support a central programme director. This group can take a view on behalf of GB plc, and help ensure that the ensuing operating model will optimise the business case.

This takes us into a debate about the governance of the central programme. Who is best placed to look after the interests of GB plc? While it is clear that there is likely to be a role for DECC and Ofgem as well as cross-industry groups, how this is to be configured is the subject for a separate paper.

The governance of a central programme also raises questions about the current and future roles of the cross-industry bodies, such as Electralink, Elexon and Xoserve. This in itself is one of the key outputs of the market design and vision phase of work, since it will have an important impact on these organisations and on how market participants work with them.



### 3. The impact across the industry

Having looked at the remit and desired outcomes of the central programme it is important to remember that it is merely an enabler: it is the market participants that will ultimately have to put meters on walls and reap the benefits that the business case demands.

The following section of this paper outlines the drivers and challenges of customers and energy companies themselves, to help highlight the scope of delivery that is needed to ensure this programme is successful.

#### Customers

Metering itself is not likely to excite the average consumer: energy provision hardly competes with consumer technology in this sense. However, over the last 10 years we have seen that customers can become engaged in energy supply, rather than simply being passive consumers. Since 80 per cent of customers have made a change to their energy supply arrangements, we have proof that they are at least willing to engage on price, product or service.

But what will be the key concerns for customers regarding smart metering? The following are almost certain to feature:

- ▶ How it will be paid for and whether bills will increase or decrease
- ▶ What information will be available and whether it will be easy to understand
- ▶ The aesthetics of a smart meter in the home and the options available
- ▶ The availability of different products or services
- ▶ The impact on personal or household carbon emissions
- ▶ The potentially disruptive nature of the fitting process
- ▶ What the energy company will do with the data collected and who has access to it

Clearly there needs to be a level of customer engagement in the deployment programme. This will need both the central focus discussed above and management by the energy companies to promote the benefits and minimise the negative impact of delivery.

#### Energy companies

Energy companies have diverse positions in the value chain, and the implications of smart metering differ for strategy, finance, deployment, service, proposition and products, IT and change management, trading and generation optimisation, and networks as follows:

#### Business Strategy

Serious claims have been made about the transformational opportunities offered by smart meters. But these may overestimate the short to mid-term impact, while understating the mid-to-long term implications.

Short-term opportunities will centre on getting deployment right, demonstrating competence and building trust with customers, keeping costs under control, and selecting the right metrology and supporting IT. This is no trivial task: the costs are high, the technology is still not mature, and the potential for a negative customer experience is considerable.

Energy businesses need to understand, therefore, where smart metering may take them. The following are just some of the many strategic questions to be considered:

- ▶ How far will smart meters transform front and back-office processes? How far can smart metering be used to drive change in customer engagement techniques? What investment is needed in process and systems change to make this happen?
- ▶ Does smart metering change the nature of tariffs and services? Will it enable a wider set of services and products such as embedded generation, home efficiency or demand management?
- ▶ What will the impact be across the value chain? Will areas of competitive differentiation change?
- ▶ What capabilities will be needed to succeed in the smart-enabled future? Will the way services are sold to customers need to change? Should metering deployment capabilities be prioritised over the energy services field force or a more proactive customer management function? Or should these be given equal weight, along with demand forecasting and generation optimisation?
- ▶ Do energy companies want to be asset-owners of the new smart meters, or do they want to go to third parties for this service?



## Finance

Naturally any changes to business strategy have financial implications and may require major investment.

The total spend across the industry is estimated to be several billion pounds, and regardless of the way in which this breaks down, it still represents a significant amount of money for energy companies to find – and pass on to their customers. CFOs will no doubt be interested in the debate about whether their companies should become asset owners, and whether this is the right place for investing already scarce capital, particularly in the current markets.

Aside from the GB plc business case discussed above, there is a debate to be had about the business case for individual companies. The mandate has already had an interesting impact and makes it possible for each company to define what the 'minimum mandate response' solution looks like and to establish this as a baseline.

In a regional franchise model, the minimum mandate response might be as simple as accepting the delivered service and doing the minimum to comply with it. In all other models, the opportunity is predicated on one of two things. Firstly, making the incremental case for doing more, be it going faster, giving the customer more, using site visits to support wider goals, targeting significant process change or developing new products. Secondly, supporting a wider business vision, i.e. the overall business strategy which has dependencies on smart metering.

This is what we might call the marginal business case: the opportunity for costs and benefits above the baseline. It is the delivery of this business case that will determine the winners and losers in the supply industry over the next 10 years.

## Deployment

On a very practical level, there are 47 million meters to roll out over 10 years or less. This represents more than twice the number of meter replacements that are currently undertaken, as well as a significant increase in the amount of work required on each visit. Individual installation will almost certainly involve checking wide and home area network connections and will potentially require the implementation of in-home displays. As a result there will be a significant step-up in workload for the metering businesses.

Although there may be some capacity for this within the country's labour force in the next few years, the current skill-set is limited. There is no escaping the fact that the recruitment and training of a considerable workforce will be required to carry out this work.

Before the industry can decide on how best to exploit the additional potential of the smart meter, the roll out presents a complex logistical challenge. Whatever market model is chosen, the responsible organisation will need to develop and recruit the necessary skills in large numbers, as well as ensure compliance, manage the customer interface, deal with properties where no-one is home, optimise the use of the workforce to control costs and deliver the right proposition to the right customer.

Of course, these goals can be met either by in-house or third party organisations, or a combination of both depending upon business strategy.

If a supplier-driven model is selected, then there are some choices for the energy companies to make. As mentioned above, there is the opportunity to deploy systems faster than the mandate requires should the strategy dictate it. If this is the case, then the logistical challenge will be exacerbated. In addition, there are challenges around deployment optimisation: the need to control costs must be balanced with other business case drivers. For example, companies must decide whether to target dual-fuel customers first since it will be more efficient, or single-fuel customers because the up-sell opportunity is far greater.

## Service

Arguably, it is in servicing the customer that the greatest target opportunities lie. There are more than 30,000 customer management staff across the industry, and at a conservative estimate half are dealing with issues and exceptions. Smart meters have the potential to shift the customer care balance away from problem-solving issues, as follows:

- ▶ It can ensure that we make fewer 'errors' on the account and hence less reason for customers to query their bills.
- ▶ It may help support the customer more efficiently. For example, a customer moving house currently calls to give advance notice of the move, and again to give a final reading on the day of the move. Smart meters prevent the need for this second contact.



- ▶ The smart metering system itself can be a mechanism for customer service, albeit in a limited fashion initially. This may be direct, or by integration with the internet, digital TV or mobile phone. As a tangible example, the switch from credit to pre-payment could largely be managed through the new smart metering system if an appropriate proposition could be developed.

Getting there may be a challenge, but once the technology is in place to help manage the end-to-end process, it is not unrealistic to assume that call centres and back-office operations dealing with customer issues and exceptions can be down-scaled considerably.

### Differentiated propositions and products

Despite the best attempts of marketing departments, customers do not regard energy as a consumer product and do not engage with it in the same way. Energy is a service product and real differentiation is to be found in effective service delivery, competitive pricing and brand awareness.

Smart metering can change this in a number of areas:

- ▶ New product propositions, primarily based around the information provided by the in-home display, may engage customers more and create an opportunity to build loyalty, as long as the products do offer real differentiation.
- ▶ Getting to market first or deploying meters faster can be used as a trigger to win new customers or to create additional customer loyalty.
- ▶ Linked to the issues under debate in the services area, there is also the opportunity and challenge of rolling metering out in a way that minimises disruption to the customer, in order to be competitive in a world where all parties will struggle.

Aside from smart meters themselves, there is the opportunity presented by what comes after smart meters, and how quickly suppliers can follow meter deployment with additional value-add products such as embedded generation and home efficiency.

### Information Technology

Regardless of its configuration, the smart metering programme is a major IT initiative in its own right. At a minimum it will involve investment in three areas:

- ▶ To ensure deployment can be supported and optimised, processes and systems will be required to support planning and optimisation; scheduling tools; field-force operations; management information; and incentives among others.
- ▶ The use and management of significant data volumes. Investment will be needed in meter data management systems to support current and future requirements.
- ▶ Customer systems and cut-over. If all current data is up-to-date and clean then customer cut-over can be relatively straightforward, but given the known issues caused by industry and company data this is far from guaranteed.

All this is before considering some of the wider changes created by the issues discussed in this white paper.

### Trading and generation optimisation and networks

The discussion thus far has been primarily focused on the customer-facing elements of energy companies; and as mentioned above the current IA model is limited in its ambitions outside this area.

However, energy companies face a serious challenge in understanding the impact and opportunity on other parts of the value chain. If these are tangible then it is important that smart metering programmes are also focused on reaping the benefits from these areas.

The potential benefits of a 'smart grid' need to be clearly understood and the requirements that will allow this to be achieved should be a key area for consideration in the vision and market design phase of work. Similarly, the potential changes to the settlements process are an area for further consideration.



## 4. Conclusion

This is certainly a complex programme both for the central management and for each of the different market participants. Indeed, it is perhaps difficult to know where to start.

Add to this the uncertainty caused by delays in decision-making on the market model, minimum functional specification and stranding, it is not hard to see why many organisations are focusing their delivery attention elsewhere, rather than fully mobilising smart metering programmes.

Given this situation what can be done at present? Baringa Partners suggests:

- ▶ Energy companies and other market participants can develop their overall strategic response. This involves making a decision on whether they want to own the assets, given the option, how they wish to use customer visits/engagement and how this supports the vision they have for their business.

- ▶ Companies must understand the business case that underpins these decisions, to ensure they are in a position to mobilise fully as soon as the key decisions are made by the government. It will also ensure that there is a fact-based argument the company can bring to the table to help shape the new business case when the central programme vision and market design activity gets underway.
- ▶ The company must get to a position where plans are developed and programme teams are ready. This means that when the board is ready to respond to a government signal, a business decision, or a competitor's move the company is able to move in a structured way.

At Baringa Partners we believe there is every reason to be optimistic about the potential of smart metering in the UK. This is one of the largest trigger points to make much needed changes that the industry has seen. We remain hopeful that this opportunity will be taken by all industry participants to make a fundamental change to the way business is conducted.

**TALK TO US:** IF YOU WOULD LIKE TO DISCUSS ANY OF THE ISSUES RAISED IN THIS WHITEPAPER OR FIND OUT MORE ABOUT US PLEASE TELEPHONE [+44\(0\)1372 817714](tel:+44(0)1372 817714) OR FOR MORE INFORMATION INCLUDING CASE STUDIES, POINTS OF VIEW & LATEST NEWS VISIT [BARINGA.COM](http://BARINGA.COM)