

Consultation on: Promoting smarter energy markets

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IBM Response to Consultation Questions

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1 Introduction

1.1 IBM relevant experience

- IBM United Kingdom Ltd is pleased to respond to consultation on “Promoting smarter energy markets” issued by Ofgem in December 2011. Our response has been produced by our UK Energy & Utilities team and draws upon our experience from working with UK suppliers and network operators and the insights we have gathered from global smart metering programmes.

1.2 Summary of IBM response

On the whole, we agree with the eight propositions that Ofgem has put forward. They provide a sound basis for setting the scope of Ofgem’s work in promoting smarter energy markets.

We note that the four propositions on “enabling retail market development” by their nature are focussed on identifying necessary changes. However, we suggest that in some cases, more will be required to bring about the intended benefits to the consumer. For instance,

- ToU tariffs should also consider dynamic pricing and the introduction of automation and the linkage to settlements.
- Demand-side response needs to consider the impact on the distribution network operator as well as the regulatory framework for energy markets.
- Innovation in energy services, to our mind, immediately raises the issue of how to facilitate fast and legitimate access to consumption data and, in turn, has implications for the design of the DCC services.
- Payment options are, in practice, closely related to tariff options and hence restrictions in the latter may well restrict the former.

The four propositions on “improving market processes” are phrased as a set of key desired changes expected to result in certain customer benefits. Whilst we agree with the overall direction, we wish also to make some specific points:

- Moving to settlement arrangements based on actual daily and half-hourly meter readings is undoubtedly right, but determining the optimal time for such a change will require a rigorous cost-benefit analysis, and an operating framework that is proven to be stable as a result of the considerable industry change resulting from deployment of a critical mass of smart meters.
- We agree that there are clear customer benefits from a faster and reliable CoS process common to both gas and electricity, but we doubt that a next-day change is the right target.
- Central procurement of data processing and aggregation services is desirable but more work is required to determine when this change should take place and which entity should undertake the central procurement.
- As a matter of good house-keeping we support the concept of the Smart Energy Code, however, we do not see this as a short-term priority.

Finally, we would like to commend Ofgem for consulting with interested parties on the scope of its work over the coming years. Smart metering touches most aspects of the current market arrangements, industry processes and systems. It follows that the changes will be both complex and costly, underlining the need for rigorous cost-benefit analysis and a mechanism to define, track and realise the benefits.

2 Responses to consultation questions

In this section we have provided answers to the questions posed in the consultation paper. We have only answered those questions where we have appropriate experience and information, and where we are qualified to provide an informed point of view.

2.1 Consultation on 'Enabling retail market development'

In terms of enabling retail market development, you state the following four propositions:

Proposition 1: Time-of-use tariffs should help many consumers lower their energy costs, but improved engagement will be needed to help all consumers make informed choices.

Proposition 2: More efficient use of demand-side response can lower overall energy costs, but this will need coordinated changes to regulatory and commercial arrangements.

Proposition 3: Innovation in energy services would increase the consumer benefits of smart metering and can happen without major change to the regulatory framework.

Proposition 4: Consumers will have more payment options, without changes to regulatory arrangements beyond those envisaged as part of the smart metering roll-out?

Q1-Q3: For Proposition 1: Time-of-use tariffs should help many consumers lower their energy costs, but improved engagement will be needed to help all consumers make informed choices.

Do you agree with this proposition? Have we identified the elements of current market arrangements that could help or constrain the realisation of benefits for consumers? And, have we identified the key issues, such as the timescales for any changes to market arrangements?

We agree that the introduction of ToU tariffs undoubtedly has the potential to help many consumers lower their energy costs. From our involvement with other smarter energy programmes, we observe that ToU tariffs and DSM programmes are successful where they are simple and carefully defined, are effectively explained to customers and are delivered in partnership with the regulator (for instance with Ontario in Canada, CenterPoint in Texas and in Ireland).

ToU tariffs are more cost-reflective and hence give an incentive for the customer to change behaviour towards lower cost of supply. They will benefit customers with less relative peak usage and those customers willing to change their consumption pattern towards less peak usage. Since generation at peak times is likely to come from higher carbon sources of generation, ToU tariffs help the move towards a low carbon economy.

However, in terms of customers' energy costs, there will be winners and losers. Losers may include those customers that are unwilling to change their pattern of supply and those who have not understood the potential benefits to them from moving to ToU tariffs. For this latter category of customers, we would expect that agents offering price comparison services could materially lower search costs for these customers. Ofgem should consider a simple and standardised ways in which a customer can consent to another party accessing its consumption data. Ofgem should also provide leadership in facilitating customer education and positive media management.

Over time, customers on standard tariffs are likely to lose out increasingly as customers with less peak usage leave those tariffs via ToU deals, leaving suppliers to justify higher standard

tariffs based on better information. Whilst we do not feel this requires extra regulation or direct action, this should be made clear to customers on standard tariffs

Any customer should be allowed to decide for itself the degree to which it wishes to engage with energy retail markets. Such a choice will be made based on a perception of likely gain against search costs. As now, codes of marketing will need to be in place to prevent suppliers making misleading claims. As a minimum, suppliers should provide information to enable customers to rate any new tariff against their current deal as a basic cost per unit per period.

Load control (load limiting) could be implemented as part of some ToU tariffs. We caveat this noting that likely effects need to be fully understood in advance of the introduction of these tariffs, and must be made clear to the customer in practical terms. However, this may be an area where it will be possible to design ToU tariffs that offer a real benefit to fuel poor customer groups.

ToU tariffs with pre-set prices for certain times of the day may only be the first stage. We envisage dynamic pricing being offered at some later stage, ensuring that customers face fully cost-reflective prices. Dynamic pricing will require some form of automation to control the customer's load and respond to price signals since no customer will be able and willing to adjust its load manually. It will be important that the regulatory environment permits, and indeed encourages, automation. Automation could be facilitated either via tools for the customer to control or via services provided by a third party. Given the potential complexity, dynamic pricing is an area where Ofgem needs to balance protection of vulnerable customer groups with the need to facilitate innovation in energy services.

Finally, we note that supplier incentives to offer ToU tariffs will be limited unless customer consumption is also settled on actual HH/daily consumption (the point is noted in your consultation document for Proposition 2 on demand-side response but is also highly relevant for this proposition).

Q1-Q3: For Proposition 2: *More efficient use of demand-side response can lower overall energy costs, but this will need coordinated changes to regulatory and commercial arrangements.*

Do you agree with this proposition? Have we identified the elements of current market arrangements that could help or constrain the realisation of benefits for consumers? And, have we identified the key issues, such as the timescales for any changes to market arrangements?

Overall, we agree with this proposition and the positives highlighted in the consultation document. Not only should it help lower energy costs for a number of customer groups over time, it will also facilitate low carbon generation.

It is important to distinguish between traditional demand-side response, and load switching for and by domestic customers. As noted in the consultation, the former has been used traditionally by the DNOs to deal with infrastructure constraints whereas the latter is done to lower overall energy costs. The technology may be similar but the drivers and expected benefits are very different.

In other jurisdictions, IBM has been involved in the trialling of demand-side response. A relevant example is the Pacific North West Olympic Peninsular project. In this trial customers were engaged and asked to set acceptable upper and lower temperatures for their homes. Actual control of air con units was handed to the DNO with load control linked to wholesale energy prices. The results from the trial suggested a reduction in overall energy cost of up to 10%, and more importantly peak shifted by 15%. Other projects, such as the Edison Programme in Denmark, have explored the linkage of renewable generation with EV charging and the use of EVs as VPPs. Given the potential impact of demand-side response, Ofgem

will undoubtedly need to consider not only energy market regulation and commercial arrangements but also the impact on regulation for the distribution network businesses.

Any implementation should ideally be integrated with that of ToU tariffs discussed above. Standalone implementation is not entirely unfeasible, but ToU does act as both an enabler and accelerator for the realisation of the benefits highlighted in the consultation.

We note certain forms of micro-generation, facilities for charging of/storing energy in electric vehicles, or the use of heat pumps may be arranged more efficiently on a community basis, or via housing associations. We recommend that pilots covering alternative models are set up in advance, and evaluated against current and proposed regulatory/commercial arrangements.

As for ToU tariffs, we agree this proposition requires more granular settlement points as noted.

Q1-Q3: For [Proposition 3](#): *Innovation in energy services would increase the consumer benefits of smart metering and can happen without major change to the regulatory framework.*

Do you agree with this proposition? Have we identified the elements of current market arrangements that could help or constrain the realisation of benefits for consumers? And, have we identified the key issues, such as the timescales for any changes to market arrangements?

We agree with this proposition. The introduction of smart metering will create a data rich environment that will allow suppliers and other parties to offer innovative energy services. In the short to medium term this will enable services such as fact based advice on home insulation, and longer term, it will pave the way for home automation, and the development of smart appliances.

The key enabler for the energy services is access to energy consumption data. We believe, as a minimum, licensed parties should have access to consumption data in an aggregated and anonymous form. This would enable licensed parties to design and develop innovative energy service offerings.

Each customer should then have the right to define the level at which they engage with the market beyond this. We recommend that Ofgem implements an 'opt-in' principle to allow customers to grant third parties access to data/information in a format attributable to themselves, or their properties. If a customer opts-in, their data should be available within the DCC for suppliers, and other licensed parties to access with a view to offering/quoting energy services propositions. The regulatory framework will need to accommodate continued protection of data and may need to limit the uses of such data to ensure that consumer receives real benefits.

There should be a clear set of enforceable boundary conditions covering how propositions can be marketed, and what information should be provided to the customer. As a minimum, information regarding potential savings, benefits, and restrictions associated with an offering should be provided to the customer. Codes of marketing may need to prevent unduly long contract periods, set cooling-off periods and regulate the ownership of assets being provided, if any.

Regulation around how, and what can be marketed, whilst enabling the majority to understand the basics of any offering, must not unduly constrain bespoke propositions that may be offered to niche customers in the future.

Fast access to consumption data for quotation purposes is required for an effective energy services market. Any delay in the quotation process is likely to cause the customer to terminate the transaction, especially on-line where customers expect quotes instantly.

Meeting this requirement may require innovation in either the way that the DCC provides access to the required data, or the development of innovative DCC added value services.

Q1-Q3: For Proposition 4: Consumers will have more payment options, without changes to regulatory arrangements beyond those envisaged as part of the smart metering roll-out.

Do you agree with this proposition? Have we identified the elements of current market arrangements that could help or constrain the realisation of benefits for consumers? And, have we identified the key issues, such as the timescales for any changes to market arrangements?

We agree with the basic premise presented in the consultation. We believe an increased number of innovative payment options across multiple channels may evolve and prove beneficial to both industry participants and customers.

We suggest Ofgem separates the discussion on the orderly retirement of the existing PPMIP infrastructure from the development of new payment options. The former is in essence a question of finding equitable ways of recovering increasing costs per customer served from a shrinking customer base.

As regards new payment options, we note how the mobile telecoms sector has evolved. Prepayment products, or rather “Pay as you Go” offerings, are viewed as a valid option for customers based on cost, lifestyle and other personal preferences. Many innovative payment options exist to support prepayment customers, including use of cash lines, card top ups, and mobile top ups to meet varying demands and expectations.

Prepayment in mobile telephony also shows the energy industry how to remove the strings and stigma associated with prepayment. Prepayment is a valid offering considered by the majority of customers alongside monthly direct debit options, and represents approximately 50% of the UK market.

In practice (per mobile telephony), multiple payment options cannot be separated from multiple tariffs. If Ofgem wishes to restrict the number of tariff options for the customer, there is a danger that this will restrict the development of innovative payment options.

Q4: Are there additional opportunities for development in retail energy markets that we should include in the scope of our work?

We have not identified any major themes that Ofgem should include in its scope of work.

2.2 Consultation on ‘Improving market processes’

In terms of improving market processes, you state the following four propositions:

Proposition 5: Settlement arrangements should use actual daily (gas) and half-hourly (electricity) meter reading data in order to improve their accuracy and efficiency.

Proposition 6: The change of supplier process should be reliable and fast, so that consumers can confidently switch supplier on a next day basis.

Proposition 7: Electricity data processing and aggregation services should be procured centrally in order to reduce costs and support faster customer switching.

Proposition 8: The Smart Energy Code should be used as a vehicle to consolidate existing industry codes dealing with retail issues in gas and electricity to facilitate market development and reduce costs.

Q1-Q3: For Proposition 5: Settlement arrangements should use actual daily (gas) and half-hourly (electricity) meter reading data in order to improve their accuracy and efficiency.

Do you agree with this proposition? Have we identified the right sources of costs and benefits associated with achieving them? And, have we identified the key issues, such as the timescales for any changes to market arrangements?

We agree that the settlement arrangements should change as outlined in this proposition.

In the shorter-term this should help reduce costs associated with estimating, make cost allocation more equitable, and most significantly, through reducing resettlement timescales reduce the level of cash and credit guarantees being held in the market. In the longer-term we believe that settlement based on granular interval consumption information is necessary to ensure suppliers, and in turn consumers, are adequately incentivised to participate in the more complex energy products required to meet environmental objectives, such as peak-shaving, time of use tariffs, and demand side response.

Determining the optimal time to make such a change should be informed by a rigorous cost/benefit analysis. We have not performed such an analysis ourselves, but we do not believe that it is likely to be beneficial to execute this change until there is a critical mass of customers, or possibly even near 100% of customers, with smart meters. However, we believe that implementing improvements through a series of transitional steps is achievable and could maximise benefits. These would include:

- Continuing with plans to enable all gas sites to be settled on actual (profiled) data;
- Introducing a greater number of standard profile classes should analysis of smart data reveal segments of customers with significantly different profiles; and
- Transitioning certain profile classes to be settled on granular smart data sooner, e.g. all those with AMR meters.

To enable the possibility of settlement using granular interval consumption information, the present smart programme should ensure that that the all interval reads from smart meters are available to parties involved in settlement, without further explicit permission of the customer.

This consultation rightly identifies that suppliers can settle sites on a half-hourly basis now. We believe that this provides the potential for strategic gaming by individual suppliers, choosing on a site-by-site basis to settle on either profiles of actual granular smart data, so as to best maximise their profitability - for example, settling heavy off-peak users on half-hourly data, and heavy peak-users on a profiled basis. Whilst we think the high costs of settling on half-hourly data would prevent this, it may be necessary to consider provisions to mitigate this risk.

In parallel with considering settlement for energy charges, consideration should be given to making similar changes to the DUoS charging regime. With most network costs being proportionate to capacity, and not load, smart data introduces the potential for cost recovery models for the network operators which reflect this more closely, and which in turn could help incentivise suppliers and consumers to reduce peak demand.

There are a number of examples of such changes being evaluated in other markets, and lessons which can be applied from elsewhere. For example, the Nordpool market resettles in under a week. The lessons from these markets should be considered in the UK.

Q1-Q3: For Proposition 6: The change of supplier process should be reliable and fast, so that consumers can confidently switch supplier on a next day basis.

Do you agree with this proposition? Have we identified the right sources of costs and benefits associated with achieving them? And, have we identified the key issues, such as the timescales for any changes to market arrangements?

We agree, in large part, but not completely, with this proposition.

The present Change of Supplier (CoS) processes are slow, inconsistent, and unreliable. Changes, enabled in part by smart meters, are required to address these issues.

We agree that there is scope for a considerable reduction in the time it takes to complete a CoS, however, it is not clear to us that customers require, or reasonably expect, a CoS to take place on a next day basis. In relation to the CoS duration we perceive the following issues which would be exacerbated in a next-day switching scenario:

- Allowing a sufficiently long cooling-off window and having accelerated processes to deal with erroneous transfers.
- Consideration as to how any required site visits are included in a more aggressive switching timeframe.
- Allowing sufficient time for any supplier-specific data to be removed from the metering system, for example, switching windows would need to be consistent with DCC communication latency.
- Allowing sufficient time for the incumbent supplier to assess raising objections, for example: the fluctuations in CoS volumes over a week coupled with a one-day switching timeframe would mean suppliers are less able to resource in an efficient manner.
- Consideration as to the impact of faster switching on a supplier's load forecast, their subsequent ability to purchase energy with certainty, and any potential resulting pass through of increased volume risk management costs to consumers.

Overall, we believe a switching duration of approximately one week would meet customer expectations without introducing excessive new risks and costs on the industry.

We believe that alignment of the gas and electricity CoS processes and timescales should be achieved. We also agree that smart metering will facilitate accurate and more reliable CoS processes through an accurate meter reading at the point of change. CoS processes should be designed such that there is a confirmed CoS meter read for a site, potentially held centrally by the DCC. This should lower industry costs associated with disputed reads and corrections, and limit the attendant customer frustration and possible disengagement with retail energy markets.

With respect to the benefits of faster switching, we believe that:

- The primary benefit will be one of reduced cost-to-serve in the industry, for example: reduced costs associated with handling erroneous transfers.
- There is an additional benefit in reduced losses encountered by the industry from sites becoming supplier-less as a result of getting "lost" through the present unreliable CoS processes.

A further area which should be addressed whilst considering this proposition is whether the one supplier to one meter point relationship should be maintained. As examples: some consumers might like the opportunity to buy peak and off-peak power from different suppliers, and such a change might allow electric vehicle users to 'take their supplier and tariff with them' when they use public charging points. We raise this consideration as it has been made numerous times in the industry press and in industry, but we would strongly suggest that such a change is not made in the coming five years for reasons of complexity and unproven value.

Finally, we note that although smart metering provides the basis for redesigning the CoS process, many of the proposed changes could be implemented for all customers, for example: aligning gas and electricity processes and timeframes. However, the costs of redesigning the

non-smart processes would have to be weighed against the more limited time over which these benefits would be realised.

Q1-Q3: For Proposition 7: *Electricity data processing and aggregation services should be procured centrally in order to reduce costs and support faster customer switching.*

Do you agree with this proposition? Have we identified the right sources of costs and benefits associated with achieving them? And, have we identified the key issues, such as the timescales for any changes to market arrangements?

We agree that data processing and aggregation services should be procured centrally and that this has the potential to reduce industry costs and facilitate faster customer switching. As such it will also facilitate industry innovation noted in earlier propositions.

Essentially these are automated processes, governed by the relevant codes, which do not provide suppliers with a competitive advantage but maintaining them as separately contracted services do raise overall industry costs. Data retrieval services, on the other hand, can be used to provide competitive advantage, although the implementation of smart metering will radically impact this position.

The DCC seems the obvious entity for procuring these services. However, it is not necessary for the DCC to provide the services itself as many other industry or technology companies could provide data processing and aggregation services whilst sourcing the input data from the DCC, from suppliers and from either central or distributed registration agencies.

Currently, the supplier hub principle introduces complexity and delay into the switching process. We believe that the implementation of the DCC for smart meters provides the ideal opportunity to ensure that data collection and aggregation agency appointments do not act as a barrier to fast switching.

The timing of any switch to central aggregation is an issue, which has been discussed in previous industry consultations. One option is to move aggregation to a central service as and when customers have smart metering installed and enabled. However, this will not itself provide a satisfactory response for customers:

- who switch to smart metering before a central service can be implemented; and
- who do not to receive smart metering until late in the roll-out program, which could then leave existing aggregation services dealing with low volumes of customers.

To address the above issues, there will need to be a strategy for initial migration of smart metered customers and for the late migration of non-smart customers to any central aggregation service.

Q1-Q3: For Proposition 8: *The Smart Energy Code should be used as a vehicle to consolidate existing industry codes dealing with retail issues in gas and electricity to facilitate market development and reduce costs.*

Do you agree with this proposition? Have we identified the right sources of costs and benefits associated with achieving them? And, have we identified the key issues, such as the timescales for any changes to market arrangements?

We agree that as a matter of good house-keeping a future Smart Energy Code could be used to consolidate existing codes. This may over time lower administrative costs for all market participants and a clearer and less complex set of regulatory arrangements will undoubtedly lower the barriers for entry.

In terms of timing, we do not see this as an urgent task. Some consolidation can be achieved in a piecemeal manner, for instance, once the CoS processes for electricity and gas are aligned, it would be obvious to codify these in a common document. A good time to introduce the Smart Energy Code may be as late as when the Smart Metering Programme has been completed – this would avoid having to include code material covering non-smart metering and any transitional arrangements.

Q4: Are there additional opportunities to reform market processes that we should include in the scope of our work?

We have not identified any major themes that Ofgem should include in its scope of work.