

Moixa response

(Received via e-mail)

Dear Rob,

Moixa welcomes the opportunity to comment on proposals to improve and remove barriers to Half Hourly Settlement for residential customers. Current arrangements make such settlement prohibitive in terms of; market charges, IT system cost, communication and hardware costs. The delays to national deployment of smart meters also impact opportunities, so transitional measures or establishing reliefs within the LCNF/NIA innovation funding should help underwrite higher interim costs, and also ensure future residential half-hourly settlement is encouraged and also cost effective in order to enable low carbon and distributed technology to fully deliver valuable benefits to grid services and end consumers.

Background

Moixa Energy Holdings has developed technology solutions and is incubating market approaches around customer distributed electricity storage (e.g. The Maslow system), customer flexibility and financing of energy efficiency solutions.

Distributed storage offers potential benefits to a wide range of beneficiaries. Smart meters represent a vital element in the value chain, allowing fiscal-class power measurement. Bringing small business and domestic customers with electricity storage into half-hourly settlement should enable both consumer and supplier to realise more of the benefits flowing from the better match between demand and supply.

We have led numerous large scale UK pilots of aggregated storage systems (e.g. Involvement in LCNF Solar-Bristol, Lead of a DECC Energy Storage Demonstrator, and multiple InnovateUK Localised Energy System trials as well as utility projects). Some of these included widely-dispersed locations (DECC Energy Storage Demonstrator) 250 locations, 0.5MWh aggregate storage virtual power plant. These systems offer local benefits and should play an important role in delivering network and system services. Early application of smart meters in this model would have met a number of barriers. Supplier switching, legacy comms infrastructure and excessive cost. When combined with additional costs associated with elective half-hourly and settlement consumer protection around choice, the benefits available from access to existing services was outweighed by additional costs, and reduces the ability for households to benefit from grid services income.

Two further examples of our trials, supported under the InnovateUK Localised Energy Systems programme, further test the opportunity for community benefits from combining local generation with demand shift and storage. (Project ERIC in Rose Hill, Oxford and CEGADS/SWELL in Watchfield and Shrivenham.) Again, the power flows could have effectively been measured using smart meters. However, the cost or requirement to switch supplier would have been very significant barriers to recruitment. These trials are demonstrating the ability to keep value locally from distributed generation. They are further testing the potential for reward against time of use price and to deliver services to the system and distribution network operators. There are a number of steps to be taken before such projects could be taken cost-effectively into half-hour settlement. We want to move to

actual implementation in summer 2016 but are challenged by the lack of qualified meters and incomplete data-flow map for the residential HH data. We believe that only by making trial geographically constrained can the supplier manage the contractual and technical requirements of ensuring the reliable installation and operation of the back-haul channels. Pinning down responsibility for data quality remains to be worked out.

Choice and challenges raised by transitional arrangements

Smart electricity meters should bring wider opportunities for consumers to better understand and control their energy costs. Smart meters should enable consumers to be rewarded when their pattern of use is less demanding than that represented in a standard settlement profile. The metering infrastructure should also enable the development of new local services, such as making optimised use of community generation and offering services of value to the distribution network operator; and system services. The first phase implementation of smart meters does not support many of these opportunities. It is understood that suppliers will be allowed to offer time of day tariffs in addition to the limit of four profile/economy products. This is an important step to realising the basic benefit from changes to patterns of consumption.

Costs

There are currently additional costs for elective half-hourly settlement, additional to profile settlement costs. While there may be an ambition to reduce or eliminate this over the medium term, the additional costs of the current elective half-hourly settlement represent a barrier of innovation in the micro business and residential sectors. A transitional arrangement should ensure that additional costs are underwritten to take account of the delays to introduction of new domestic settlement classes nor in the push-back of smart-meter go-live date.

There are also indications that the cost of smart meters is at variance with the initial planning expectations. There should be an opportunity to ensure that the volume deployment of 29 million electricity smart meters over a four year period should allow scale savings to be made.

(Lack of) availability of SMETS2 meters

Innovation requires access to the appropriate hardware. The release candidate meters are still in testing. This makes it particularly difficult. The foundation-class meters are now effectively locked out of the DCC for two years. This locked-in legacy potentially presents a challenge to maintaining consumer right to switch supplier. Admittedly, some suppliers are working with foundation-class meters. However, they have had to develop proprietary communication layer to manage their response program.

First release meters have in-premises communications operating at 2.4GHz. It is our experience that the communications are not likely to work well in a significant proportion of domestic situations. The limitations of high frequency ZigBee communications in the premises requires new hardware to be installed close to the meter, or imposes the additional cost of a gateway communication device.

Effects of delay to development of comms infrastructure

Where there is not a high density of customers for new services, this may necessitate a individual back-haul communications point being installed for each customer. This means that excessive set-up costs may be applied to innovative deployment of smart meters unless these can be clustered. Our

area-based projects may be appropriate for follow-on trial with supplier-led smart meters. But distributed tests would not fit well. Both cases would still be subject to the constraints of switching.

Estimation risks

There is a potentially punitive effect of missing readings. In profile cases, a customer reading can be used. Until the DCC infrastructure is in place, the responsibility for data quality (D0022 file) can be difficult to assign along the delivery chain meter operator, data aggregator and data processor.

Data - response time and cost

There is uncertainty about future data costs for information being transported across the DCC network. Contrary to popular belief, meter readings will not be communicated in real time. However, provision of certain real-time services, such as demand response, may imply quicker communications requirement but there is no real indication of the potential capability and associated cost premium for carrying such data. For example, there is doubt that the smart meter infrastructure would meet the dispatch signalling timescales required for National Grid services.

Additional technical concerns

Export metering is a concern for existing and new local generation installations which make use of deemed export. Whilst it is not expected that the export data would pass through HH settlement, this data is also very relevant to a number of interested parties. This could feed into future local sharing of generation and associated line-loss factors and DuOS charging. There should be a clear option to select between continued deemed export arrangements or the option to develop new services based on the HH export information.

Locking out local measurement functions in the smart meter specification has raised barriers to automatic response and delivery of services, such as voltage control. For example, it would be straightforward to respond to a voltage rise based on local smart meter readings, but access to these registers is currently available exclusively to 'other DCC users'. It would make sense for the codes to be developed to allow this right to be assigned.

There is also a concern raised by asset funders of solar and storage projects, that a change from deemed export to metered export of installed solar, could discourage installing storage – which in such circumstance could reduce export Feed-in-Tariff payments, despite the value of storage to the grid and network. There should be clarity or an allowance for storage not to impact generation or deemed export payments, or a mechanism under Half-Hourly settlement for export during peak hours to be rewarded.

Interim Market concerns

Ofgem is also likely aware that a potential consequence of elective settlement is a form of arbitrage – where utilities may pick and choose which customers could pay less on a Half hourly settlement (vs Profile settlement) basis. In scale this might impact and raise prices for those not on profile settlement. Similarly solar users likely underpay when their metered energy is settled on a profile basis – as they likely use proportionally more energy during peak hours for their meter reading, given use of solar over the day.