Department of Energy & Climate Change

Smart Metering Implementation Programme

Fourth Annual Report on the Roll-out of Smart Meters

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This document is also available from our website at www.gov.uk/decc

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Chapter 1 – Introduction

This is the Government's fourth annual progress report on the roll-out of smart meters in Great Britain. It reports on the significant developments in the smart metering programme since December 2014 and the measures we will be taking in the coming months, as we approach the start of the main installation phase of the Programme. In summary:

- This chapter sets out the background to the programme and highlights some of the key achievements since the last annual report, published in December 2014;
- Chapter 2 looks at the work done on the technical and regulatory framework, and explains what energy suppliers and other industry partners have been focusing on this year;
- Chapter 3 explains the work we are doing on tracking progress and ensuring that consumers can realise the benefits of smart metering; and
- Chapter 4 explains how the programme is working to protect the rights of consumers, in particular vulnerable consumers.

The report concludes with Chapter 5, which looks ahead to 2016. The Annexes include a summary of the smart metering system and a glossary of terms.

The Smart Metering Implementation Programme

The Government has a manifesto commitment to 'ensure that every home and business in the country is offered a smart meter by 2020, delivered as cost effectively as possible'. Smart metering is at the heart of DECC's priorities to keep bills as low as possible for hardworking families and businesses - and powering the economy, whilst decarbonising the energy system. The rollout of smart meters will transform the retail energy industry, giving consumers greater control of energy consumption and putting an end to estimated bills. Smart meters provide accurate and near real-time information on energy use and costs, helping consumers lower their energy bills and carbon emissions. They will enable faster switching and

enhance retail competition. Smart metering will also reduce costs and improve customer service for both large and independent energy suppliers. They are expected to provide a foundation for more active management of the demand for energy in the future, helping to manage peak electricity demand as part of a more flexible and responsive future energy system.

The Smart Metering Implementation Programme is led by DECC, regulated by Ofgem, and principally funded and delivered by energy suppliers. It is being delivered in two phases: the Foundation stage, followed by the main installation stage. During the Foundation stage, which began in April 2011, the Government has worked with the energy industry, consumer groups and other interested parties to ensure that all of the necessary groundwork is completed to ensure the main installation stage of the smart meters roll-out goes as smoothly as possible and delivers benefits to consumers and Great Britain as a whole. This has included the deployment of over 1.7 million smart and advanced meters, allowing the delivery of early benefits to consumers and the learning of lessons by participating energy suppliers ahead of the main installation stage. Most customers will receive their smart meters between 2016 and the end of 2020.

Key Progress since the third Annual Report

Since December 2014, the Department has continued to focus on ensuring that all parties are making the necessary preparations to be ready for the main installation stage from mid-2016 so that energy suppliers are able to complete the rollout by the end of 2020 and deliver the expected benefits of smart metering to consumers.

Significant progress has been made, including:

- By June 2015, 1,193,200 smart meters were operating in homes across Great Britain, and 538,400 smart and advanced meters were operating at non-domestic sites (Chapter 2)[1];

[1] These figures are published quarterly. The most recent in the series was published on 10 September 2015: *Statistical release and data: Smart Meters, Great Britain, quarter 2 2015,* https://www.gov.uk/government/statistics/statistical-release-and-data-smart-meters-great-britain-quarter-2-2015

- Smart Energy GB has continued to build consumer awareness. To inform their campaign delivery, Smart Energy GB consulted on two key strands of its consumer engagement activities - support for vulnerable consumers and its plans for engaging microbusinesses (Chapter 3);

- DECC further developed the Smart Energy Code legal framework. The framework details the rights and obligations for different industry parties who use smart metering equipment and the information it provides (Chapter 2); and,

- The Data and Communications Company progressed design and build of the central communications infrastructure needed to deliver interoperable smart meters against a revised plan and entered system integration testing in September 2015, as planned.

- DECC published the Early Learning Project[2] - an extensive programme of DECC research with early recipients of smart-type meters, undertaken between 2012 and 2014, and also the findings of small-scale behaviour change trials (Chapter 3).

[2] https://www.gov.uk/government/publications/smart-metering-early-learning-project-and-small-scale-behaviour-trials

Chapter 2 – Ensuring Delivery

Preparing for the roll-out of smart meters requires close partnership working between Government, energy suppliers and network operators. Throughout the year to date, partners across the energy industry have continued to develop the processes, systems, trained staff and devices that will deliver smart meters to consumers when the main installation phase begins.

DECC Activities

DECC retains an important role in driving delivery as the owner of the benefits case on behalf of consumers, including providing active oversight of progress by all the parties which will deliver smart metering in practice. The key activities for DECC have been:

- Driving momentum and providing clarity to the energy industry on milestones that support the completion of the rollout by the end of 2020;
- Continuing to lead the development of the technical documents and regulatory structures that will govern the smart meter system;
- Scrutinising and challenging the plans of energy suppliers, the Data and Communications Company and other industry parties, and operating the governance processes that bring delivery partners together to coordinate activity; and
- Implementing the Monitoring and Evaluation Strategy[3] and conducting research on the early rollout of smart meters. Monitoring energy suppliers' progress in installing smart and advanced meters and the provision of benefits to consumers.

This chapter explains these activities in more detail.

[3] https://www.gov.uk/government/consultations/smart-metering-implementation-programme-information-requirements-for-monitoring-and-evaluation

The Rollout Strategy

DECC published a Rollout Strategy consultation in March 2015, followed by the Government Response[4] in July 2015. The requirements set out in the Rollout Strategy are designed to ensure that industry parties are ready and able to begin the main installation stage and realise its benefits:

- An Early Rollout Obligation – a requirement on all large suppliers[5] to take all reasonable steps to install, commission and enrol with the DCC 1,500 meters that meet the Smart Metering Equipment Technical Specifications 2 (SMETS2) standard, or 0.025% of a supplier's total meter points, whichever is the lower, by 1 February 2017;
- A mandate for Distribution Network Operators (DNOs) and all domestic energy suppliers that are not already captured by the Early Rollout Obligation to become DCC Users by 1 February 2017 and 1 August 2017 respectively;
- Clarity on incomplete installations – known as Install and Leave – where suppliers will be able to install a smart metering system without establishing the Wide Area Network (WAN) where it is expected that WAN can be established at a later date;
- The implementation of a New and Replacement Obligation from mid-2018 which requires all meter replacements and new connections to be SMETS2 meters; and,
- A date of 1 August 2017 after which additional SMETS1 meter installations will no longer meet the requirements of the rollout licence condition.

[4] https://www.gov.uk/government/consultations/smart-metering-rollout-strategy

[5] Large supplier is defined as a supplier meeting the SEC definition of a large supplier on or before 15 February 2015. Section A of the SEC sets out that a large supplier is – a supplier that supplies electricity and/or gas to 250,000 or more domestic premises.

Developing the Regulatory Framework

The main components of the regulatory framework for the operation of smart metering are:

- The licence for the Data and Communications Company (DCC) (awarded in September 2013);
- Licence obligations on energy suppliers and networks; and
- A new industry code, created under the DCC licence, called the Smart Energy Code. This constitutes a multiparty agreement that sets out the technical system requirements and day-to-day rights and obligations for the DCC and its users

Smart Energy Code (SEC): Development during 2015

Since we brought the Code into existence in September 2013, we have progressively implemented further content following public consultation and Parliamentary approval. During 2015 two further tranches of content were implemented. A third substantial tranche is expected to be implemented around the turn of the year. The bulk of the ongoing work refines existing sections of the SEC in the light of developing DCC design and build of its systems. This includes steps to enable handover of managing modifications of the SEC from Government to the industry (through “SEC parties”).

Other Technical Documentation: Progress in 2015

A range of additional technical documents are needed to set the platform for smart metering equipment to be built, tested and deployed. In 2015, DECC worked with industry and other interested parties to:

- Facilitate the development by industry of technical solutions which will ensure energy suppliers are able to provide a Home Area Network (HAN) in each consumer’s home. This enables consumers to access consumption and tariff information through an In Home Display (IHD) or other compatible devices (via a “consumer access device”). The existing 2.4GHz HAN solution is

expected to be able to provide a HAN in at least 70% of homes across Britain. Energy suppliers and the wider industry have continued work on the provision of a 868MHz HAN solution. This will increase HAN coverage to around 95% of GB homes. 'Alternative HAN' is the generic name given to the additional solution(s) that will be needed to provide a HAN in to the remaining 5% of premises. The Government consulted on implementation of 868MHz and Alternative HAN solutions in March 2015[4].

Non-domestic consultations

Alongside the domestic roll out, suppliers must provide smart or advanced meters to all smaller non - domestic customers by 2020. An advanced meter must, at a minimum, be able to store half-hourly electricity and hourly gas data, to which the customer can have timely access, and the supplier have remote access.

Suppliers may install advanced meters at smaller non-domestic sites until April 2016, or until December 2020 where a customer has a contractual obligation with a supplier or another provider that was entered into before April 2016. These meters count towards the suppliers' smart meter roll-out obligations.

DECC consulted this summer on two issues relating to the roll-out of smart and advanced meters to the non-domestic sector. Firstly we asked for views on the existing policy position which allows suppliers to use communications services other than those provided by the Data and Communications Company (DCC) for SMETS2 meters installed at non-domestic premises. The second part of the consultation sought views on whether the Advanced Metering exception end date should remain April 2016. This consultation is now closed and we are currently considering responses.

Data and Communications Company's (DCC) Activities

The Data and Communications Company is putting in place the nationwide communications infrastructure across Great Britain to transmit information from

[4] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/415578/HAN_Solutions_Consultation_March_2015_Final.pdf

smart meters to energy suppliers, energy network operators and energy service companies. Since March 2015 the energy industry has been collectively working towards August 2016 as the month by which DCC and energy suppliers' systems come together to enable the install and commission of SMETS2 meters on the DCC network.

The DCC has now completed its solution design, much of its build, and has entered system integration testing designed to ensure that the data and communications elements work together. Once this integration testing is complete, users of the DCC will test their systems with the DCC to ensure they can establish a robust end-to-end system from their business systems through to the smart meters in customers' homes.

Energy Suppliers' Activities

Energy suppliers are responsible for planning and delivering the installation of smart meters for their customers. Suppliers are currently focused on ensuring that they have sufficient numbers of trained staff, have completed changes to their IT systems and processes, and have procured sufficient volumes of smart meters to start the main roll-out, alongside capturing the learning from the Foundation Stage. Energy suppliers will submit their first formal and binding forecasts and plans to Ofgem in early 2016. Ofgem will assess performance against these plans on an annual basis through to 2020.

DECC is actively working with energy suppliers to monitor their progress in these and other areas and to track progress, and identify and resolve issues as part of a regular cycle of industry engagement.

Network Operators' Activities

The gas and electricity network operators have continued to develop systems and processes to enable them to communicate with, and provide information to, the DCC. This will allow key benefits, such as greater network efficiency to be realised. Individual network companies have now appointed third parties to enable them to build and implement their systems to provide data to, and interface with, the DCC. In addition, electricity network operators have developed service level agreements for fixing network defects discovered during installation visits and all network companies are working to enable network companies to plan, recruit and deploy resources to support energy suppliers during the main installation phase and minimise the disruption to customers.

Chapter 3 – Realising the Benefits of Smart Meters

This chapter provides a summary of benefits we expect to be realised from the rollout of smart meters. It also explains some of the work that DECC and Smart Energy GB are doing to develop consumers' awareness and understanding of smart meters and to realise the benefits.

The Government has designed the smart metering programme with a focus on delivering benefits to consumers. As the roll-out progresses, DECC will continue to work towards maximising those benefits. This approach is reflected in the range of obligations placed on energy suppliers which includes requiring large suppliers to set up Smart Energy GB (see page 25 [6]).

The Benefits of Smart Meters

The latest Impact Assessment for the programme, published in January 2014, estimates a positive net present benefit of around £6 billion from smart meters. The two largest elements of these benefits are direct energy savings and industry cost savings, which will help energy suppliers to reduce their costs to serve customers.

The key benefits of smart metering are:

- Smart meters will enable domestic consumers to gain control over their energy consumption, providing near real time feedback through the provision of an in home display (IHD). Evidence shows that with better information on money spent on energy, with guidance and advice provided by suppliers and Smart Energy GB of energy efficiency consumers are able to reduce their energy consumption. .

[6] http://www.smartenergygb.org/

- Lower costs for industry in supporting the new smart meter infrastructure will enable savings to be passed onto consumers as well as improving customer service. Suppliers will no longer have to physically visit a household to obtain a meter reading. It will cost less for energy suppliers to offer consumers prepayment services, with no need to visit homes to install prepayment meters as smart meters can operate in either credit or pre-payment mode. Call centre traffic handling bill estimate disputes will be reduced.

Case Study: E.ON – Smart prepayment - levelling the playing field between direct debit and prepayment customers

In May, E.ON launched its Smart Pay As You Go pilot for up to 30,000 customers, using prepayment smart meters to put consumers in control of their account balance – allowing them to top up anywhere and at any time.

For the first time, Smart Pay As You Go customers will be offered the choice of all of E.ON's tariffs giving them access to prices previously only offered to customers who pay by fixed monthly Direct Debit.

E.ON estimates that smart pay as you go will save smart prepayment customers up to £104 a year.

- A range of system savings Network companies are expected to be able to identify and resolve outages more quickly and efficiently as well as make more cost effective investment decisions to support the energy infrastructure. Smart time of use tariffs will also benefit consumers and deliver overall savings through shifting peak loads of energy demand.

- Further consumer benefits are expected to emerge from the development of new products and services, such as home energy products and switching services, that suppliers and others can deliver using smart metering.

- DECC also places equal importance on tracking non-monetised benefits, such as an improved prepay experience, quicker and easier switching and better billing arrangements. There will be a transformed prepayment experience for smart consumers, with a variety of top up options and remote switching

between credit and prepayment tariffs. Smart Meters will bring an end to estimated billing and enable a smoother switching process to help consumers secure the best tariff for their circumstances.

Ofgem's Work on the Switching Process

The new smart metering governance structures provide the fundamental building blocks for faster, more reliable switching. Next day switching is part of the Conservative Government's 2015 Manifesto. In February 2015, Ofgem published its decision to lead a programme to overhaul energy market switching arrangements to enable faster, more reliable switching. Ofgem's reforms will enable customers to switch their energy supplier by the nextday[1]. This will be delivered through a new platform managed by the DCC that centralises registration services across both the gas and electricity markets. The DCC will thus provide a long-term, common, platform for gas and electricity consumer switching, driving a more efficient process. The new arrangements will be governed under the SEC. By the end of 2015 Ofgem will launch Significant Code Review which describes how it will make the changes needed to deliver the reforms. Ofgem's ambition is to implement the reforms by 2019.

Smart Meters and costs

- Obliging energy suppliers to deliver smart meters by the end of 2020 allows DECC to use both regulation and competitive pressure to maximise the benefits flowing to consumers. Around 70% of costs are in the competitive part of the system where suppliers are incentivised through competition to provide a good service and price to their customers. Ofgem is responsible for price-regulation of network costs and of the shared costs of the DCC which encompasses around 25% of the total costs.

Monitoring, evaluation and review activities in 2015

- During 2015, we have made further progress in implementing our monitoring and evaluation arrangements.
- Smart Energy GB have responsibility for tracking trends in consumer awareness of the smart meter roll out and have released findings from their September 2015 smart energy outlook survey. Findings are summarised below.

Smart Energy Outlook September 2015: Summary

- More than eight in ten (84 per cent) of people with a smart meter would recommend one to others.
- Nearly eight in ten (79 per cent) of smart meter customers have taken steps to use less energy such as turning off lights, turning their heating down or changing the way they use household appliances.
- People with smart meters feel more informed and in control of their energy use. More than eight in ten (82 per cent) feel they have a better idea of what they are spending on energy and nearly seven in ten (69 per cent) say they are more conscious about the energy that they use.
- Smart meter customers are also more confident in the accuracy of their bills. Nearly four in five (79 per cent) believe that their energy bills are accurate, whereas only 59 per cent of those without a smart mete feel the same.

- DECC is monitoring and reporting on smart meter installations through its quarterly statistical output. DECC is also monitoring the consumer engagement plans of suppliers, which they are required to provide on an annual basis, in order to assure preparedness for the main installation phase and the effective delivery of consumer benefits.

- We have a well-developed benefits realisation strategy and an active programme of primary and secondary research (more details in evidence chapter) designed to validate expected consumer and energy supplier

benefits. We have developed a tracking system for understanding supplier benefits and the efficiency savings realised in industry through reporting on current legacy costs and smart operational performance.

Smart Energy GB: Preparing for Large-Scale Consumer Engagement

Smart Energy GB is the independent national organisation tasked with engaging with every household in England, Scotland and Wales about the roll-out of smart meters.

Smart Energy GB: Objectives

Smart Energy GB's objectives are to:

- Build consumer confidence in the installation of smart meters;
- Build consumer awareness and understanding of how to use smart meters and the information obtained from them;
- Increase consumer willingness to use smart meters to change their behaviours so as to enable them to reduce their energy consumption; and
- Help vulnerable, low-income and prepay customers to realise the benefits of smart metering systems while continuing to maintain an adequate level of warmth and meet their other energy needs.

Consumer Engagement

During 2015, Smart Energy GB continued to build on its consumer engagement activity. Following the launch of their creative campaign in 2014, this year has primarily been used to trial and test targeted advertising (including local radio and billboards), ahead of a planned increase in media activity to align with the main installation phase of the roll-out in 2016.

Planning

To inform its campaign delivery in the years to come, Smart Energy GB consulted on two key strands of its consumer engagement activities:

- In *Smart energy for all*[7], published in July, Smart Energy GB consulted on identifying audience characteristics that may act as additional barriers to realising the benefits of a smart meter. This will inform how Smart Energy GB engages individuals and communities. These characteristics include being blind or partially sighted, not speaking English or Welsh proficiently, being off the gas grid, or living in rented accommodation. The consultation was updated following responses from a range of stakeholders and the results can be found on Smart Energy GB's website. http://www.smartenergygb.org/smart-energy-for-all

- Smart Energy GB also consulted on its plans for engaging microbusinesses, publishing its findings in *Smart energy for business*[8], which will inform how they engage with microbusinesses in Great Britain to ensure as many people as possible benefit from smart metering. Smart Energy GB's approach will mirror much of their domestic campaign activity as well as using targeted, specialist media to reach the business audience, partnering to utilise the existing relationships of advisory organisations, and cascading information through organisations with existing one-to-one links to microbusinesses. Following on from the consultation, Smart Energy GB has started producing engagement material for microbusinesses[9].

Developing partnerships

A key component of Smart Energy GB's strategy is the development of a partnership delivery model that will support third party engagement by brands and people that consumers know and trust. The model will work from the bottom up, with frontline local community organisations who have existing relationships with consumers at its

[7] http://www.smartenergygb.org/sites/default/files/Smart%20energy%20for%20all.pdf

[8] http://www.smartenergygb.org/sites/default/files/resources/Smart%20energy%20for%20business_2.pdf

[9] http://www.smartenergygb.org/small-businesses

foundation, moving up through regional network organisations (such as Housing Associations), up to major national partners with significant infrastructure across Britain.

As part of this strategy, in October, Smart Energy GB launched its call for a major delivery partner[3], and a range of national partners. This ensures consumers understand the benefits of smart metering, want them installed, and are able to use their equipment to its maximum potential. Implementation of this aspect of Smart Energy GB's strategy will enable them to grow the depth, breadth and scale of their consumer engagement to build momentum in 2016 and beyond[10].

Evidence and Research

As set out in the Smart Metering Programme's Monitoring and Evaluation Strategy[11], DECC is undertaking a variety of research activities to ensure that decisions are underpinned by a strong evidence base.

Domestic consumers

This year saw the publication of the Early Learning Project[12], a series of reports on an extensive programme of DECC research with early recipients of smart-type meters, undertaken between 2012 and 2014, alongside reports on small-scale behaviour change trials. This research broadly validated the Programme's existing policy framework.

The aim of the research was to provide robust evidence as to "what works", in terms of consumer engagement to deliver the benefits of smart metering, particularly the energy saving benefits. Key findings included: a positive early consumer response to smart meters and In-Home Displays; evidence that supports the existing obligations

[3] http://www.smartenergygb.org/major-national-marketing-partnership-EOI

[10] http://www.smartenergygb.org/partners

[11] https://www.gov.uk/government/consultations/smart-metering-implementation-programme-information-requirements-for-monitoring-and-evaluation

[12] https://www.gov.uk/government/publications/smart-metering-early-learning-project-and-small-scale-behaviour-trials

for consumer engagement; and that further steps could help to deliver increased consumer benefits.

In parallel with the research, we published a policy document setting out DECC's conclusions on the way forward[13]. This includes two specific commitments being taken forward in 2015, on which we will report next year:

- to develop good practice energy efficiency advice and guidance materials to be used at the point of installation, for use by installers and those providing follow-up support.
- to assess the planned provision of follow-up support for vulnerable consumers and whether further steps are required to ensure benefits are realised for key groups of consumers (see Chapter 4).

We have also promoted work aimed at identifying how smart metering[14] data could be used to enhance wider energy efficiency policies [4].

Non-domestic consumers

The non-domestic energy market includes a diverse range of sites and customers who are also expected to receive energy-savings and other benefits from smart metering. DECC's evidence activities in this area in 2015 aimed to extend the previous evidence base, and included:

- publishing a "forward look" on innovation in non-domestic energy management linked to smart metering[15];
- 'early learning' research to understand the types of non-domestic premises and organisation covered by the smart metering mandate; how they make

[13] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/407539/1_Early_Learning_Project_and_Behaviour_Change_Trials_Policy_Conclusions_FINAL.pdf

[14] http://uplondon.net/wp-content/uploads/2014/01/Working-Papers-SSN-Vol-5.pdf 'Use of smart metering data to enhance the delivery of energy efficiency policies'

[4] http://uplondon.net/wp-content/uploads/2014/01/Working-Papers-SSN-Vol-5.pdf 'Use of smart metering data to enhance the delivery of energy efficiency policies'

[15] https://www.gov.uk/government/publications/smart-metering-enabled-innovation-in-energy-management-in-the-non-domestic-sector Smart Metering-enabled Innovation in Energy Management in the Non-Domestic Sector

energy-related decisions; and the pathways, enablers and barriers to energy saving, and what further steps may be necessary to realise benefits.

Outputs from this research are expected to be published in Q1 2016.

Facilitating consumer innovation: consultation on amending the In-Home Display Licence Conditions

Suppliers are required by the terms of their standard supply licence (the 'Licence Conditions') to offer all domestic consumers an In-Home Display (IHD) where they install a smart metering system. The IHD has been a longstanding requirement under the smart metering implementation programme, and is a critical part of our commitment to put consumers in control of their energy use.

For many consumers, the IHD will be the first opportunity to visualise their energy consumption: how much they use, when they use it, and how much it costs them. IHDs provide the data to help begin a consumer's journey towards increased energy efficiency. The rationale for the IHD mandate is supported by a strong evidence base, as set out in the smart metering impact assessment. The findings of the Early Learning Project (ELP) published in March 2015 provide further evidence confirming that IHDs are central to consumer engagement – with many consumers seeing the IHD as 'the smart meter'.

There is evidence that other forms of feedback may provide additional benefits. Innovative forms of feedback might, for example, integrate smart meter data into other devices, including tablets, smart phones or even televisions. However there is very little UK or international research in this area. Unknowns include whether such alternatives are likely to be effective and enduring methods of engaging consumers and whether they would add to the energy saving benefits of IHDs. Whereas IHDs have been shown to be accessible and used by most consumer types, the characteristics of consumers who would use alternatives to IHDs are not understood.

DECC therefore consulted this summer on amending the IHD Licence Conditions. The consultation was twofold. Firstly, it proposed to allow suppliers to apply for a derogation from existing requirements to offer consumers an IHD so that they could trial alternative innovative energy use engagement tools. This would provide Government with the evidence it needs to ensure that approaches to providing consumers with feedback on their energy use remain optimised for consumers in a technologically fast moving and innovative environment.

Secondly, the consultation proposed to strengthen the IHD mandate outside of these trials to ensure that IHDs remain the primary smart meter consumer engagement tool until evidence demonstrates that other tools provide the same or better levels of consumer engagement. The consultation is now closed. The Government's conclusions will be published by the end of this year.

Conclusion

Good consumer engagement is a pre-requisite for the rollout of smart meters in Great Britain to succeed. Consumers will need to understand why they should want smart metering and then, once they have it, be able to understand how they can get the most from their new equipment. DECC, energy suppliers, and Smart Energy GB will continue to work together to engage households and businesses in 2016.

Chapter 4 – Protecting Consumers

Data Access and Privacy

The Data Access and Privacy Framework[16] governs access to smart meter consumption data by energy suppliers, network operators and third parties. It establishes the purposes for which this information can be used and the choices available to consumers.

As technologies evolve and consumers gain confidence with the opportunities offered by smart metering, data access rules may need to evolve. The Government remains committed to monitoring the current Data Access and Privacy Framework and in March 2015, we consulted on the timing of a formal review of these regulations. We will report on this shortly.

Security

Security lies at the heart of the smart metering system. Under the Smart Energy Code energy suppliers, network operators and other users of the DCC, as well as the DCC itself, are required to take the right steps to secure their smart metering systems. These obligations are underpinned and reinforced through Licence Conditions. An updated Licence Condition for energy suppliers was consulted on in 26 March 2015[17] with the final text due for publication later this year.

Smart metering communications will be cryptographically secured, with this control being facilitated through the use of a Smart Metering Key Infrastructure (SMKI) based on existing industry and international Public Key Infrastructure standards, mechanisms and principles[18]. Over the past year a range of SMKI design documents

[16] Smart Metering Implementation Programme: Data access and privacy - Government response to consultation, DECC: December 2012: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/43046/7225-gov-resp-sm-data-access-privacy.pdf

[17] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/416074/15_03_24_March_2015_SEC_Consultation_Doc_FINAL.pdf

[18] Public Key Infrastructure is used widely across business sectors where secure transactions are needed, including for example, internet trading, banking transactions and billing systems.

have been established and the related technical and process detail has been formalised within subsidiary documents to the Smart Energy Code. These include the relevant interface specifications, codes of connection, registration arrangements and recovery processes.

Vulnerable Consumers

The Government wants all consumers to be able to benefit from smart metering and it is essential that vulnerable and priority consumers are supported during the roll-out.

The Early Learning Project (ELP, see chapter 3)[19] identified categories of energy user who would particularly benefit from tailored, follow-up support to make sure that they are able to fully realise the benefits of smart metering. Following on from this, DECC has set up a project to assess the planned provision of support for vulnerable consumers after the installation of their smart meters. This analysis will review consumer engagement plans and consider whether further steps are required to ensure that benefits are realised for key groups of consumers. Evidence gathering and assessment will take place throughout the remainder of 2015 and early 2016, with an expectation to concluding this work in 2016.

A Vulnerability Working Group established under the Smart Metering Installation Code of Practice (SMICoP (see box, below) Governance Board has continued to examine how customers with specific needs can be identified, to enable tailored engagement to take place. Separately, Energy UK, the Royal National Institute of Blind People (RNIB) and energy suppliers are collaborating on the specification and tender for an accessible In Home Display. This will enable blind and partially sighted consumers to access their consumption data in a way tailored to meet their needs.

As part of their objective to assist vulnerable groups, Smart Energy GB ran a consultation seeking to identify characteristics that may act as barriers to experiencing the benefits of smart metering (see Chapter 3). This work was

[19] Details of the research and analysis projects that form the ELP are available here: https://www.gov.uk/government/publications/smart-metering-early-learning-project-and-small-scale-behaviour-trials

published in the report *'Smart Energy for All'*[20] in July 2015 and will inform the planning and delivery of their national consumer awareness raising campaign.

Smart Metering Installation Code of Practice (SMICoP)

Government has obliged energy suppliers to develop and comply with a code of practice which governs the consumer experience throughout the smart meter installation process, at both domestic and micro-business premises.

The aim of the code is to:

- Ensure a positive experience and protect consumers during the installation process;
- Give assurance to consumers about what will happen during the installation process;
- Aid the delivery of smart metering benefits (e.g. by ensuring that the system is demonstrated to the consumer and that energy efficiency advice is delivered appropriately).

Prepay Customers

Smart metering will transform the experience of using energy for prepayment customers. Evidence collected for the Early Learning Project showed that having an In Home Display improved the daily lives of these consumers, through the convenience of not needing to access their meter, which are sometimes in an inconvenient or difficult to access location. There was also evidence that this helped consumers avoid periods of being without energy, as it was easy for them to see when their credit was running low. The introduction of more convenient methods of topping up – including online or over the phone – will also mean consumers will not need to leave their home to add credit to their balances.

20 http://www.smartenergygb.org/sites/default/files/Smart%20Energy%20GB%20%20Smart%20energy%20for%20all.pdf

Smart pre-payment metering has been identified by Ofgem as a key focus area for their Consumer Empowerment and Protection Project[21]. It is expected that the existing regulatory framework, combined with the technical specifications of smart metering technology, will provide many of the necessary consumer protections. However, in order to meet their commitment to ensure that the right consumer outcomes are achieved, Ofgem launched a consultation[22] in September 2015. The consultation sought views on; proposals to monitor use of key smart prepayment functionalities, and on an industry developed solution to safeguard consumers during a change of energy supplier.

Conclusion

DECC's regulatory and policy framework to protect consumers during the remainder of the Foundation stage and throughout the roll-out is now in place. We will continue to work closely with Ofgem and other stakeholders to ensure that the protections are delivered and remain effective in light of practical experience.

[21] Further information on this work is available here: https://www.ofgem.gov.uk/gas/retail-market/market-review-and-reform/smarter-markets-programme/consumer-empowerment-and-protection

[22] Available at: https://www.ofgem.gov.uk/publications-and-updates/smart-prepayment-proposals

Chapter 5: Looking Ahead to 2016

The main industry activity over the next year will be to complete the actions required ahead of the start of DCC live services. The Government's focus remains on ensuring that energy suppliers, network operators and the DCC are making the necessary preparations ahead of the rollout gathering pace as we head towards completion by the end of 2020.

For DECC, activities will also include:

- Developing the final parts of the Smart Energy Code and licence conditions;
- Making further enhancements to the technical specifications for the metering equipment as the smart system testing continues should these be required;
- Further work with the non-domestic sector, to ensure that these consumers capture the benefits of smart metering;
- Continuing work to transfer responsibility for the Smart Energy Code and maintenance and development of technical standards to arrangements under industry governance;
- Continuing our programme of research, including the follow-up outputs from the Early Learning Research project;
- Continuing to scrutinise and challenge energy supplier, the DCC and other industry party plans, and operating the governance processes that bring delivery partners together to drive and coordinate progress; and
- Monitoring energy suppliers' progress as they install smart and advanced meters in homes and smaller non-domestic premises, and working with suppliers to understand their plans for the remainder of the rollout.

For industry partners, this will include:

- **The DCC** completing build and testing of its systems and supporting user integration and early live operations by service users;
- **Energy suppliers** continuing to step up their preparations to deliver installations on the ground: ensuring that they have the staff and systems to

deliver a good customer experience, have integrated their systems with the DCC and are ready for initial deployments of SMETS2 meters; and

- **Smart Energy GB** building consumer awareness through its communication campaigns, marketing activities and stakeholder events.

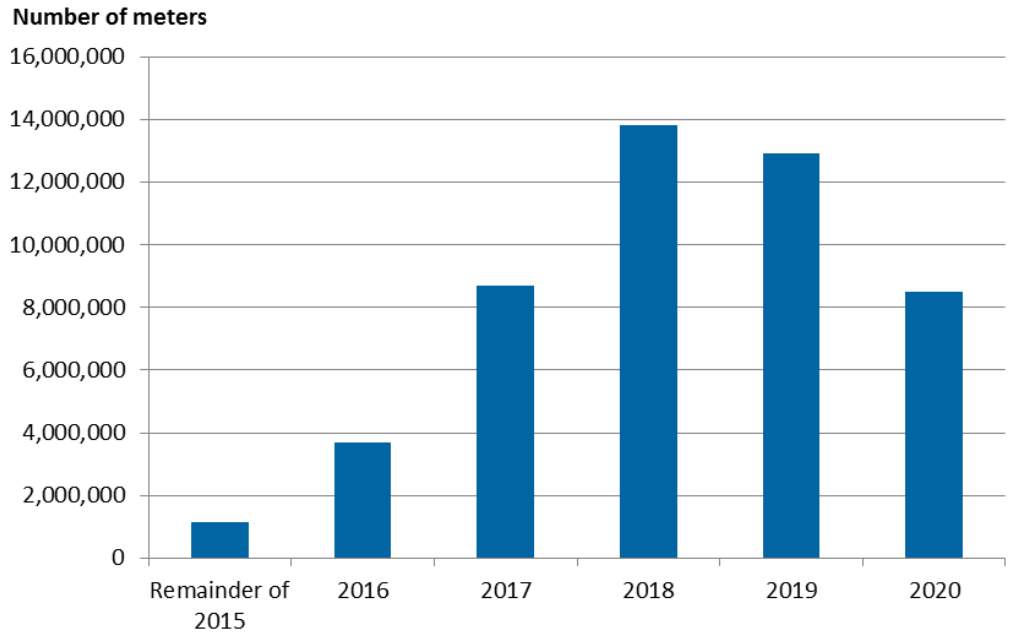
Looking Ahead: Supplier plans for installing Smart Meters

Smart Meter Roll-Out Profiles to the End of 2020

The larger energy suppliers provide Government with forecast numbers of smart meter installations looking ahead to 2020[1].

The graph below (Figure 2) provides a snap-shot, on a national basis, of larger suppliers' projections, as at the end of June 2015.

Figure 1: Current projections by the larger energy suppliers of the number of smart and advanced meters to be installed per year in domestic and non-domestic properties between 2015 and 2020 (as at the end of June 2015).



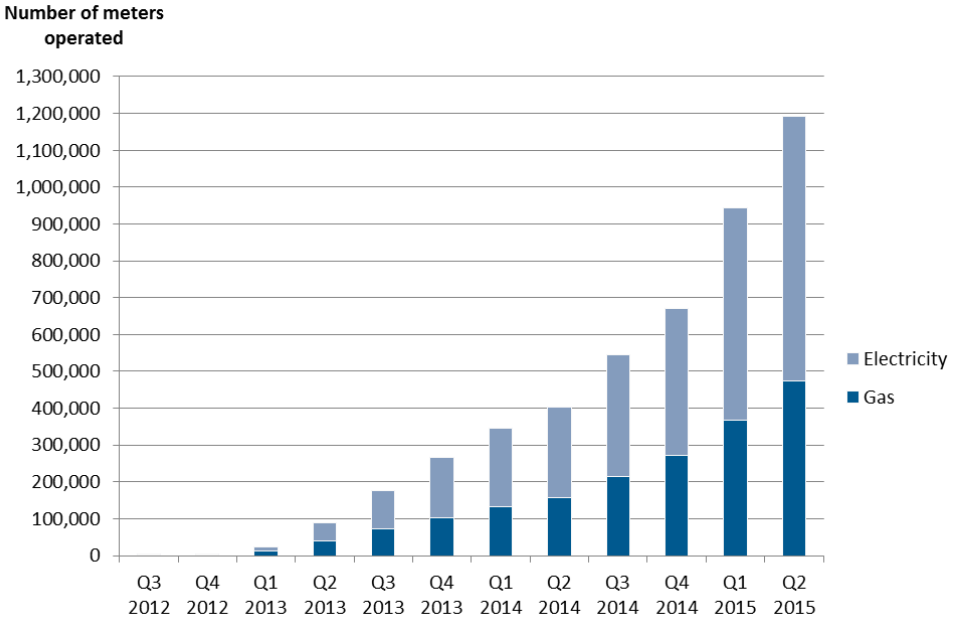
[Source: DECC]

[1] Roll-out profiles provided by the larger suppliers assume their customer base remains unchanged throughout the roll-out.

Domestic performance in 2015 for larger suppliers[23]

By the end of June 2015, the larger energy suppliers were operating 1,193,200 smart gas and electricity meters in Great Britain, representing 2.5 per cent of all the domestic meters operated by the large suppliers[24].

Figure 2: Cumulative number of domestic gas and electricity meters operated by the larger energy suppliers, by quarter, in GB.



[Source: DECC Smart Meters quarterly statistics]

Non-domestic performance in 2015 for larger suppliers

The latest official statistics show that the larger suppliers, as at the end of June 2015, were operating a total of 538,400 smart and advanced meters (9,800 smart and 528,600 advanced)[25].

[23] From Q1 2015 there are nine larger energy suppliers: British Gas, EDF Energy, E.ON, First Utility, Npower, OVO, Scottish Power, SSE and Utility Warehouse.

[24] Statistical release available at https://www.gov.uk/government/statistics/statistical-release-and-data-smart-meters-great-britain-quarter-2-2015. The Q3 2015 data will be published on 10 December.

[25] https://www.gov.uk/government/collections/smart-meters-statistics

Conclusion

Smart metering will be transformational for both consumers and Britain's retail energy sector. With DCC Live approaching, energy suppliers and other key delivery parties are now focused on developing their SMETS2 solution, system and workforces. This will enable the main rollout stage to get off to the best possible start and for consumers, energy suppliers and network operators to benefit as soon as possible.

Government recognises that the task the industry collectively faces is significant, but so are the benefits - and good progress has been made to date. With the continuing cooperation of industry partners, DECC will continue to drive forward the delivery of this important industry led national infrastructure programme to ensure the benefits are realised for consumers and Great Britain.

The Smart Metering System

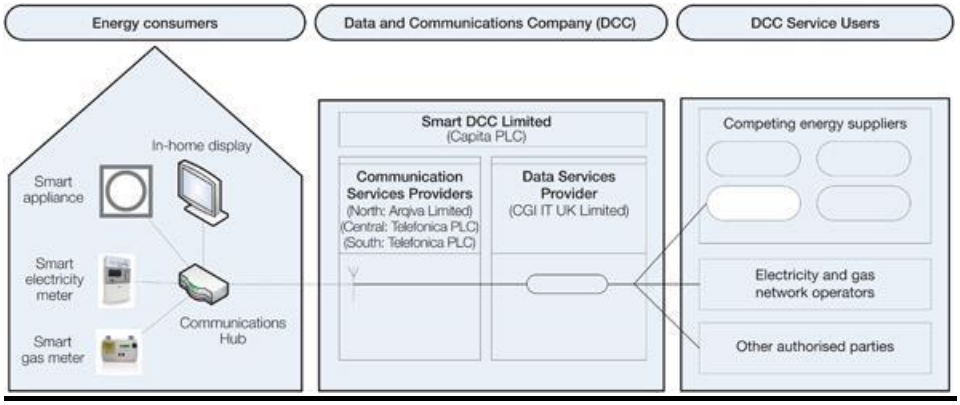


Figure 4: The Main Parts of the Smart Metering System

Smart electricity and gas meters

Existing electricity and gas meters will be replaced with smart versions which automatically pass accurate meter readings to energy suppliers, store energy consumption information, and support new functions including smart appliances and time-of-use tariffs.

In Home Display

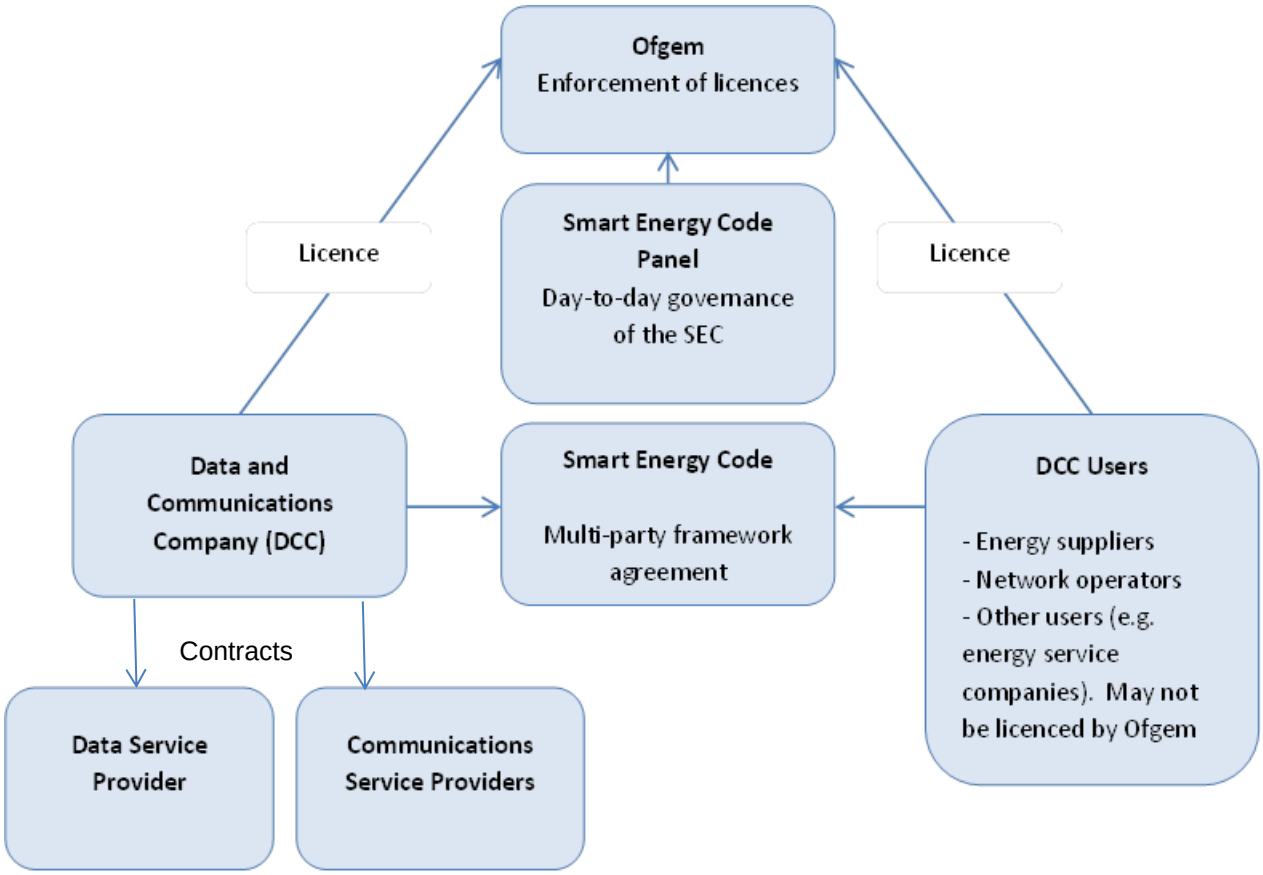
All domestic consumers will be offered an In Home Display as part of the smart meter roll-out, which shows how much energy is being used, and how much it is costing, in near-real-time. The display can also show information about the amount of energy used in the past day, week, month and year.

Communications hub and the Home Area Network

The communications hub has two functions: it allows the smart meters and in-home display to communicate with each other over a Home Area Network, in a similar way to wireless computer networks (Wi-Fi); and it provides a link to the Wide Area Network, which allows information to be sent to and from meters by suppliers, network operators and energy service companies.

Regulatory and Commercial arrangements: Industry Roles

Diagram A: The structure of the enduring regulatory and commercial arrangements:



Ofgem has a central role in driving delivery of the roll-out through its regulatory oversight of the obligations on energy suppliers, including the requirement on suppliers to take all reasonable steps to complete the roll-out by the end of 2020, and also has overall responsibility for oversight of the enduring smart meter system.

The DCC is granted a licence to provide communication services between smart meters and the business systems of DCC users (energy suppliers, network operators and other authorised service users). The DCC's role, as defined in its licence, is to ensure the provision of efficient, economical, coordinated and secure smart metering services. It does this primarily through its contracts with a separate Data Service Provider and up to three regional Communications Service Providers, plus other contractors. Given its exclusive role, the DCC Licensee is regulated by Ofgem to ensure that it does not exercise its market power to the ultimate disadvantage of energy consumers.

The Data Service Provider's primary responsibility is to develop, host and maintain a software application to provide functionality for access control, scheduling and translation for high volume messaging between the business systems of multiple DCC users and the smart metering communications hubs in consumer premises via the networks provided by the Communications Service Providers.

The Communications Service Providers' primary responsibilities are to: provide a Wide Area Network to communicate between the Data Service Provider and smart metering communication hubs; design, procure and own communications hubs, and provide these to energy suppliers.

The Smart Energy Code is a multiparty agreement that sets out the detailed day-to-day rules, rights and obligations for the different industry parties that use smart metering equipment and the information it provides. The DCC, energy suppliers and network operators are required, by licence conditions, to be parties to the Code and comply with its provisions. Other bodies that wish to use the DCC services, such as energy efficiency and energy service companies, must also comply with the Code. The initial content is being introduced by the Government, but the Code is self-governing, and will enable any party to raise change proposals, debate issues, and resolve disputes without the need for day-to-day regulatory intervention. It is managed by a Panel drawn from Smart Energy Code parties, with oversight where appropriate from Ofgem. Both the Panel and its administrative and secretariat support were established in 2013.

Glossary

This section provides a glossary of the principal terms used in this document. The definitions in this glossary are not intended to be legally precise, but instead to assist in understanding the document.

Communications Hub

A Device which complies with the requirements of the Communications Hub Technical Specifications and which contains two, logically separate Devices; the Communications Hub Function and the Gas Proxy Function.

Communications Hub Technical Specifications

A document (which is to form part of the Smart Energy Code) which sets out the minimum physical, functional, interface and data requirements that will apply to a Communications Hub.

Communications Service Provider

Bodies awarded a contract to be a service provider of communications services to DCC as part of DCC's Relevant Services Capability. Arqiva Limited and Telefónica UK Limited have been appointed to provide these services.

Data and Communications Company (DCC)

The holder of the Smart Meter communication licence, Smart DCC Ltd.

Data Service Provider

The company awarded a contract to be a service provider of data services to DCC as part of DCC's Relevant Services Capability. CGI IT UK Limited has been appointed to provide these services.

DCC Licence

The licence awarded under section 7AB of the Gas Act 1986, and the licence awarded under section 5 of the Electricity Act, each allowing Smart DCC Ltd to undertake the activity of providing a Smart Meter communication service.

DCC Service Providers

Companies or persons from whom DCC procures Relevant Services Capability; principally the Data Service Provider and the Communications Service Providers.

Device

One of the following: (a) an Electricity Smart Meter; (b) a Gas Smart Meter; (c) a Communications Hub Function; (d) a Gas Proxy Function; (e) a Pre-Payment Interface; (f) an Auxiliary Load Control; or (g) any Type 2 Device (e.g. an In Home Display).

Electricity Smart Meter

A Device meeting the requirements placed on Electricity Smart Metering Equipment in the SMETS.

End-to-End Smart Metering System

Any DCC System, Smart Metering System, User System or RDP System.

Gas Smart Meter

A Device meeting the requirements placed on Gas Smart Metering Equipment in the SMETS.

GB Companion Specification

A document setting out amongst other things, the detailed arrangements for communications between the DCC and Devices and the behaviour required of Devices in processing such communications.

Home Area Network

The means by which communication between Devices forming part of Smart Metering System takes place within a premises and which is created by the Communications Hub Function.

In-Home Display

An electronic Device, linked to a Smart Meter, which provides information on a consumer's energy consumption and ambient feedback.

SEC Subsidiary Documents

Documents that are referenced by and form part of the Smart Energy Code, and thus subject to the Smart Energy Code Modifications Process

Smart Energy Code

The Code designated by the Secretary of State pursuant to Condition 22 of the DCC licence and setting out, amongst other things, the contractual arrangements by which DCC provides services to users as part of its Authorised Business.

Smart Meter

A collective term for an Electricity Smart Meter, and a Gas Smart Meter.

Smart Metering Equipment Technical Specifications (SMETS)

A specification (which is to form part of the Smart Energy Code) of the minimum technical requirements of Smart Metering Equipment. (Communications Hubs are separately dealt with in the Communications Hub Technical Specifications).

Smart Metering Equipment Technical Specification version 1 (SMETS1)

The first version of the Smart Metering Equipment Technical Specification which was designated by the Secretary of State on 18 December 2012.

Smart Metering Equipment Technical Specification version 2 (SMETS2)

The second version of the Smart Metering Equipment Technical Specification which will be designated by the Secretary of State at a later time.

Smart Metering Equipment

A collective term for all SMETS equipment (Electricity Smart Meter, Gas Smart Meter, In-Home Device, Pre-Payment Metering Interface Devices, and Home Area Network Controlled Auxiliary Load Control Switches, but not including the Communications Hub)

Smart Metering Wide Area Network

The network that is used for two way communication between Communications Hub Functions and the DCC.

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