



Department  
of Energy &  
Climate Change

# Smart Metering Implementation Programme

## First Annual Progress Report on the Roll-out of Smart Meters

December 2012

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London  
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## Early Smart Meter Feedback

*“You can flick things on and you see the money go up. You put the microwave on and up it goes, it is instant. You quickly change your habits. It made us think about the tariff we were on as well. We have become more aware altogether.”* Owners, Empty nesters, 50-65, BC1, South

*“It was an eye opener, more for the unexpected things. You know the tumble dryer, the washing machine and the kettle are going to get it going, but the down-lighters in the bathroom, that was a shock.”* Owner, Pre-family, 18-30, C1C2, South

*“Habits in the house have changed, we don’t leave computer screens on now, we turn them off instead of leaving them on screen saver, turn them off at night, laptops they turn them off at the plug, don’t leave them on charge... and when kids took their clothes off at night, chuck them in washing machine, half load, but now when you see how much a washing machine can affect the level I wait till it’s a full load, that makes a big difference.”* Owner, Family, 25-50, BC1, South

*“We had an old fridge freezer, 30 years old, never realised it was using so much electricity, I worked out it was using 30-40p a day. We replaced it and it’s paid for itself in a year.”* Owner, Family, 25-50, Mixed, BC1, Midlands

*“If you fill the kettle up takes longer to boil, you see that go up, you only put in the water you need, or you fill the kettle and make everyone a cup of tea.”* Owner, Family, 25-40, C1C2, Midlands

*“It’s not been a case of cutting down, more of turning things off that are unnecessary.”* Owner, Retired, 65+, Mixed, C2D, Scotland

*“We’ve definitely seen a difference, we’re in credit this year.”* Owner, Empty nester, 50-65, C1, North

*“For me when you first get it you run round like a thing possessed unplugging things because you want to see it is actually working and registering different things. You are not going to not use them but it makes you realise how much these things do cost you.”* Owners, Empty nesters, 50-65, BC1, South

*“I’m going to get a smart meter, I like the idea that I only pay for what I use, you don’t do that (estimated bill) with petrol, or in a restaurant.”* Owner (IHD), Family, 25-40, Male, South

Smart Meters: research into public attitudes, DECC, April 2012: <http://www.decc.gov.uk/assets/decc/11/tackling-climate-change/smart-meters/5424-smart-meters-research-public-attitudes.pdf>

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# Ministerial Foreword



Smart meters have the potential to transform consumers' relationship with their energy use, bringing considerable benefits for both them individually and the energy sector more widely.

Smart meters will for the first time put consumers in control of their energy use, helping them to adopt energy efficiency measures that can help save money on their energy bills, offset price increases and reduce carbon emissions. Smart meters will provide accurate energy consumption information bringing an end to estimated billing and will help consumers to switch between suppliers more quickly and easily. That is why it is my ambition to see smart gas and electricity meters installed in every home and smaller business by the end of 2019.

Some consumers are already receiving smart meters from their energy suppliers and starting to see the benefits. Before mass roll-out across Great Britain starts in late 2014, we must make sure that everything is in place to handle a roll-out on this scale and, in particular, to ensure that consumers will enjoy a good experience. We want to ensure all necessary consumer protections are in place.

We are making good progress in laying these foundations. A new organisation will be established next year, funded by the energy suppliers, that will be dedicated to engaging consumers with smart metering. We have taken steps to ensure that the experience of having a smart meter installed will be positive, installers will be prohibited from selling during the installation visit. We have also introduced new regulations that make sure that consumers will be in control of how their smart metering data is used. At the same time, we are procuring the new secure communications system and establishing the broader regulatory frameworks that will support the national smart metering system.

It is already evident that this early work by the Government and the energy industry is positioning us to confidently ensure that the roll-out will be a success and will maximise the benefits for Great Britain.

A handwritten signature in black ink, appearing to be 'Verma'.

Baroness Verma of Leicester  
Parliamentary Under Secretary of State  
Department of Energy and Climate Change

# Chapter 1: Introduction

- 1.1 This is the first Government annual report on progress with the roll-out of smart meters. This first report provides an introduction to smart metering and the benefits to consumers. The report also provides a high level overview of the steps that Government and the energy industry are taking to prepare for the roll-out of smart meters across Great Britain, which is expected to start in earnest towards the end of 2014. We expect that the content of future reports will build on this early progress report as more information becomes available.

## The Smart Metering Implementation Programme

- 1.2 The Government's vision is for every home in Great Britain to have smart electricity and gas meters and for smaller business and public sector premises to have smart or advanced metering suited to their needs. The roll-out of smart meters will play an important role in Britain's transition to a low-carbon economy and help us meet some of the long-term challenges we face in ensuring an affordable, secure and sustainable energy supply.
- 1.3 Smart metering is a major national programme: one of the largest and most complex investment programmes undertaken by the energy industry. The programme aims to roll-out 53 million smart electricity and gas meters to all domestic properties and smart or advanced meters to smaller non-domestic sites in Great Britain by the end of 2019, impacting approximately 30 million premises.
- 1.4 The smart meter programme is being delivered in two phases: the Foundation Stage and mass roll-out. During the Foundation Stage, which began in March 2011, the Government is working with the energy industry, consumer groups and other stakeholders to ensure all the necessary groundwork is completed before energy suppliers start the mass roll-out. Mass roll-out is expected to begin in late 2014 and be completed by the end of 2019. Some consumers will receive smart meters during the Foundation Stage, as the energy suppliers start up their programmes in preparation for mass roll-out. However, the majority of consumers will receive their smart meters during mass roll-out.

## The benefits of smart metering

- 1.5 The interests of consumers lie at the heart of the smart meter programme. Smart meters have the potential to create a step change in how consumers monitor their energy use and interact with energy suppliers. Smart metering equipment will provide consumers with real time information on their energy consumption, which will help them to control and manage their energy use, save money and reduce their carbon emissions. Consumers will be able to see the impact of energy saving measures, for example those introduced under the Green Deal.
- 1.6 Smart meters can be read remotely by energy suppliers, removing the need to manually read meters and bringing an end to estimated billing. The smart metering system will allow customers to switch quickly and easily between suppliers and between credit and prepayment modes. Smart prepayment customers could be offered a range of more convenient ways of topping up, such as through mobile phones, cash points and the internet; the meters will have capacity for emergency credit to prevent customers losing supply; and will help customers to manage debt by displaying information about the amount outstanding.

- 1.7 For energy suppliers, access to more accurate data, accompanied by improved industry-wide data management systems, will release efficiency savings that should flow through to consumers who will receive a better service at reduced cost. The roll-out of smart meters will create business opportunities for suppliers and companies who can offer new smart products and services.
- 1.8 Smart meters in homes and businesses will sit at the interface between energy supply and demand, helping to modernise the energy industry. Smart meters are a critical part of the platform for the development of a smart grid and demand-side measures. New expected sources of demand such as electric vehicles or heat pumps and greater use of renewable generation will bring new demands on networks. Smart meters will support more efficient use of electricity infrastructure by providing better information and improving communication between consumers, electricity suppliers and network companies. Smart meters will enable accurate metering of the electricity exported to the grid by households who have installed micro-generation technologies, such as solar panels. Along with the development of smart grids they will also enable better network management for such decentralised energy production.
- 1.9 Taking into account the quantifiable costs and benefits to Great Britain from the roll-out of smart metering, a dual fuel household could on average see bill savings of £25 per annum by 2020, rising to £40 by 2030. For small and non-domestic sites, bill savings are expected to be approximately £190 per annum by 2020, rising to over £200 by 2030<sup>1</sup>. The benefits for consumers from smart meters have also been recognised by other countries around the world and many are undertaking their own smart meter roll-out Programmes (see Annex 2 for a snap shot of smart meter roll-outs in some other countries).
- 1.10 Consumer engagement with smart metering is crucial to realising the benefits of the Programme and we will be building up communications activities as we approach mass roll-out (see Chapter 4 on Consumer Engagement). However, we recognise that there are some issues that consumers may be concerned about such as data access and privacy, security, and key aspects of the installation experience and work has already been undertaken or is underway to address them (see Chapter 6 on Protecting Consumer Interests).

## What is smart metering?

- 1.11 Smart meters are the next generation of gas and electricity meters. They offer a range of intelligent functions and include two-way communications technology. This means that data such as meter readings can be collected remotely from the meters. The meter data can be displayed on an in-home display (IHD) (see box 1) or transmitted securely to other consumer devices (we expect in time consumers will be able to buy other smart in-home devices that will also connect to the meter). Key data can also be sent to energy suppliers, network operators and other parties that consumers choose to allow to access their data (such as switching sites). The meter will also be able to receive information remotely, for example to update energy tariffs or switch between credit and prepayment modes. Energy suppliers will not charge domestic customers separately for standard smart metering equipment and customers will still be able to choose the best tariffs for them.

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<sup>1</sup> Smart meter roll-out for the domestic sector (GB): Impact Assessment, DECC, April 2012:  
[http://www.decc.gov.uk/en/content/cms/consultations/cons\\_smip/cons\\_smip.aspx](http://www.decc.gov.uk/en/content/cms/consultations/cons_smip/cons_smip.aspx)

### **Box 1: The in-home display (IHD)**

All domestic customers will be offered an IHD at the smart meter installation visit, for no additional cost. The IHD will give customers easy access to information from their gas and electricity meters, which will enable customers to better manage their energy consumption and help prepayment customers manage their payments. The Government published the Smart Metering Equipment Technical Specifications (SMETS) in April 2012<sup>2</sup>, which set out the minimum requirements for the IHD.

IHDs will show the following information about energy consumption for all customers:

- cumulative consumption (i.e. how much energy has been used so far in the current day/week/month);
- historical consumption (i.e. how much energy was used yesterday, last week, last month and in the last 12 month period);
- whether electricity consumption at a given time is high, medium or low; and
- all information on energy consumption to be shown in pounds and pence, as well as kWh.

The IHD will also display additional information for prepayment customers on:

- the meter balance;
- emergency credit balance;
- debt recovery rate; and
- have the ability to give a low credit alert.

To further help consumers engage effectively with the device, IHDs must also be designed so that the information displayed on it can be easily accessed and is presented in a form that is clear and easy to understand, including by consumers with impaired: sight; memory and learning ability; perception and attention; or dexterity.

1.12 The smart metering architecture is summarised in Figure 1 and the following pieces of equipment will be installed during the installation visit:

- smart electricity and gas meters<sup>3</sup> - replacing traditional electricity and gas meters;
- communications hub – allows communication within the home (via the Home Area Network, HAN) between the meter and the IHD and other consumer devices. The hub also allows data to be transmitted securely externally (via the Wide Area Network, WAN) to energy suppliers, network operators and other authorised parties;
- IHD - provides near real-time information to consumers on their energy usage and how much it is costing and can be placed somewhere convenient in the home (see Box 1).

1.13 As illustrated in Figure 1, the Data and Communications Company (DCC) is a key element of the Government's strategy for rolling out smart meters and its principal role will be to provide

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<sup>2</sup> Smart Metering Implementation Programme: Smart Metering Equipment Technical Specifications, DECC, September 2012: <http://www.decc.gov.uk/assets/decc/11/consultation/smart-metering-imp-prog/6425-smart-metering-equipment-technical-specifications-.pdf>

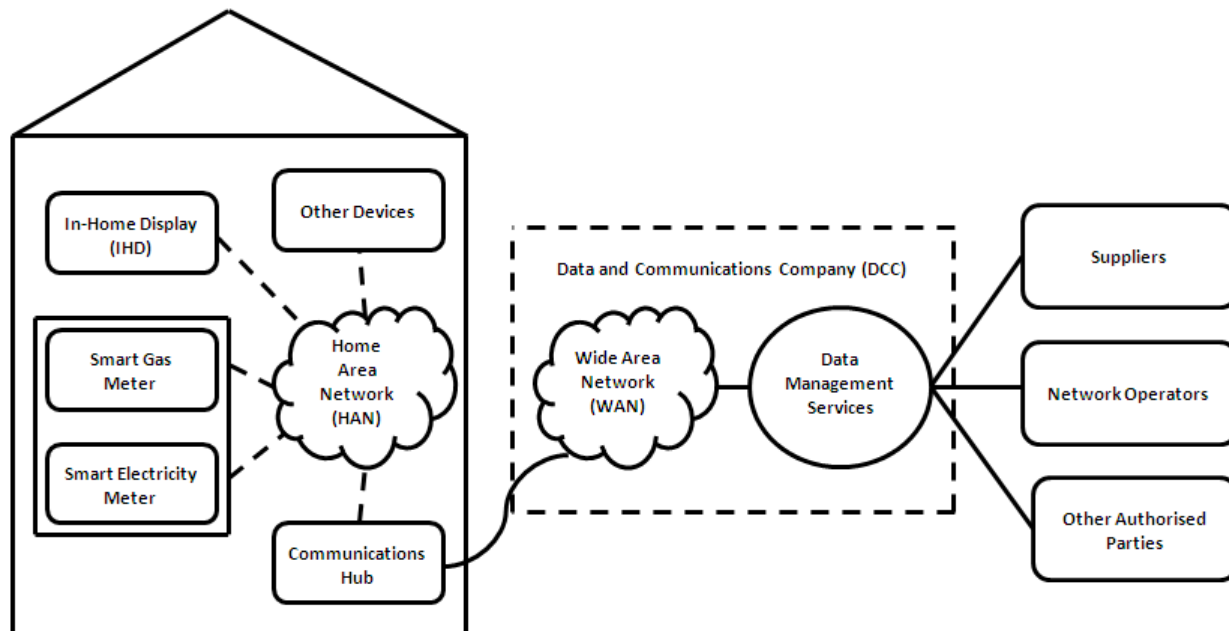
<sup>3</sup> Some smaller business and public sector premises will receive advanced meters, which have some, but not all of the functions of smart meters.



data and WAN communication services for all domestic smart meters and we expect many non-domestic smart meters to also use the DCC. The DCC will be a new licensed entity, regulated by Ofgem and it will enable energy suppliers, energy network operators and other authorised parties (such as energy service companies or switching sites) to transfer data over a communications network remotely and securely. The DCC will not itself store any data, but it will control access to smart metering data by others, as permitted by the regulatory framework (see Chapter 6 on Protecting Consumer Interests) and, for example:

- energy suppliers will use the DCC to collect meter readings remotely so that they can bill customers accurately;
- network operators will use the meter data (on an aggregated basis) to manage demand and plan investment;
- when prepayment customers top-up, energy suppliers will update the meter via the DCC; and
- consumers can choose to give authorisation to third parties to access their meter data. For example, switching sites may offer to make tariff recommendations to consumers based on their energy consumption.

**Figure 1: Smart Metering Architecture**



## Chapter 2: The Government's role - progress and plans

- 2.1 The roll-out of smart meters to households, smaller business and public sector premises in Great Britain is a major transformational programme and the Government is accountable for ensuring that benefits are realised – and in particular that consumers see the benefits of smart metering.
- 2.2 During the Foundation Stage, the Government has a central role as it establishes the policy, regulatory and commercial framework that will drive the roll-out of smart metering. This enabling framework is being designed to ensure that smart meters will be rolled out in a way that maximises the benefits. It is then energy suppliers that are responsible for planning and delivering the roll-out of smart meters on the ground, working within the framework that is established by Government.
- 2.3 This separation of overall accountability and delivery means that the Government has a critical role to play in monitoring and evaluating the roll-out of smart meters, both during the Foundation Stage and through mass roll-out, to ensure that the enabling framework remains fit for purpose in driving benefits realisation.
- 2.4 Key priorities for Government during the Foundation Stage include establishing:
  - common technical standards for smart metering equipment, to ensure that it is interoperable (which means that one energy supplier can use equipment installed by another and that the different pieces of equipment work together) and have the functions necessary to enable benefits realisation. The Smart Metering Equipment Technical Specifications (SMETS) cover the gas and electricity meters and the IHD (see figure 1) and include standards to ensure that the equipment will communicate data in a consistent format over the Home Area Network. There will also be technical standards for the communications hub.

We published the first version of the technical specifications (SMETS) setting out the minimum requirements for gas and electricity meters and the IHD, in April 2012 and successfully completed the EU notification period in July 2012. The second version will be notified to the EU early in 2013 and will set out further detail in specific areas, such as the standards for the Home Area Network, and we will also define the requirements for the communications hub;

- the new organisations and services that will enable communications between smart meters and energy suppliers, network operators and other authorised service users, including creating the new DCC (see figure 1).

We are in the process of running a competition to appoint the organisation that will hold the licence to be the DCC. The DCC will then appoint companies to provide smart metering data and communications services. To enable timely progress with roll-out, DECC is running procurement exercises to identify the DCC data and communications service providers, although it is the DCC that will sign and manage the contracts. Good progress is being

made: the DCC licence holder is expected to be appointed mid-2013 and they are expected to be in a position to sign contracts with service providers shortly after;

- a regulatory framework that places the right obligations and incentives on energy suppliers to deliver the roll-out in a way that delivers benefits to consumers and embeds appropriate consumer protections.

Regulations that require energy suppliers to roll-out smart meters to domestic and smaller non-domestic customers by the end of 2019 and that require suppliers to treat customers fairly and transparently throughout the installation process took effect in November 2012. A second tranche of regulations was laid before Parliament in December 2012, addressing issues around data access and privacy, consumer engagement, security during the Foundation Stage and monitoring and evaluation of the roll-out.

- 2.5 The Government is working collaboratively with a wide range of stakeholders in taking this work forward. Good progress is being made against the Programme Plan, which is published on the DECC website<sup>4</sup>.
- 2.6 To enable stakeholders to scrutinise and engage with the roll-out of smart metering, the Government will regularly publish information on progress. In addition to this annual report, we also plan to publish quarterly statistical updates in 2013 (we will announce in early 2013 when they will begin) as well as research and other evaluation outputs. Data and information provided to Government by energy suppliers will be anonymised and aggregated, as necessary, to ensure that commercially sensitive information is appropriately protected.

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<sup>4</sup> Smart Metering Implementation Programme Plan, DECC:  
[http://www.decc.gov.uk/en/content/cms/tackling/smart\\_meters/smart\\_meters.aspx](http://www.decc.gov.uk/en/content/cms/tackling/smart_meters/smart_meters.aspx)

## Chapter 3: Energy suppliers' role - progress and roll-out plans

- 3.1 Energy suppliers are responsible for planning and delivering the installation of smart meters for their customers. Suppliers need to adapt their businesses to prepare for the smart meter roll-out, including upgrading their internal systems to handle smart meter data, procuring equipment including the new smart meters and IHD and recruiting and training staff (e.g. meter installers). When suppliers begin to install smart meters they will engage with their customers before, during and after the installation visit to ensure they can engage with and understand how to use their new smart meter and IHD.
- 3.2 The larger energy suppliers<sup>5</sup> submitted information to Government for the first time in 2012 on the progress they have made to date in preparing for, and starting to deliver, the roll-out of smart meters and their future roll-out plans up to the end of 2019. The Government has aggregated this information in this report to give an overall picture of suppliers' early progress. The Government also has some information from the smaller suppliers. Their approaches to roll-out often align with those of the larger suppliers and are captured within the summary of approaches described below.

### Progress to date: approaches to rolling out smart meters

- 3.3 Energy suppliers are free to plan the roll-out of smart meters in a way that suits their business and the needs of their customers, subject to the requirement to complete the roll-out by 2019. Suppliers' proposed approaches to roll-out vary and take into account factors such as the location of their customer base and installation workforce and when their customers would need their traditional meters replaced on a routine basis. The approach adopted by suppliers may change as they progress into and through mass roll-out.
- 3.4 Suppliers are using the Foundation Stage to undertake trials and test installations to prepare for mass roll-out, to help ensure their customers have a positive experience of smart metering. Some suppliers will not roll-out significant volumes of meters during the Foundation Stage. Other suppliers are adopting the early technology and beginning to roll-out smart-type and smart meters to their customers to enable them to take advantage of the benefits of smart metering.
- 3.5 Suppliers that have chosen to make an early start have generally been rolling out smart-type meters to their domestic customers and smaller non-domestic sites ahead of the first smart meters (compliant with SMETS) becoming available in late 2012 (see Table 1). Across the larger suppliers, by the end of September 2012 a total of 623,200 smart-type and smart meters had been installed in domestic properties and 365,000 advanced and smart meters in non-domestic properties.
- 3.6 Smart-type meters offer some of the functionalities included in SMETS. Suppliers have learned lessons from installing and operating smart-type meters, which will benefit the smart roll-out, and their customers will have had early access to many of the benefits of smart metering. Nevertheless, smart-type meters installed in domestic properties will need to be

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<sup>5</sup> The larger suppliers are: E-On, British Gas, N Power, EDF Energy, Scottish Power and SSE.

replaced with smart meters by the end of 2019 in accordance with suppliers' roll-out obligations.

- 3.7 In the smaller non-domestic sector, advanced meters<sup>6</sup> are allowed as an alternative to smart meters where they have been installed before April 2014 or if contracts are in place before April 2014 to install advanced meters before 2019. Significant numbers of advanced (or smart-type meters) have already been installed in the non-domestic market, where meters are often installed by third party service providers, as well as suppliers.

**Table 1: Total numbers<sup>7</sup> of advanced, smart type and smart meters installed by the larger energy suppliers by 30 September 2012**

Meters at Domestic Properties		Meters at Smaller Non-Domestic Sites	
Smart-type meters	622,900	Smart and advanced meters	365,000
Smart meters (SMETS1 compliant)	300		
<b>Total</b>	<b>623,200</b>	<b>Total</b>	<b>365,000</b>

## Supplier forward plans

### Systems and Procurement

- 3.8 Suppliers are currently upgrading their internal IT systems to be able to handle smart meter data to help facilitate the roll-out of smart meters and to increase the range of services they will be able to provide to their customers following the installation of their smart meter. Suppliers are also working with external companies to procure services and hardware including smart metering equipment, smart metering installation, marketing and the recycling and disposal of old meters. Suppliers commonly have contracts with a number of companies to provide them with the components of the smart metering system. Suppliers have indicated that they will shortly be starting discussions with payment agents to set up new contracts for the delivery of smart prepayment so that systems can be established and fully tested in time for the start of mass roll-out.

### Training and recruitment

- 3.9 Suppliers have created and in some cases begun using training programmes for their staff in smart meter related positions in the business identifying two particular groups, back office and meter installers. Back office staff such as call centre workers will need to be able to deal with specific smart meter related queries and provide energy efficiency advice. Existing meter installers need to be up-skilled to install the new smart meters, explain to the customer how to use the IHD and also provide advice on energy efficiency and there will be a need to recruit

<sup>6</sup> Advanced metering is defined as being able to provide half-hourly electricity and hourly gas information that is remotely accessible by the supplier and to which the customer can have timely access.

<sup>7</sup> Rounded to the nearest 100 meters.

and train substantial numbers of new installers. The number of installers required by each of the suppliers will depend on the approach they are taking to installations and factors such as the geographical distribution of their customers (see Chapter 7 on Opportunities).

- 3.10 Suppliers have been adopting a number of approaches to ensure they have enough meter installers for the mass roll-out of smart meters. Some have been using this as an opportunity to up-skill their current installers and meter readers to install smart meters as well as recruiting and training new staff and others have chosen to procure installers through contractors. Installers who have been trained to install both gas and electricity smart meters are particularly valuable to energy companies, as they are the most flexible, carrying out both dual fuel and single fuel installations.

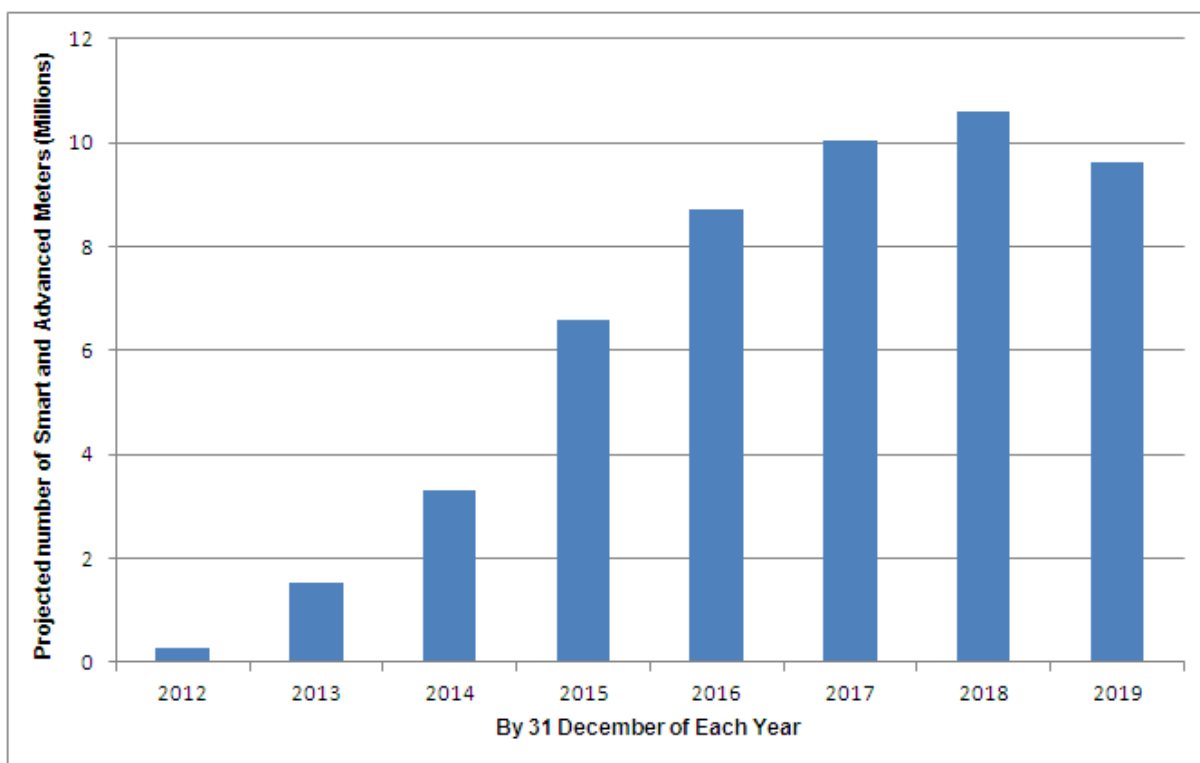
### Trialling and testing

- 3.11 Suppliers plan to trial and test their approaches to make sure that all of the elements of the smart metering system work well together and their installers and back office staff are able to provide customers with a good service. Suppliers have indicated that they intend to carry out much of their trialling activities in core areas where they have a high volume of customers or are targeting particular types of customers (for example, those who need their meter replaced anyway). Trialling activities already undertaken or in progress include: testing the communications systems, testing the booking process with different customers, developing smart applications, carrying out small scale installations of smart meters and working with external bodies such as local authorities, consumer groups and community energy projects.
- 3.12 The feedback that suppliers receive from their customers with new smart meters installed is already helping to refine their approaches. In addition, suppliers have been testing whether they need to take different approaches to the non-domestic and domestic roll-out, including whether they should prioritise any particular groups of customers. For example, whether some non-domestic customers (e.g. high energy users) would benefit from having a smart meter installed at an earlier stage in the roll-out.
- 3.13 Suppliers have indicated that a different strategy may need to be adopted when approaching different types of domestic customers, for example vulnerable or prepayment meter customers. They envisage that trials will help to inform the materials that are developed, the approach installers take with different customers and the type and method of contact from call centres.

### Smart meter roll-out profiles to the end of 2019

- 3.14 The larger suppliers have provided information to Government on their early plans for rolling out smart meters, looking ahead to 2019. The profiles for each supplier will be revised as lessons are learnt (e.g. from undertaking trials and test installations), but aggregating the information provides a useful snap-shot of the suppliers' current thinking about their proposed approach on a national basis, as at November 2012 (see Figure 2).

**Figure 2: Current projections by the larger suppliers for the number of smart and advanced meters to be installed per annum in domestic and smaller non-domestic properties between 2012 and 2019 (at 30 November 2012)<sup>8</sup>**



3.15 We expect these projections will evolve over time. For example, suppliers plans for the Foundation Stage are likely to be refined when the Government confirms the policy on how meters installed during the Foundation Stage, before the DCC is operational, can join the DCC. Suppliers will also refine their plans as their experience of rolling out smart meters grows from undertaking trials and early roll-outs.

3.16 Since each supplier is responsible for planning their own roll-out and a range of different strategies are being developed, we expect activity to go on across the country from now to 2019. Where suppliers inform the network operators and consumer groups of the locations and timings of installations, it will help to plan and target this third party activity (e.g. consumer engagement activity ahead of the installations), enabling better management of resources and avoiding significant peaks and troughs in demand for their services. With the roll-out of smart meters taking place in different locations at different times there is the opportunity for consumer and local groups to share lessons learnt.

<sup>8</sup> Roll-out profiles provided by the larger suppliers assume their customer base remains unchanged throughout the roll-out.

## Chapter 4: Consumer engagement

- 4.1 Constructive consumer engagement will be critical to the success of the Programme, as it will: 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 awareness of the potential to change their behaviours so as to enable them to reduce their energy consumption; and assist vulnerable, low income and pre-payment consumers to realise the benefits of smart metering systems while continuing to maintain an adequate level of warmth and meet their other energy needs.
- 4.2 At present, knowledge of smart meters amongst consumers is fairly mixed. The first phase of a Government commissioned 6-monthly tracker of consumer attitudes and awareness of smart metering has been published<sup>9</sup> with the next phase to be published in early 2013. Key findings so far have included:
- half (49%) of energy bill-payers living in Great Britain had heard of smart meters;
  - the perceived benefits of having a smart meter installed included being able to budget better, to help avoid waste and produce a greater accuracy of billing;
  - four in ten of those without a smart meter in their home were interested in having one installed; and
  - the more respondents felt they knew about smart meters the more likely they were to support the roll-out of smart meters and to want one.
- 4.3 Informed by this evidence, the Programme is working closely with suppliers, consumer groups and other parties to raise awareness of the benefits of smart metering ahead of mass roll-out.
- 4.4 In addition to the Government's 6-monthly tracker, in-depth consumer research to explore awareness, understanding and attitudes towards smart meters and IHDs was carried out for DECC by Navigator in February 2012 and published in April 2012<sup>10</sup>. This examined attitudes and behaviour towards IHDs and smart meters amongst consumers with smart meters and IHDs (including some with clip-on electricity IHDs); awareness, understanding and attitudes to smart metering among those without meters; views on sources of information about smart meters; and other consumer views about the Programme. This research has revealed that consumers see saving money as a key impetus in acquiring smart meters and IHDs, with IHDs seen as having a role in prompting one or more of:
- turning items off to reduce electricity consumption;
  - reducing energy use for heating;

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<sup>9</sup> Quantitative Research into Public Awareness, Attitudes and Experience of Smart Meters, DECC, August 2012: <http://www.decc.gov.uk/assets/decc/11/tackling-climate-change/smart-meters/6194-quantitative-research-into-public-awareness-attit.pdf>

<sup>10</sup> Smart Meters: research into public attitudes, DECC, April 2012: <http://www.decc.gov.uk/assets/decc/11/tackling-climate-change/smart-meters/5424-smart-meters-research-public-attitudes.pdf>



- identifying and replacing ‘culprit’ or ‘high usage’ appliances such as an ageing fridge freezer or changing halogen spotlights for LEDs;
  - improving insulation.
- 4.5 An in-depth qualitative study on vulnerable and low income consumers’ experience of installation was carried out by National Energy Action (NEA), funded by DECC and Consumer Focus<sup>11</sup> and shows a broadly positive picture of their experience of installation and their subsequent use of the IHD to control their energy use. It found that these consumers were broadly happy with the installation and that the majority made at least minor changes to their energy use, with those who used the IHD regularly displaying the most behaviour change.
- 4.6 However, the research also shows that some vulnerable consumers struggled with understanding and using the IHD or had chosen not to. This supports the case for providing additional and tailored support for these consumers. The research provided some reassurance regarding the risk that older consumers could react to the information displayed on the IHD by reducing their energy use in a detrimental way, such as reducing heating to a dangerously low level. The study found that older customers are, in general, unlikely to be alarmed into excessive reductions in energy use with IHDs resulting in either more careful and considered use of energy, or no change at all. However, it remains important to ensure that information about the importance of maintaining a sufficient level of heating is provided to vulnerable consumers as part of installation and the broader consumer engagement. A second piece of work by NEA has been commissioned to explore some of these issues in greater depth.
- 4.7 As the Programme moves towards mass roll-out, it will be important that we continue to monitor the development of consumer awareness, understanding and confidence – including whether there are any concerns emerging which are not being addressed.

## Consumer engagement strategy

- 4.8 The consumer research informed the Government’s recently published Consumer Engagement Strategy<sup>12</sup>, which acknowledges the importance of consumer engagement to the delivery of consumer benefits. The Strategy aims to build consumer support for the roll-out; facilitate the realisation of consumer benefits by building awareness of smart meters and by helping consumers to use smart metering to manage their energy consumption; and ensure that vulnerable<sup>13</sup>, low income and pre-payment consumers can benefit from the roll-out. Suppliers will have the primary consumer engagement role as the main interface with their customers before, during and after the installation of smart meters. The importance of the consumer experience of installation is reflected by a new requirement for suppliers to develop

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<sup>11</sup> Smart for All: Understanding consumer vulnerability during the experience of smart meter installation, Consumer Focus, November 2012: <http://www.consumerfocus.org.uk/files/2012/11/Smart-for-All-Understanding-consumer-vulnerability-during-the-experience-of-smart-meter-installation.pdf>

<sup>12</sup> Smart Meters Implementation Programme: Government response to consumer engagement strategy consultation, DECC, December 2012: <http://www.decc.gov.uk/assets/decc/11/consultation/smart-metering-imp-prog/7224-gov-resp-sm-consumer-engagement.pdf>

<sup>13</sup> Defined in the Consumer Engagement Strategy as energy consumers with low incomes and those who face additional barriers to accessing the benefits of smart metering because of personal circumstances or characteristics.

and comply with a smart metering Installation Code of Practice (see Chapter 6 on Protecting Consumer Interests).

- 4.9 Supplier engagement will be supported by a programme of centralised engagement undertaken by a Central Delivery Body (CDB). The CDB will be funded by larger energy suppliers, with small suppliers contributing to fixed operating costs. Larger suppliers will be required to set up the CDB by June 2013 and will be accountable for ensuring it delivers its objectives (which broadly align with the aims of the Government's Consumer Engagement Strategy above). The body will have an independent chairman and consumer representatives on the board. Other organisations, such as charities, consumer groups, community organisations, local authorities and housing associations will also have an important role to play in delivering effective consumer engagement and it is expected that the CDB will facilitate and co-ordinate their involvement. The CDB will also have a role engaging with micro-business customers.
- 4.10 Government will also continue to play a role in engaging consumers. It will, for example, help build consumer trust and confidence in smart metering by ensuring that accurate information on smart meters is easily accessible for consumers and that any misinformation is corrected. It will also help prepare organisations such as charities, community groups, housing associations, local authorities and consumer bodies to work with the CDB to engage consumers.
- 4.11 The Consumer Engagement Strategy and DECC's Energy Efficiency Strategy<sup>14</sup> highlight that smart meters will provide a platform for other energy policies and initiatives. For example, they will support the Green Deal by encouraging choices which increase the energy efficiency of the home and by validating the energy savings claimed by providers. Consumer engagement has the potential to help exploit synergies between smart metering and other policies and the Government will therefore continue to work to ensure that linkages are understood and built on.

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<sup>14</sup> The Energy Efficiency Strategy: The Energy Efficiency Opportunity in the UK, DECC, November 2012: <http://www.decc.gov.uk/assets/decc/11/tackling-climate-change/saving-energy-co2/6927-energy-efficiency-strategy--the-energy-efficiency.pdf>

## Chapter 5: Delivery of consumer benefits

- 5.1 As described in Chapter 1, a key rationale for the Programme is to deliver a range of benefits to energy consumers. Some of these will be delivered through the basic installation package of smart meters, IHD and advice, while others will be facilitated by new products and services and further developments in the energy market (e.g. faster switching) which will not be available until sometime into mass roll-out.
- 5.2 We expect to see a growing range of benefits emerging over time, supported by new products and services which suppliers are enabled to deliver using smart metering and, as illustrated in box 2, these are already starting to appear:

### **Box 2: Examples of market developments in smart meter products and services**

- In June 2012 first:utility launched their my:energy service. This has been developed with the leading US energy management company OPOWER, and employs analysis of smart meter data to help their smart customers save energy through personalised energy-saving tips, detailed analysis and comparative reports. The service enables customers to compare their energy usage against their neighbours and to monitor the immediate impact of energy saving actions. Consumer benefits are being evaluated and will be reported on next year.
- In 2012 British Gas took its business-specific Business Energy Insight smart-enabled energy efficiency service from trial to market, with over 40,000 small and medium enterprise sites registered to use the service to date. The service has been offered at no additional cost to the customer. To support bringing Business Energy Insight to market, British Gas launched a campaign in the first half of 2012 featuring five 'Energy Challenge Live' case studies which achieved an average 13.5% reduction in energy use (a saving of £1,410 per year).

- 5.3 The Government is committed to a programme of Foundation Stage learning about consumer engagement and benefits. This will include gathering early insights into consumer benefits and how they may differ by consumer type; measuring awareness and attitudes towards smart meters; and learning more about what works in changing energy consuming behaviours. Key sources of information are consumer surveys, qualitative research, consumer benefits measurement and reporting data on progress of installations.
- 5.4 During 2012 we have put in place arrangements for measuring consumer benefits and an early assessment project will provide one of the main means of assessing the success of the Consumer Engagement Strategy during the Foundation Stage. Conclusions from this work will be published in the 2013 annual report. However, some direct consumer benefits are already being reported by suppliers (see box 3). Consumer benefits will be evaluated and reported on by the Programme throughout the roll-out.

**Box 3: Early supplier findings on the range of consumer benefits**

Energy suppliers' own consumer research suggests that smart-type meters are driving the outcomes that can be expected to lead to significant consumer benefits from the smart meter roll-out. These outcomes are also being independently evaluated by DECC, through the early assessment project described above. Findings to date include:

- Supplier research shows that consumers are actively engaging with their in-home displays. For example, research by E.on shows that following the first bill consumer interaction with in-home displays remains high:
  - 53% using their display at least once per day;
  - 21% every 2-3 days;
  - 19% about once a week.
- EDF Energy, first:utility, British Gas and E.on are seeing consistently high levels of customer satisfaction with smart meter installations.
- Trials of pre-payment smart meters have shown positive consumer benefits. For example 70% of British Gas pre-payment customers moved onto a smart meter set in pre-payment mode were satisfied with smart meters; most wanted to keep them after the trial had ended, valuing the greater control and flexibility e.g. topping up by mobile phone.
- First:utility research shows that customers with smart meters compared to those with standard meters are:
  - 60% more likely to say 'first:utility helps me understand how I am using energy';
  - 60% more likely to say 'first:utility offers useful tools to help me save money on my energy bills.'
- EDF Energy research shows that 67% of customers have found smart meters impacted on the way they used energy.
- British Gas surveys businesses 4 months after smart meter installation to gauge customer experience with smart – according to results from the most recent 3 months:
  - 48% of customers see a time-saving benefit from not having to read their meter;
  - 43% of customers see a budgetary control benefit from receiving bills based on an accurate read; and
  - 28% of customers see a benefit of not having to query bills due to accurate reads.

5.5 Ongoing Programme monitoring and evaluation (for example, of installation rates and consumer impacts such as energy savings) will help the Government to assess whether the Consumer Engagement Strategy's aims are being met or whether further action is required to realise consumer benefits (such as closer working with stakeholders; amending the regulatory framework for elements of the smart meter roll-out; or through wider DECC policy development such as energy efficiency obligations<sup>15</sup>).

<sup>15</sup> Electricity Demand Reduction: Consultation on options to encourage permanent reductions in electricity use, DECC November 2012: [http://www.decc.gov.uk/en/content/cms/consultations/edr\\_cons/edr\\_cons.aspx](http://www.decc.gov.uk/en/content/cms/consultations/edr_cons/edr_cons.aspx)

## Chapter 6: Protecting consumer interests

6.1 Smart metering is a relatively new technology for most consumers and we recognise that consumers may have questions and concerns. In response, the Government is establishing a policy and regulatory framework that embeds appropriate consumer protection ahead of the start of mass roll-out. Some of the main issues we have been focusing on in 2012 are discussed below.

### The installation visit

6.2 Consumers are at the heart of the smart meter roll-out, and the installation visit will be an important element of the consumer experience of smart metering and the key to a successful roll-out. A positive experience will mean that consumers are more likely to engage with their smart meters and will also help to give other consumers confidence in the installation process.

6.3 The Government is requiring suppliers to develop and comply with an Installation Code of Practice that will address the consumer experience throughout the smart meter installation process at both domestic and micro-business premises<sup>16</sup>. This will ensure that consumers receive an appropriate standard of service and are treated fairly and transparently. Among the key requirements of the Code of Practice are that suppliers:

- give an explanation to customers of the smart metering system and how they can use their IHD to improve their energy efficiency and inform consumers of additional, impartial sources of information on energy efficiency (for example, the Green Deal);
- will not conclude any sale at the domestic installation visit itself, to protect consumers from being hassled and from mis-selling of goods and services;
- will need prior domestic customer consent to carry out any face-to-face marketing at the domestic installation visit, recognising that for some consumers this could be a good opportunity to explore options for increasing their energy efficiency;
- will have to identify and meet the needs of vulnerable customers (which may also help suppliers to bring together obligations to deliver initiatives such as the Affordable Warmth element of the Energy Company Obligation with the smart meter roll-out providing a more comprehensive and valuable package for such consumers); and
- will not charge their domestic customers any upfront or separate costs for standard smart metering equipment including the IHD.

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<sup>16</sup> Licence conditions for a code of practice for the installation of smart electricity and gas meters – Government response to consultation, DECC, April 2012: <http://www.decc.gov.uk/assets/decc/11/consultation/smart-metering-imp-prog/4841-government-response-to-licence-conditions-for-inst.pdf>

- 6.4 Suppliers have worked together on the development of the Code of Practice, which has now been submitted to Ofgem for approval and is expected to come into operation in Spring 2013.

## Safety

- 6.5 Meter installations need to be undertaken with due regard to the safety of consumers, installers and network engineers. Our current assessment is that the types of safety risk associated with smart meter installations are essentially the same as those for any other meter installation, therefore the energy industry will continue to operate within the existing rules governing safety e.g. gas meter installers will need to be Gas Safe registered. However, the scale of installation activity that will be taking place during the smart meter roll-out warrants some additional actions and industry are embedding new practices ahead of mass roll-out principally through amendments to the Meter Operation Code of Practice Agreement (MOCOPA) for gas and Meter Asset Manager's Code of Practice (MAMCOP) for electricity. In addition, the Installation Code of Practice is likely to include further commitments relating to the training and accreditation of meter installers.
- 6.6 Energy suppliers are also exploring the opportunities that the installation visit provides for meter installers to raise consumer awareness of safety issues, such as by completing a visual inspection of electrical equipment, fixing warning labels about fire risks (to raise awareness of the potential dangers of storing combustible material near to electrical intake equipment) and providing general electrical safety and carbon monoxide advice to customers where appropriate.

## Security

- 6.7 Security of the smart metering system is a priority for the Government, both to maintain the privacy of personal information and smart meter data and to prevent unauthorised tampering and hacking for fraud or to disrupt energy supplies. Considerable effort has been invested by the Government in adopting a 'secure by design' approach, in which security is considered and addressed at every stage throughout the development lifecycle. The Programme is working to ensure that the system is designed to be secure from the outset and that there are risk assessments, risk management controls, alerts and a robust assurance regime to mitigate risks arising from unauthorised system access, attempts to tamper with the meter or to access confidential data.

## Data access and privacy

- 6.8 Smart meters will lead to a step-change in the amount of information that is available about energy consumption, which will bring benefits for consumers, suppliers, network companies and others. The Government is following international best practice and expert advice to ensure 'privacy by design', meaning that privacy issues are considered and embedded into the programme from an early stage. In order to augment its evidence base, the Government commissioned some research into consumer attitudes towards smart metering data access and privacy<sup>17</sup>. This examined the extent to which the Government's proposals addressed potential concerns that consumers may have.

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<sup>17</sup> Smart Metering Data Access and Privacy: Public Attitudes Research, DECC, December 2012: <http://www.decc.gov.uk/assets/decc/11/consultation/smart-metering-imp-prog/7227-sm-data-access-privacy-public-att.pdf>

6.9 Government has now put in place a set of regulations<sup>18</sup> to govern the ways in which different parties can access energy consumption data, for which purposes and the choices that consumers will have about this. The core principle is that consumers will have control over their energy consumption data, apart from where this is required for billing or other regulated duties. For instance, suppliers will be able to access monthly data for billing and regulated purposes, but will only be able to access daily data if the customer has not opted out or half-hourly data if the customer has opted in. Network operators will be able to access energy consumption data, including half-hourly energy consumption data for regulated purposes, without consent, if they have had plans for aggregation approved to address potential privacy concerns. Smart metering equipment will ensure that consumers are able easily to access their own energy consumption data and share this with third parties (such as switching sites), should they choose to do so. There will also be separate data access rules in the non-domestic sector that reflect the different make-up of the market.

## Health

6.10 Smart meters use radio waves to allow remote readings to be taken from gas and electricity meters. Radio waves are very common in the environment and are used in radio and television broadcasts, wireless computer networks, pagers, radar, cordless and mobile phones. Smart meters are covered by UK and EU product safety legislation, which requires manufacturers to ensure that any product placed on the market is safe. Manufacturers comply with the legislation by assessing and, if necessary, testing equipment according to agreed EU standards. The standards follow guidelines drawn up by the independent International Commission on Non-Ionizing Radiation Protection (ICNIRP). The ICNIRP guidelines are based on a critical in-depth evaluation of the published scientific literature and represent the international consensus about this evidence. The independent adviser to Government on public health, the Health Protection Agency (HPA) has advised that the evidence to date suggests exposures to the radio waves produced by smart meters are low in comparison with the ICNIRP guidelines and do not pose a risk to health<sup>19</sup>. Our ambition is for all homes to have smart meters by the end of 2019, but there will not be a legal obligation on individuals to have one.

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<sup>18</sup> Smart Metering Implementation Programme: Data access and privacy - Government response to consultation, DECC: December 2012: <http://www.decc.gov.uk/assets/decc/11/consultation/smart-metering-imp-prog/7225-gov-resp-sm-data-access-privacy.pdf>

<sup>19</sup> Smart meters, Health Protection Agency website: <http://www.hpa.org.uk/Topics/Radiation/UnderstandingRadiation/UnderstandingRadiationTopics/ElectromagneticFields/SmartMeters/>

# Chapter 7: Opportunities

- 7.1 The benefits of smart metering for consumers and the energy industry have been discussed earlier in this document, but there are likely to be other wider benefits and opportunities presented by the Smart Meter Programme.

## Impact on UK jobs and growth

- 7.2 Smart metering is expected to create new employment opportunities with many of the jobs created being UK-based. A number of jobs, including installers, support and managerial positions have already been created and this number is expected to rise significantly as in excess of 50 million meters are installed across the UK. The National Skills Academy for Power (NSAP) has estimated that by 2017 at least 6,000 meter installers will be required plus nearly 1,000 network staff. However, the final peak requirement may reach 10,000 people (three times the existing levels).
- 7.3 NSAP has led the development of a level 2 diploma in Smart Metering, with accreditation already available through two awarding bodies and training offered through eight providers. The diploma aims to ensure a consistent skill set for all new smart meter recruits and it takes at least thirty weeks to qualify as a dual fuel installer. Approximately £3 million is available to fund smart meter apprenticeships via the recently introduced Energy and Utility Skills (one of the Sector Skills Councils) framework.
- 7.4 Whilst energy suppliers will create new, higher skilled jobs, there are likely to be losses in lower skilled roles such as meter readers and a reduced need for call centre staff to deal with queries and complaints. The scale of reductions will depend on the way in which employers deal with their existing metering and customer support workforces.
- 7.5 The introduction of smart meters may also enable the development and growth of other sectors, for example, the high value energy services market - companies providing energy and home monitoring hardware and services.



# Annex 1: Frequently Asked Questions

## What are smart meters?

Smart meters are the next generation of gas and electricity meters and they can offer a range of intelligent functions. Unlike traditional meters which have to be read manually by a meter reader, smart meters can be read by the energy supplier without them having to visit a customer's home due to two-way communication technology which should bring an end to estimated bills. Smart meters are able to tell consumers how much energy they are using and approximately how much it is costing through an in-home display.

## Why are smart meters being introduced?

Smart meters are an important step towards a modern and efficient gas and electricity system which will give customers more control over how much energy they use. They bring a wide range of benefits, for example, you will be able to use an in-home display to monitor your gas and electricity use, to help identify and cut energy waste, saving money.

## Who is in charge of the smart meter roll-out?

The Government is requiring energy companies to install smart meters for their domestic and non-domestic customers and is setting out rules to ensure that they do this in a way that is in the interests of consumers. This will include rules around data access, security, technical standards for the smart metering equipment and meeting the needs of vulnerable consumers.

## How much will rolling out this new technology cost me?

DECC published two smart meter Impact Assessments in April 2012. Taking into consideration both cost and costs savings to energy suppliers, as well as energy savings to consumers, the Impact Assessments estimate that overall the roll-out will reduce the average, annual dual fuel household bill by £25 by 2020 and by £40 in 2030. For small non-domestic sites, bill savings are expected to be approximately £190 per annum by 2020, rising to over £200 by 2030.

## How much will it cost to get a smart meter installed?

Domestic customers will not be charged separately for a smart meter or for the in-home display. Under current arrangements, domestic customers pay for the cost of their meter and its maintenance through their energy bills and this will be the same for a smart meter.

## When will I get a smart meter?

Most households will have smart meters installed between 2014 and 2019, although some energy companies are starting to install smart meters now. If consumers are interested in getting a smart meter now, they can shop around and contact energy companies to see what their plans are.

## Do I have to use a smart meter?

Smart meters will be rolled out as standard across the country by 2019, but it will not be a legal obligation on individuals to have one. The roll-out of smart meters is an important national

modernisation programme that will bring benefits to consumers and the nation. We expect consumers to welcome the benefits smart meters will bring and we are aiming for all homes to have smart meters by 2019.

### **I use a pre-payment meter. Will I still get a smart meter?**

Yes. A smart meter can work in pre-payment or credit mode. Customers can agree with their energy supplier to pay the way that best suits them. Pre-payment customers will see some particular benefits from having a smart meter. For example, energy suppliers may be able to offer their customers new and more flexible ways of topping up their meters, possibly including remote credit top-up facilities or setting up the meter to avoid customers having to go out after dark to buy more credit.

### **Will I still be able to switch supplier when I get a smart meter installed?**

Smart meters will ultimately make switching suppliers easier and quicker. During the Foundation Stage whilst the systems are being built to make this possible, it is important that consumers should not have any problems in switching energy company if they have a smart or smart-type meter. Ofgem has introduced new rules<sup>20</sup> designed to help domestic customers understand if the smart services they are receiving will be maintained when they switch supplier. The new rules also remove some of the barriers that could prevent the new supplier from operating the meter, if they wish to do so, and will keep customers better informed about the choices available to them. In most cases the meter can still be used in 'traditional' mode if the new energy supplier cannot support the smart functionality at this stage.

### **Who will be able to see my energy consumption data?**

The Government recognises the need to strike the right balance between protecting consumers' privacy and providing access to data to help realise the benefits of smart metering. Consumers will have a choice about how their energy consumption data is used, apart from where it is required for billing and other regulated purposes.

### **How are you ensuring smart meters are safe?**

Smart meters are covered by UK and EU product safety legislation, which requires manufacturers to ensure that any product placed on the market is safe. The Health Protection Agency (HPA) provides advice and information on the health implications of smart meters and further information can be found on the HPA's website: <http://www.hpa.org.uk>

### **Where can I get more information?**

Consumers can contact their energy supplier or see the following smart meters web pages:

DECC: [https://www.decc.gov.uk/en/content/cms/tackling/smart\\_meters/smart\\_meters.aspx](https://www.decc.gov.uk/en/content/cms/tackling/smart_meters/smart_meters.aspx)

Ofgem: <http://www.ofgem.gov.uk/E-SERVE/SM/Pages/sm.aspx>

Consumer focus: <http://www.consumerfocus.org.uk/get-advice/energy/smart-meters-what-are-they-and-how-can-i-find-out-more>

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<sup>20</sup> Supporting effective switching for domestic customers with smart meters: Modification of supply licence standard conditions, Ofgem, August 2012:

<http://www.ofgem.gov.uk/Markets/sm/metering/sm/Documents1/smart%20meters%20-%20effective%20switching.pdf>

## Annex 2: International learning

1. The roll-out of smart metering in Great Britain is an ambitious Programme involving the replacement of both electricity and gas meters with a view to delivering benefits to consumers, suppliers and networks. The roll-out will take place in a market where there is both full competition in energy supply and in metering services, which is a different environment from that in many other countries.
2. The Programme fully recognises the value of learning from individual elements of smart meter programmes taking place in other countries. More than 50 countries are installing or planning to install smart metering equipment, with individual states in the US, Canada and Australia having their own roll-out programmes. DECC has increased its level of engagement with other programmes in the past year and has met with representatives from Ireland, India, Sweden, France, Spain, Malta, Australia and USA. In addition, DECC is undertaking further research to capture good practice, identify issues and see how they are overcome and compare and contrast our programme with those in other countries.
3. We have looked at the motivations of other countries for installing smart meters and their strategies for consumer engagement, including handling of areas of concern such as data access and privacy which can affect the successful delivery of the Programme. In Great Britain we are placing a much stronger emphasis on consumer benefits and the potential for energy efficiency savings than many other countries, where the primary benefits are seen as improving the management of supply, reducing losses and reducing administrative costs.

### Snapshot of smart meter roll-outs in other countries

#### Europe

4. Great Britain's smart metering roll-out is being carried out under powers included in the Energy Act 2008<sup>21</sup>. The EU has subsequently set rules in this area. The Third Package<sup>22</sup> requires Member States to undertake a cost benefit analysis for the roll-out of electricity and gas intelligent metering systems. Subject to the assessment, Member States are required to roll-out intelligent metering systems (with a target of completing the roll-out 10 years from the cost benefit analysis being carried out). In addition, Member States need to ensure that at least 80% of consumers have intelligent electricity metering systems by 2020. For intelligent gas meters, Member States are required to prepare a timetable for their installation, but the Directive does not set a completion date.
5. The 2012 EU Energy Efficiency Directive<sup>23</sup> includes rules about the provision and use of data where smart meters are installed.

<sup>21</sup> Energy Act 2008, The National Archives, November 2008: <http://www.legislation.gov.uk/ukpga/2008/32/contents>

<sup>22</sup> Directive concerning common rules for the internal market in electricity, Official journal of the European Union, July 2009: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:211:0055:0093:EN:PDF> and Directive concerning common rules for the internal market in natural gas, Official Journal of the European Union, 2009: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:211:0094:0136:en:PDF>

<sup>23</sup> Directive on energy efficiency, Official Journal of the European Union, October 2012: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:315:0001:0056:EN:PDF>

## France

6. France is aiming to roll-out 35 million smart electricity meters by 2018 (90% of customers). It is expected that approximately 7 million meters will be installed in households between 2013 and 2014, followed by a further 28 million between 2015 and 2018. A large (250,000 installations) year-long pilot project was completed in March 2011 which tested the installation process, the communications system and meter interoperability. Gas smart metering is less advanced in France, but a smaller scale pilot scheme featuring 18,500 installations was completed in June 2011 and may lead to a roll out of 11 million smart gas meters between 2014 and 2020.

## Ireland

7. Ireland is aiming to roll-out 2.2 million smart electricity and 600,000 smart gas meters to all domestic properties and a large number of businesses by 2019. The Irish Government chose to roll-out smart meters following the positive results of comprehensive electricity and gas smart metering trials and associated costs benefit analysis.

## Italy

8. By 2011 all 36 million electricity customers in Italy were equipped with a smart meter. The focus of the smart metering system was initially on electricity theft prevention and the efficiency of operating processes (hence no provision of IHDs), but is now moving towards customer oriented benefits through energy savings.

## Netherlands

9. Following some initial delays caused by a failure to properly consider consumer concerns, including those related to data access and privacy, the roll-out of smart gas and electricity meters in the Netherlands started in 2012 and is aiming to reach 7 million domestic and small business users, with much of the roll-out complete by 2015. The objectives of the programme include enabling greater energy market competition through easier switching for customers, improving operational efficiency and supporting energy savings.

## Spain

10. The Spanish programme is aiming to roll-out 26 million smart electricity meters to domestic customers by the end of December 2018. The main benefit of the roll-out identified by the Government and energy suppliers is gaining the ability to remotely change the limits on the amount of energy the household can draw upon. The Spanish Government also introduced a law in 2006 to ensure that all meters installed in new homes from July 2007 had a time of use functionality and remote management capability.

## Worldwide

### India

11. India is planning to roll-out 150 million smart electricity meters across five regions between 2013 and 2025 (almost three times the number of smart meters to be rolled out in Great Britain). Smart meters are seen as a method of increasing the reliability of the energy grid, will reduce the dependence on fossil fuels such as coal and gas which are in short supply,

provide energy for those living in rural areas and reduce the persistent peak shortages of energy for the population.

## **USA**

12. There has been significant smart metering activity in the US with an estimated 20 million plus installations in eleven states across the nation. For example, the state of Maine has rolled out 625,000 smart electricity meters to domestic customers and a range of small to large non-domestic customers within a two year period. The success of the roll-out Programme was enabled by early testing and trialling of equipment, consumer engagement to ensure approvals and customer acceptance and the communications network being made available before the roll-out began.

## **Victoria, Australia**

13. The Victorian State Government mandated that 2.5 million residential and small business customers have a smart electricity meter installed by the end of 2013. One of the drivers for the Victorian roll-out is the desire to improve the efficiency of the electricity distribution network after significant power outages caused by surges in demand as use of air conditioning units increased during periods of hot weather. Another feature of their roll-out is the ability of customers to receive data about their energy usage by half hourly intervals enabling them to potentially reduce their consumption during peak times. The roll-out began in 2010 and identified that smart meters should be a key part of, and complementary to, a wider smart grids approach rather than implemented in isolation.

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