



BRIEFING PAPER

Number 8119, 20 October 2017

Energy Smart Meters

By Jeanne Delebarre

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Contributing Authors: Sarah Barber

Summary

This briefing paper only applies to energy smart meters and focuses mostly on domestic households. For information on water smart meters and water meters, see the House of Commons Library briefing paper [Water meters: the rights of customers and water companies](#).

Between now and 2020 more than 50 million new energy 'smart meters' are being rolled out to 30 million homes and smaller non-domestic sites in Great Britain. These energy smart meters, which will include an offer of a free in-home-display for households, are intended to allow consumers to see and adjust in real-time what energy they are using. Since 2009, the Department for Energy and Climate Change – now the Department of Business, Energy & Industrial Strategy – and Ofgem have been working on a rollout programme.

The rollout only applies in Great Britain as Northern Ireland has a separate energy market from the rest of the UK.

The rollout is composed of two stages – the Foundation Stage and the Main Rollout Stage (also referred to as the Installation Stage). The Foundation Stage ran from 2011 to 2016 and was designed as a transitory phase during which the Government set the regulatory and commercial frameworks and for suppliers to start rolling-out the early version of energy smart meters.

The programme is currently in the Main Rollout Stage which is due to end in 2020 but it is facing delays when it comes to rolling-out the second generation of meters. As a result, the early version of meters is currently still being rolled-out. This may continue until July 2018.

A new communications network infrastructure is being built for energy smart meters, through the Data Communications Company.

Ofgem considers that energy smart metering could “transform how energy markets operate”. The Government’s most recent cost-benefit analysis estimates that by 2030, the rollout of smart meters will have delivered about £5.8 billion of net benefits to consumers, energy suppliers and networks, which are offset by approximately £11 billion of total costs.

Potential benefits of energy smart meters are that they make energy visible to customers in near-real-time; thus enabling them to change their consumption. This in turn helps with demand management and ensuring security of supply. However, evidence from behavioural research suggests that influencing consumer understanding and behaviour around smart meters is an important part of any rollout process.

The same research has often concluded that public authorities have a role in making sure that consumers are engaged through marketing, education and information campaigns. [Smart Energy GB](#) was commissioned by the Government with responsibility for promoting and explaining the national rollout to consumers.

Customer concerns regarding energy smart meters include data protection and privacy, connectivity in areas with low or no mobile coverage, installation visits and doorstep selling, health concerns, disconnection of prepayment meters, and the ability to switch supplier and keep the 'smart functionality'. These concerns are addressed in details in this briefing paper.

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The National Audit Office and several select committees have raised concerns about the ambition of the programme, its risks and the extent of the potential benefits to consumers. Most recently, the Science and Technology Committee published a report on the smart meter rollout in which it stressed that energy smart meters alone would not lead to energy savings without “a programme of user engagement before, during and after installation”.

Nevertheless, the rollout is going ahead at a substantially increased pace with a 288% increase of domestic installations between 2015 and 2017. Government data shows that as of June 2017, nearly 7.7 million smart meters have been installed in homes and businesses.

1. Introduction

By 2020, the Government wants more than 50 million new energy 'smart meters' to be offered to 30 million homes and smaller non-domestic sites in Britain. These energy smart meters, which include an offer of a free in-home-display for households, are intended to allow consumers to see and adjust in real-time what energy they are using. The policy is led by the Department for Business, Energy and Industrial Strategy¹ (BEIS) and does not apply to large non-domestic customers.

The Smart Metering Programme is being implemented by way of a Smart Metering rollout obligation which requires energy suppliers to take all reasonable steps to *offer* – but not necessarily provide – the installation of an energy smart meter to all domestic customers and small non-domestic customers by the end of 2020.²

Government data shows that as of June 2017, nearly 7.7 million smart meters have been installed in homes and businesses.³ The rollout only applies in Great Britain as Northern Ireland has a separate energy market from the rest of the UK.

A key difference between domestic and small non-domestic customers is that the latter may be offered *advanced meters* rather than smart meters – both of which count towards the Government's 2020 rollout target. This is explained further in section 1.2.

Note that the smart meter rollout and this briefing paper only apply to *energy* smart meters. For information on water meters (including smart water meters), see the House of Commons Library briefing paper [Water meters: the rights of customers and water companies](#).

1.1 What are energy smart meters?

Energy smart meters cover gas and electricity usage. In a typical house, there will be one energy smart meter for each, along with an in-home display (IHD) and communications hub.

The benefits of an energy smart meter are that manual meter reads are no longer required and consumers can see their consumption in close to real-time.

Ofgem explains in its smart metering [factsheet](#):⁴

A smart meter is a gas or electricity meter that is capable of two-way communication. It measures energy consumption in the same way as a traditional meter, but has a communication capability that allows data to be read remotely and displayed on a device within the home, or transmitted securely externally. The meter can also receive information remotely, e.g. to update tariff information or switch from credit to prepayment mode.

¹ Formerly, the Department for Energy and Climate Change ('DECC').

² BEIS, [Smart meters. Quarterly report to end June 2017. Great Britain](#), 31 August 2017

³ BEIS, [Smart Meters Quarterly Report to end June 2017](#), 31 August 2017

⁴ Ofgem, [Factsheet 101 - Smart metering: what it means for Britain's homes](#), 31 March 2011

This is what smart meter in-home displays – which allow consumers to see their consumption in near to real-time – can look like:⁵



1.2 Types of energy smart meters

Different types of energy smart meters have been used in the UK.

There are currently two types of domestic meters that the Government recognises as working towards the smart meter rollout target although only one of them is currently being rolled out:

- **SMETS 1 meters:** they are the first generation of energy smart meters and are compliant with the first version of the Government's Smart Meter Equipment Technical Specification ('SMETS').⁶

They were meant to be rolled out as part of the Foundation Stage (2011-2016) only. However, they are currently still being rolled out as part of the Main Rollout Stage because there have been delays in laying out the required infrastructure for SMETS 2 meters (see next paragraph). According to a recent government decision, from 13 July 2018, these meters will no longer count towards the 2020 target.⁷

- **SMETS 2 meters:** they are the second generation of energy smart meters and are compliant with the second and latest version of the SMETS.⁸

They were meant to be rolled out as soon as the Main Rollout Stage was launched in November 2016 because they are supposed to bring a solution to some of the problems with smart meters detailed in section 2. However, a recent parliamentary question set out that testing was still ongoing before the rollout commenced.⁹ See section 2.8 for more details on these delays.

Domestic consumers

If you are a domestic consumer taking part in the energy smart meter rollout, then you may be offered a SMETS 1 (for now) or a SMETS 2 (when they are ready to be rolled out) energy smart meter.

⁵ Smart Energy GB Press Centre, [Smart meter photography](#), copyright: Image courtesy of www.anoukproductions.com

⁶ DECC, [Smart metering implementation programme: smart metering equipment technical specifications](#), 31 March 2014

⁷ BEIS, [Decision on R1.3-related obligations](#), 11 August 2017

⁸ DECC, [Smart metering equipment technical specifications: second version](#), 28 November 2014

⁹ [PQ 616Z](#), 5 September 2017

Advanced meters are energy meters which have some smart functionalities and are currently being offered to non-domestic sites only. They count towards the 2020 Government target that requires that over 50 million energy smart meters be offered to 30 million domestic and small non-domestic premises.

In order to conform to the Government's standards, advanced meters must at least offer the function to store half-hourly electricity and hourly gas data to which both the customer and the supplier can have access.¹⁰

Other non-conforming meters:

- Smart-type meters are not classed as smart meters and do not count towards the supplier's rollout obligation.

There are also so-called 'non-compliant pre-SMETS meters' which are meters that were rolled out before the SMET specifications were drafted and are therefore not compliant with Government standards.

1.3 Why energy smart meters? What's the point?

The various benefits that could be obtained from energy smart meters are outlined below. Research shows that in order to be effective, energy smart meter rollouts need to be targeted, well designed, and consumers' expectations need to be managed. This section does not attempt to compare the value of any benefits with costs around implementation and ongoing support.

Energy savings and making energy 'visible'

Research into behavioural change outlined below suggests that energy smart meters can make energy less opaque to consumers and therefore help them engage with their own behaviour and levels of consumption.

Energy smart meters give consumers detailed, accurate information about their energy consumption. The aim is that with this, customers can take "informed decisions to reduce consumption and thereby bills and CO₂ emissions".¹¹

In order to test this assumption, DECC and Ofgem ran the Energy Demand Research Project (EDRP)¹² - a major project testing GB consumers' responses to different forms of information about their energy use between 2007 and 2010. These different types of information were meant to make energy more visible and test whether it would influence customers in changing any of their energy consumption habits and make savings. The findings were published in June 2011 and concluded that energy smart meters with a real-time

Non-domestic consumers

If you are a small non-domestic consumer, chances are you will be offered an advanced meter which will have some smart functions.

Potential smart meter benefit:

Energy smart meters could help households save up to 3% on their energy bills.

¹⁰ BEIS, [Smart Meters – Quarterly Report to end June 2017 Great Britain](#), 31 August 2017, p.7

¹¹ DECC, [Domestic Sector Impact Assessment](#) April 2012

¹² Ofgem, [Energy Demand Research Project Final Analysis](#) 23 June 2011

display resulted in persistent savings of around 3% for households involved in the trial.¹³

Demand management

Because they allow consumers to monitor in near real-time their energy consumption, energy smart meters can contribute to demand management by encouraging consumers to reduce energy demand and pressures on the grid at peak demand times.¹⁴

Demand management, along with energy efficiency, may be able to make a significant contribution towards energy security and sustainable energy use.¹⁵ This is because electricity demand changes with the time of the day, week and season. During peak periods of consumption, flexible generation tends to be made up of relatively more expensive and carbon-intensive fossil fuels, pushing up prices. This paper does not consider generating capacity, but demand management is required as during extreme peaks of demand, margins between available demand and supply become close. This risk is currently managed and planned for by Ofgem and National Grid.¹⁶ Energy smart meters are part of Ofgem's wider strategy to handle future peak demand with demand-side response (consumers who moderate their consumption at peak times are rewarded with cheaper variable tariffs at non-peak times).¹⁷

Demand-side response allows less reliance on more expensive and carbon-intensive flexible peaking plant and greater chance of avoiding black-outs without the need to build expensive new generating capacity.¹⁸

Other potential benefits

Energy smart meters bring a number of other benefits, including:¹⁹

- For **consumers**: more accurate billing, avoiding meter reading visits, and potential for new products and services such as smart appliances which could turn on in response to energy tariff price information. In a competitive market, a proportion of savings experienced by suppliers may also be expected to pass on to consumers.
- For **suppliers**: avoided site visits, reduced enquiries and customer service overheads resulting from estimated billing, reduced cost to serve customers with pre-payment meters, improved debt-management and remote switching between credit/prepayment, supplier switching savings, reduced energy theft, and no need to visit property to undertake disconnection.
- For **networks**: outage detection and management, more informed decisions on network enforcement, and generation and network capacity savings from load shifting.

Potential smart meter benefit:

They could make your energy consumption more visible and help you shift your energy demand at times when tariffs are more advantageous or pressure on the grid is lower.

¹³ Ibid.

¹⁴ Written evidence submitted by the Department of Energy and Climate Change (DECC), [SME0031](#), 26 April 2016

¹⁵ Ofgem, [Smarter Markets Programme](#) [accessed 7 March 2017]

¹⁶ Ofgem, [Electricity security of supply](#) [accessed 11 April 2017]

¹⁷ Ofgem, [Electricity system flexibility](#) [accessed 7 March 2017]

¹⁸ BEIS, [Smart meters and demand side response](#), 22 December 2016

¹⁹ Summarised from DECC [Domestic Sector IA](#) April 2012

Different tariffs

On 21 September 2017, energy supplier E.ON [announced](#) it would start replacing Standard Variable Tariffs with a fixed-term tariff for any customers having a smart meter installed. The move was linked to recent concerns around the use of Standard Variable Tariffs (SVTs), but it is an example of firms being able to use smart meters to vary prices and tariffs.

Conditional effectiveness: Evidence from behavioural research

The expectation is that energy smart meters could, by showing people what their energy costs are in near real-time, encourage consumers to change or decrease their consumption. There is evidence showing that energy smart meters can have such an impact on consumers.²⁰

However, research in countries with similar energy smart meter rollout policies found that consumers' understanding of what energy smart meters are and can do are often erroneous and can lead to unrealistic expectations regarding the scale of benefits they can achieve using them.²¹ Examples of erroneous consumers' perceptions about energy smart meters which stress the need for clear communication about this technology are:

- Consumers confusing energy smart meters with smart technologies and expecting smart meters to show them which specific appliances were responsible for high energy consumption or to be able to remotely switch off the appliances that were consuming too much.²²
- Consumers thinking that energy smart meters would allow energy suppliers or the relevant authorities to control their energy consumption remotely and shut down their energy supply when and if they were using too much.²³
- Consumers thinking that the sole purpose of energy smart meters was to help them save money on their energy bills each month.²⁴

Behavioural insights from UK consumers in 2010 showed that financial considerations were "uppermost" in people's minds when considering whether to get an energy smart meter or not. This led participants in those research projects to express disappointment and frustration at

Common misconception:

Smart meters are the same as smart appliances. In fact, they're not, though it is hoped that in the near future, households will increasingly have and use both.

#1: Saving on bills

Saving on energy bills was the number one preoccupation for prospective smart meter customers; before any other concerns.

²⁰ See for instance a case study from Italy: D'Oca, Corgnati and Buso, '[Smart meters and energy savings in Italy: determining the effectiveness of persuasive communication in dwellings](#)', *Energy Research & Social Science* 3 (2014), 131-142

²¹ See for instance a UK experiment done by Hargreaves, Nye and Burgess, '[Making energy visible: a qualitative field study of how householders interact with feedback from smart energy monitors](#)', *Energy Policy* 38 (2010), 6111-6119

²² Krishnamurti et al., '[Preparing for smart grid technologies: a behavioural decision research approach to understanding consumer expectations about smart meters](#)', *Energy Policy* 41 (2012), 790-797

²³ Ibid.

²⁴ Ibid.

the prospect of saving “pennies” rather than larger amounts with an energy smart meter.²⁵

Other findings from research with UK participants were that consumers were driven by environmental concerns, interest in smart technology and a desire to gain more information about household energy consumption.²⁶ However, “adapting everyday routines” and “giving up high levels of flexibility” to keep up with changing tariffs and reduce demand at peak times were regarded as “difficult” by consumers.²⁷

Managing expectations and engaging consumers

The Energy and Climate Change Committee (ECC Committee) had concluded from its inquiry in 2013 on the energy smart meter rollout that the Government should manage consumers’ expectations about the scale of savings achievable and educate them instead about how energy smart meters can contribute towards having a smart grid:

36. If consumers do not believe that they are benefiting significantly from rollout, they could rightly perceive it as a costly project that they have paid for but gained little from.²⁸

Evidence gathered by the Committee also showed that if consumers do not engage with energy smart meters, the benefits in terms of energy savings and bills will be lower.²⁹ This point was also made elsewhere: demand-side management requires “levers of success” in the shape of incentives, education and marketing in order to encourage consumers to engage with their consumption levels.³⁰

Others have gone further and argued that for savings to be made from energy smart meters, consumers must be engaged through dynamic pricing³¹ (e.g. peak prices and time-of-use tariffs) and feedback so consumers have a frame of reference regarding how their near real-time usage impacts on the environment or compares with their overall consumption.³²

DECC ran a [consultation](#) on how best to deliver consumer engagement, designed to reassure consumers, maximise energy saving and help vulnerable and low income consumers to benefit from energy smart meters. It concluded that engagement could be best achieved through a combination of direct feedback on energy use in near real-time, indirect feedback, advice and guidance, and motivational campaigns. Suppliers

Potential smart meter benefit:

Individual monetary savings are not the only benefits achievable with energy smart meters. They can also contribute to laying out the foundations for a smart grid though it is less often talked of.

²⁵ Hargreaves, Nye and Burgess, [‘Making energy visible: a qualitative field study of how householders interact with feedback from smart energy monitors’](#), *Energy Policy* 38 (2010), 6111-6119

²⁶ Ibid.

²⁷ Paetz, Dutschke and Fichtner, [‘Smart homes as a means to sustainable energy consumption: a study of consumer perceptions’](#), *J Consum Policy* 35 (2012), 23-41

²⁸ ECC Committee, [Smart meter roll-out](#), Fourth Report 2012-13, HC 161-I, 27 July 2013, para. 36

²⁹ Ibid., para. 74

³⁰ Davito, Tai and Uhlauer, [‘The smart grid and the promise of demand-side management’](#), *McKinsey on Smart Grid*, Summer 2010

³¹ Barbu, [‘Achieving energy efficiency through behaviour change: what does it take?’](#), European Environment Agency, 16 October 2013

³² Olmos, Ruester, Liong and Glachant, [‘Energy efficiency actions related to the rollout of smart meters for small consumers, application to the Austrian system’](#), *Energy* 36, Issue 7, July 2011, 4396-4409

were envisaged as having the primary engagement role, supported by a supplier-funded Central Delivery Body (CDB) and third-party trusted messengers such as charities, community organisations and local authorities.³³

[Smart Energy GB](#) was tasked with this engagement role in 2013. Since it was created, it has run information campaigns on the rollout and has a website where consumers can find information on how the policy will affect them. The website also contains information on how to save energy and feedback from smart meter users.

In their assessment of behavioural evidence regarding consumers and energy smart meters, Smart Energy GB found that “there are many studies that support this view of the potential for smart meters to support behavioural change.”³⁴ They argue that energy smart meters “only mar[k] the beginning of the process of achieving sustainable behaviour change.” Research by Populus found that “80% of those who already have a smart meter have taken at least one step to change something about their energy use.”³⁵ Smart Energy GB are pragmatic about what can be achieved:

Nevertheless, we must be realistic. Without the right tools and support interventions to deepen engagement, it is likely that some proportion of consumers would develop some fatigue with the energy data simply made visible by the [in-home display].³⁶

Recent research on consumer engagement and the GB rollout was published by the Centre on Innovation and Energy Demand at the University of Sussex (although not supported by the Government programme).³⁷ The authors found that “lack of customer engagement, insufficient information, and inadequate attention to vulnerability” have slowed down the rollout and limited its reach particularly among vulnerable customers.³⁸ The study highlighted that in order to hit the 2020 target, suppliers would need to install 40,000 smart meters per day for the duration of the programme.³⁹ It concluded that more was needed to engage consumers and overcome their resistance.

Smart Energy GB responded to these findings, arguing that the research contained “serious inaccuracies and omissions which paint a misleading picture of the smart meter rollout.”⁴⁰ The engagement body highlighted its own assessment of customer engagement, saying it had found that 97% of the population of Great Britain are aware of smart meters and

³³ DECC, [Government Response to the Consultation on the Consumer Engagement Strategy](#), December 2012

³⁴ Smart Energy GB, [A smart route to change 2016](#), 25 July 2016, p.7

³⁵ Ibid., p.8

³⁶ Ibid.

³⁷ Sovacool et al. [‘Vulnerability and resistance in the United Kingdom’s smart meter transition’](#), *Energy Policy* 109 (2017) 767-781

³⁸ Centre on Innovation and Energy Demand, [‘Confusion and resistance slows down UK smart meter rollout’](#), 18 September 2017

³⁹ Ibid.

⁴⁰ Smart Energy GB, [‘Smart Energy GB response to University of Sussex research on smart meters’](#), 19 September 2017

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more than three quarters of people who have a smart meter say they would recommend one to others.⁴¹

⁴¹ Ibid.

2. Consumer concerns and questions

2.1 Are energy smart meters mandatory?

Energy smart meters are not mandatory – there is “no legal obligation on individuals to have one.”⁴²

The onus is instead on the energy suppliers to “take all reasonable steps” to *offer* an energy smart meter or an advanced meter to all their domestic and small non-domestic customers by 2020.⁴³ The Government recognised from the start that there “may be some circumstances where it would not be practical to install a smart meter”.⁴⁴ Circumstances in which the installation of an energy smart meter is not possible are detailed in the next sections.

This is not to say that Government expect a low take-up. On the contrary, they hope that British consumers will see the benefits of energy smart meters and welcome the rollout even if it is not mandatory for them to do so.⁴⁵

“I don’t want an energy smart meter, can I say no without needing to justify myself?”

Yes, you are entitled to say no and you do not need to justify why.

2.2 Can a customer request an energy smart meter?

The obligation to roll out smart meters is supplier-led. This means that energy suppliers are free to plan the roll out in a way that suits their business and the needs of their customers, as long as they meet the overarching obligation to complete the rollout by the end of 2020.

For consumers who do want an energy smart meter, they can either wait for their energy supplier to contact them and make an offer to them, or they can proactively get in touch with their supplier to get one. However, householders who request an energy smart meter before the energy supplier makes them an offer should be aware that energy suppliers do not have to immediately meet the request.⁴⁶

2.3 Installation visit, entry rights and doorstep selling

There have been concerns about unwelcome sales activities at the point of installation and about upfront or one-off charging for smart metering equipment.⁴⁷ The Government has made clear **that no up-front costs can be charged to consumers for the *standard* (see section 2.4)**

⁴² BEIS, [Guidance – Smart meters: a guide](#), 24 January 2017 [accessed 28 March 2017]

⁴³ [PQ 69051](#), 29 March 2017

⁴⁴ [HC Deb 29 November 2011 c903W](#)

⁴⁵ [HC Deb 6 December 2016 c21WH](#)

⁴⁶ Citizens Advice, [Getting a smart meter installed](#) [accessed 28 March 2017]

⁴⁷ Ofgem & DECC, Smart metering implementation programme, [Supporting document 2 of 5 30](#), March 2011

installation of an energy smart meter. The cost of the energy smart meter policy will be spread by suppliers across all consumer bills; there is no direct charge when consumers have them installed.⁴⁸

Following a consultation, new licence conditions entered into force on 30 November 2012. They enabled suppliers to provide written marketing material or discuss generic approaches to improving energy efficiency. However, suppliers may only carry out face-to-face marketing discussions about specific products or services with the prior consent of the customer, unless that product or service is free.

No sales may be completed at the visit.⁴⁹

The licence conditions under which energy suppliers operate also required them to develop the [Smart Meter Installation Code of Practice](#) which came into force on 1 June 2013 and regulates how suppliers should behave when they install smart meters.

The Government has also sought to reassure householders about entry rights onto private properties during the installation process:

Charles Hendry (then Minister for Energy and Climate Change): We have made it clear that we do not expect suppliers to seek an entry warrant simply to fit a smart meter and it will not be an offence for householders to refuse to accept a smart meter.⁵⁰

“Can my supplier charge me for the installation of a smart meter?”

No up-front costs can be charged for a **standard** installation but all energy consumers will pay the costs of the overall smart meter rollout through their energy bills.

2.4 Recovery of installation costs by suppliers

Suppliers cannot levy upfront costs for a **standard** smart meter installation. However, if a consumer requests **specific** installation work like a different location for the meter or anything different from the standard installation offer, suppliers may request that the customer incur the cost for the work. This can only be done under restricted circumstances and must be communicated clearly to the consumer before any work starts.⁵¹

In 2011, the National Audit Office raised concerns about the fact that while suppliers are not allowed to levy a one-off or upfront charge on their domestic customers for the smart metering equipment and in-home displays, beyond this, no additional constraints had been imposed on suppliers as to how they recover their costs.⁵²

In August 2015 Ofgem wrote an open letter clarifying how costs should be recovered. This was updated in July 2017 and reaffirmed the previous advice:

These licence conditions set out that costs in relation to the provision, configuration, installation, operation, replacement and modification of a smart meter cannot be recovered from an individual customer, and should instead be borne by a supplier’s

⁴⁸ BEIS, [Guidance – Smart meters: a guide](#)

⁴⁹ BEIS, [Guidance – Smart meters: a guide](#)

⁵⁰ Ibid.

⁵¹ [Smart Metering Installation Code of Practice Section A: The Code of Practice](#), Version 4.0, footnote 15, p.20

⁵² NAO, [Preparations for the roll-out of smart meters](#) HC 1091, 2010-2012 June 2011, para. 5.8, p.35

domestic customers more generally as an increment of the charges for energy supplied to them

[...] However, there may be instances where suppliers may also face additional costs associated with individual installations. Examples may include, where it is necessary to replace a decaying meter board; or fixing or replacing meter cupboard doors where this would otherwise prevent the installation of smart metering equipment from proceeding as planned.⁵³

Recently, the Member of Parliament Alan Whitehead argued that under these rules

Consumers will probably pay somewhere between £130 and £200 on their bills to recover the costs of the installation of a smart meter on their property.⁵⁴

He pressed the Government for an answer the issue of recovery of costs and energy price increases.⁵⁵

In their response, the Government stressed that they were “aware that consumers are concerned about costs”⁵⁶ but that it needed to be acknowledged that “suppliers face costs associated with installing the meters, which need to be recovered.”⁵⁷

In their inquiry on the energy smart meter rollout, the ECC Committee had also looked at the extent to which costs and benefits of the energy smart meter policy would be passed on to consumers. The Committee concluded that the safeguards against increasing costs paid by consumers in their bills were not strong enough and that more should be done to guarantee that benefits are delivered to customers⁵⁸

The Government responded to this recommendation by saying that they would monitor the extent to which costs were passed onto customers and would intervene to make sure they saw the benefits of this policy if necessary⁵⁹.

2.5 Data protection and privacy

Under data protection law, data is “personal data” when it can be used to identify a “living individual” or lifestyle. Respondents to a government consultation expressed concerns about how the increased level of half-hourly detail in consumption data could be used to invade consumers’ privacy. For example, more detailed energy consumption data could potentially indicate when someone was on holiday.⁶⁰

⁵³ Ofgem, [Suppliers' responsibilities and restrictions on domestic smart meter installation costs – revised in light of changes to relevant Supply Licence Conditions](#), 27 July 2017

⁵⁴ [HC Deb 9 Feb 2017](#), vol 621 col 216WH

⁵⁵ Ibid.

⁵⁶ Ibid., col 218WH

⁵⁷ Ibid., col 220WH

⁵⁸ ECC Committee, [Smart meters roll-out](#), Fourth Report 2012-13, HC 161-I, 27 July 2013, p.3

⁵⁹ ECC Committee, [Smart meter roll-out: Government and Ofgem Responses to the Committee's Fourth Report](#), Seventh Special Report 2013-14, HC 719, 14 October 2013, para. 4

⁶⁰ Ofgem, [Supporting document on Data Access and Privacy](#), 5 March 2011, p13

The Government responded to these concerns with a call for evidence, and following this, a [Consultation on data access and privacy](#). The [response](#) was published in December 2012. It acknowledged that concerns about privacy had been raised in many countries rolling out smart meters. The Government noted that licence conditions already allowed suppliers to access *monthly* consumption data for billing and other regulatory purposes without needing consent. As a result, the Government announced that there would be a clear opt-out for daily collection of data, and an opt-in would be required for use of the most detailed half-hourly consumption data.⁶¹

Current Government guidance on energy smart meters establishes other fundamentals principles regarding consumer privacy:

- You will have a choice about how your energy consumption data is used, apart from where it is required for billing and other regulated purposes.
- You will be able to see your real-time energy consumption data on your in-home display. You will also be able to download more detailed historic data from your home network, should you wish to.
- Your energy company, and the energy networks, can access appropriate data to enable them to send you accurate bills and carry out other essential tasks.
- Suppliers will have to get your consent to access half-hourly data, or to use data for marketing purposes. They can access daily data unless you object.
- You will also be able to share data with third parties (such as switching sites) if you want them to give you advice on the best tariff for you.⁶²

“Can my energy supplier use my consumption and private data without my consent?”

No, you have a choice about how your private data is used.

The Government also encouraged the energy industry to develop a ‘privacy charter’ to explain to consumers what their choices around data access were,⁶³ and to adopt a ‘privacy by design’ principle. This led the industry body Energy UK, its members and Consumer Futures to come up with a [Data Guide for Smart Meters](#) outlining key information for consumers about their rights and choices.

On the issue of data security, the Government recently restated that a robust security framework was in place to ensure that energy smart meter data could not be stolen.⁶⁴

2.6 Concerns about energy smart meters and health

Concerns have been expressed that exposure to electromagnetic fields emitted from smart meters may have health impacts.

Public Health England (PHE), an executive agency to the Department of Health, acts as an independent advisor to Government on the health

⁶¹ DECC, [Consultation on data access and privacy](#) 5 April 2012

⁶² BEIS, [Guidance – Smart meters: a guide](#)

⁶³ Source: DECC, pers. comm., 2 May 2012

⁶⁴ [PQ 37098](#), 25 May 2016

aspects of radio waves from smart meters. PHE has produced guidance on [Smart meters: radio waves and health](#) (last updated June 2017). This states that the evidence to date suggests that exposure to radio waves from smart meters do not pose a risk to health:

Smart meters use radio waves to allow remote readings to be taken from gas and electricity meters. They are expected to replace the existing meters in people's homes over the next few years.

The evidence to date suggests exposures to the radio waves produced by smart meters do not pose a risk to health.

Assessments made in other countries that use smart meters have found exposures that are low in relation to internationally agreed guidelines.

Public Health England (PHE) has been carrying out an extensive programme of research to assess exposures from the devices as the technology is rolled out. The first set of results, involving laboratory measurements of the Home Area Network radio signals, are now published in the [peer reviewed journal of Bioelectromagnetics](#).

A selection of smart meter devices available in Great Britain were assessed during normal operation under controlled laboratory conditions.

The results confirm PHE's existing advice that exposure to radio waves from smart meters is well below the guidelines set by the International Commission on Non-Ionizing Radiation Protection (ICNIRP).

The study also concluded that exposure to the radio waves produced by smart meters is likely to be much lower than that from other everyday devices such as mobile phones and Wi-Fi equipment.

PHE considers exposure to radio waves does not provide a basis to decline having a smart meter.⁶⁵

PHE also reports that it is committed to reviewing new scientific evidence in this area, and publishing updates as necessary.

⁶⁵ PHE, [Guidance, Smart meters: radio waves and health](#), Last updated June 2017

2.7 Vulnerable and prepayment customers

When the smart meter rollout had just started, the Public Accounts Committee raised concerns about the ease of disconnecting customers with smart meters and the risk that benefits would accrue more to supply companies than to vulnerable customers and those on prepayment meters. This was because the Committee thought that customers on prepayment meters were particularly vulnerable for the following reasons:

Some consumers are not knowledgeable about energy suppliers and tariffs, which are difficult to understand, some do not have a bank account, so will miss out on savings from using direct debits, and some choose prepayment meters to allay the fear of disconnection.⁶⁶

However, in September 2011 Ofgem introduced new licence conditions for suppliers as part of its *Smart Metering - Consumer Protections Package* which ensure that:⁶⁷

- Rules around pre-payment and disconnection apply to remote switching and remote disconnection.
- Suppliers are prohibited from disconnecting customers of pensionable age who live alone or with others of pensionable age or under the age of 18 during winter.
- They take all reasonable steps to avoid disconnecting other customers of pensionable age or customers who are disabled, chronically ill or otherwise vulnerable.
- They offer consumers pre-payment meters before they disconnect them, if they are having difficulty paying.
- They consider whether it is safe and reasonably practicable for a customer to be offered pre-payment and when establishing whether the customer or other occupants are vulnerable before disconnection.

To solve some of the other issues faced by prepayment customers, pay-as-you go functionality was built into energy smart meters. Prepayment meter customers may therefore benefit from energy smart meters in terms of

- New and more flexible ways of topping up remotely
- Ways to set up automatic top-ups to avoid power cuts.⁶⁸

2.8 How are energy smart meters connected and are there coverage issues?

The obligation to roll out smart meters is supplier-led. This means that energy suppliers are free to plan the roll out in a way that suits their

“I’m a prepayment customer, can a smart meter make it easier for my supplier to disconnect me?”

Suppliers must follow strict guidance before disconnecting any of their customers regardless of the type of meter used. Customers who think they are being unfairly treated should seek help from their local Citizens Advice Bureau.

⁶⁶ Public Accounts Committee, [Preparations for the roll-out of smart meters](#), Sixty-Third Report 2010-12, HC 1617, 17 January 2012, para. 1&3

⁶⁷ Ofgem, [Modification of Standard Conditions of Gas and Electricity Supply Licenses](#), 23 September 2011

⁶⁸ Gov.uk, [Smart meters: a guide](#) [accessed 11 April 2017]

business and the needs of their customers, as long as they meet the overarching obligation to complete the rollout by the end of 2020. A new national smart meters data and communications infrastructure recently went 'live' which will allow smart meters to be rolled out without reliance on existing mobile networks.

However, since the rollout began, there have been a number of reasons why energy suppliers may not be able to or may not choose to install a smart meter at a particular customer's property. One of these reasons may include technical reasons (such as accessing the relevant communications network), but there may also be other reasons such as: whether the customer has a relatively new 'traditional' meter which does not need replacing on a routine basis; and financial or logistical reasons such as the location of their customer base or their installation workforce.

An explanation regarding mobile coverage and its interaction with the smart meter rollout is provided below.

Foundation stage (2011-October 2016)

As explained in section 1.2, some energy suppliers started installing the first version of energy smart meters as part of a trial and testing phase (known as the Foundation stage). Many of these smart meters were based on an early Smart Metering Equipment Technical Specification (SMETS1).

Energy suppliers installing SMETS1 meters each entered into their own private commercial arrangements to access communications networks. Many of these use mobile communications networks (for example, either directly with one provider or through a 'roaming' sim which accesses many networks). In these cases, there may be cases where a customer was told they could not have a smart meter as the relevant communications network accessed by that energy supplier was not sufficient.

This has led to the issue of poor mobile coverage impacting the availability of smart meters being raised in Parliament on a number of occasions.⁶⁹ A PQ response in January 2017 on this issue stated:

The Government does not hold information on the adequacy of the signal coverage of the communications systems currently used by energy suppliers for sending and receiving information from smart meters to their business systems. More than 4.9 million smart and advanced meters were operating across homes and business in Great Britain at the end of September 2016, using these communications systems as part of the Foundation Stage of the rollout of smart metering.⁷⁰

Energy suppliers can currently continue to roll out SMETS1 meters, but after 13 July 2018 the installation of such meters will no longer count towards energy suppliers' rollout targets.⁷¹

⁶⁹ For instance, recently: [HC Deb 6 Dec 2016, vol 618](#)

⁷⁰ PWQ 59769, 17 January 2017

⁷¹ BEIS, *Decision on R1.3-related obligations*, 11 August 2017

Main rollout (November 2016-December 2020)

The Government granted Smart DCC Ltd⁷² (also known as the Data Communications Company or the DCC) a licence in September 2013 to establish and manage the data and communications network to connect smart meters to the business systems of energy suppliers (and other intermediaries and authorised users).

A PQ response in April 2017 confirmed that DCC's national data and communications infrastructure is live, enabling energy suppliers to install and operate an updated version of smart meters (SMETS2) on its systems. At that time, suppliers were carrying out end to end testing using their own internal systems, the DCC, and their selected SMETS2 meters and were expected to commence their rollout of SMETS2 meters "as soon as their individual testing is complete".⁷³ A transition period runs through to July 2018, and during the summer 2017 energy suppliers were still rolling out SMETS1 meters.⁷⁴

The Government has also asked DCC to consider how to enrol SMETS1 meters into its infrastructure (see further section 2.9 below) and is expected to submit a report to Government on the options available later in 2017.⁷⁵

The new communications network is known as wide area coverage or the Smart Meter Wide Area Network (SMWAN). DCC has announced that the SMWAN will be available in 99.50% of the North region and in 99.25% of the Central and South regions by 2020/21.⁷⁶ SMETS2 meters will all use the single, centralised SMWAN provided by DCC. For those remaining premises that fall outside of this remit, DCC is also looking at solutions to 'cost-effectively extend coverage' to them.⁷⁷ This means that energy suppliers will no longer need to procure their own data communications arrangements and coverage will not be linked or reliant to a consumer's mobile phone coverage.⁷⁸

"My supplier says there isn't enough mobile coverage for me to have a smart meter, what does it mean?"

It could mean you may be living in one of the areas where SMWAN is not available and where other cost-effective solutions need to be found. This doesn't necessarily mean that you won't be able to have a smart meter eventually.

The communications network is illustrated in the diagram below, produced by DCC.⁷⁹

⁷² Smart DCC Ltd is a subsidiary of Capital plc

⁷³ [PQ 70525](#), 21 April 2017

⁷⁴ [PQ 616Z](#), 19 July 2017

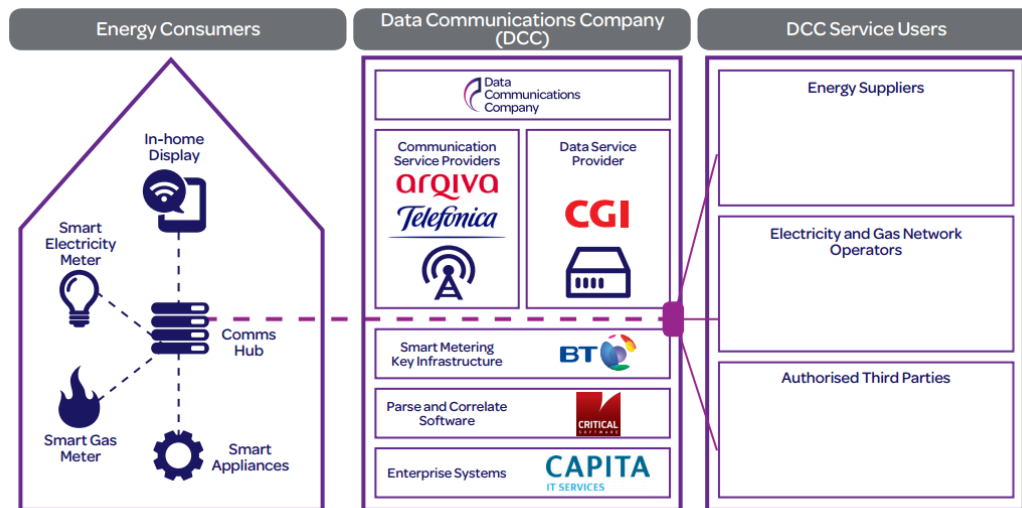
⁷⁵ [PQ 70619](#), 20 April 2017

⁷⁶ DCC, *Business Plan 2017/18-2020/21*, p.11

⁷⁷ *Ibid.*

⁷⁸ In the north of England and Scotland, Arqiva is building a new infrastructure from scratch. As of November 2015, Arqiva has achieved 70% coverage. Telefonica is adapting its existing telecommunications network and has already declared 80% coverage in central and southern England and Wales. See: DCC, *Business Plan 2017/18-2020/21*

⁷⁹ DCC, [Factsheet – Building a smart metering network for Great Britain](#), p.2 [accessed 29 March 2017]



In addition to the SMWAN, a home area network (or HAN) is required to enable consumers to interact with their smart meter through home displays. SMETS2 meters will include technology that will enable this over wireless networks (using certain bands of radio waves). In the remaining amount of cases, alternative technology (known as AltHAN) may be needed and this is being developed at the moment. These will not rely on a consumer's access to an existing mobile or broadband network.⁸⁰

2.9 Is it possible to switch suppliers and keep the same energy smart meter?

Consumers are always able to switch suppliers. However, there may be cases in which SMETS1 smart meters are not interoperable between energy suppliers. This does not mean that the consumer cannot switch suppliers, but their smart meter may not retain its 'smart' functions with the new supplier. In these cases the meter will continue to function as a traditional (or 'dumb') meter.

In order to help domestic customers understand if the smart meter services they are receiving will be maintained when they switch supplier, Ofgem set new licence conditions requiring that energy suppliers inform consumers that they may lose their smart functionality on change of supplier. Ofgem expects suppliers to discharge this obligation as part of their initial engagement with the customer. These requirements were introduced from 1 November 2012. More information and background is provided in the Ofgem decision on *Supporting effective switching for domestic customers with smart meters*.⁸¹

The Government's aim⁸² is that smart meters installed by one supplier will be able to be operated by another so that consumers can switch energy suppliers and retain the 'smart' benefits. The Government has

Can I switch suppliers with a smart meter?

Yes, but if you have a SMETS 1 meter you may not be able to do so whilst retaining all of its smart functions. This problem should be resolved with SMETS 2 meters.

⁸⁰ see DCC, *Business Plan 2017/18-2020/21*, p.23

⁸¹ Ofgem, *Supporting effective switching for domestic customers with smart meters: Modification of supply licence standard conditions*, 28 August 2012

⁸² [PQ 68879](#), 29 March 2017

confirmed that work is currently underway to ensure that SMETS1 meters will be interoperable through enrolment in the DCC system. In addition, and ahead of enrolment in to the DCC, a number of industry parties are exploring approaches to enable more consumers to retain their smart services upon switching.

The Government was asked if it would suspend the rollout of SMETS1 meters until problems with interoperability had been resolved, but declined to do so.⁸³

3. Legislative basis for smart meters

3.1 EU Directives

The European Union Directive *2006/32/EC* on energy end-use efficiency and energy services requested that Member States provide “individual meters” that show consumption in real-time to European consumers “in so far as it is technically possible, financially reasonable and proportionate in relation to the energy savings”.⁸⁴

Three years later, another EU Directive (*2009/72/EC*) requested from Member States that with respect to electricity “where the rollout of smart meters is assessed positively, at least 80 % of consumers should be equipped with intelligent metering systems by 2020.”⁸⁵ Regarding gas, no deadline was given but Member States were required by a third Directive (*2009/73/EC*) to prepare a timetable for the delivery of intelligent gas meters.⁸⁶

Annex 1 of EU Directives *2009/72/EC* and *2009/73/EC*⁸⁷ also required that Member States undertake a cost benefit assessment on the provision for domestic customers of intelligent meters that shall assist the active participation of consumers in the electricity and gas supply markets, and implement these meters where the assessment is positive.

3.2 The 1997-2010 Labour Government

The then Secretary of State for Trade and Industry Alistair Darling’s 2007 White Paper *Meeting the Energy Challenge: A White Paper on Energy*⁸⁸ said the Labour Government would consult on requiring energy companies to provide energy smart meters to all but the smallest businesses.

On the domestic front the White Paper stated:

We are also undertaking trials of smart meters and real-time displays which enable people to track their energy use conveniently in their homes. Subject to the results of these trials we intend to work with energy companies to roll these out to households over the next 10 years. In the meantime, real-time displays will be provided with any new meters fitted from 2008. Because it will take a number of years before a new meter and display can be rolled out to every household, we have decided that between 2008-2010, real-time displays, will be available free of charge to any household that requests one.⁸⁹

⁸⁴ [Directive 2006/32/EC](#), Article 13

⁸⁵ [Directive 2012/27/EU](#), para. 31

⁸⁶ *Ibid.*

⁸⁷ [Directive 2009/72/EC](#) of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in electricity and repealing Directive 2003/54/EC; [Directive 2009/73/EC](#) of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC

⁸⁸ [CM 7124 DTI May 2007](#)

⁸⁹ [Meeting the energy challenge: a white paper on energy](#), pp.10-11

Sections 88-91 of the [Energy Act 2008](#) gave the Secretary of State broad powers to implement and direct the rollout of smart gas and electricity meters. These were due to expire in November 2013 but were extended by the Coalition Government.

3.3 The Coalition and Conservative Governments

The Coalition Programme stated that they would “establish a smart grid and roll out smart meters”.⁹⁰ The Coalition Government followed up this commitment with a national energy smart meter rollout programme that put an obligation on energy suppliers to take all reasonable steps to replace 53 million gas and electricity meters in 30 million domestic and small non-domestic premises of Great Britain.⁹¹ The Government thus aimed for all homes and small businesses to have a smart meter by 31 December 2020, with the bulk of the rollout taking place between 2016 and 2020.

The [Energy Act 2011](#) (section 73) was amended to extend the 2008 Act’s provisions to 2018.

Licence conditions have also been amended several times under the Energy Act 2008 powers to reflect new obligations placed on energy suppliers for the delivery of the energy smart meter rollout. Some of the key changes to licence terms were:

- The obligation to take all reasonable steps to complete the rollout by 31 December 2020.
- The obligation to refrain from doing any sales when doing home visits to install smart meters.
- The obligation to report on costs and benefits of the rollout to Ofgem on a regular basis.
- The obligation to provide customers with an in-home display or an alternative display even when they switch suppliers.
- The obligation to get the customer’s consent for accessing half-hourly data, or to use data for marketing purposes. When it comes to daily data, no consent is needed unless it is withheld by the customer.
- The obligation to give energy efficiency advice during the installation visit.
- The obligation to establish and maintain a remote connection to smart meters and to take all reasonable steps to bill customers in a way that reflects meter readings.
- The obligation to identify vulnerable customers before taking the decision to disconnect any domestic consumer

⁹⁰ HM Government, [The Coalition: our programme for government](#), May 2012, p.16

⁹¹ DCLG, DWP, DECC & Ofgem, [Policy paper: 2010 to 2015 government policy: household energy](#), ‘Smart meters’, last updated 8 May 2015 [accessed 7 March 2017]

- The obligation to inform customers about the implications that switching suppliers will have in terms of smart functionality.

The [Smart Energy Code](#) incorporates some of these obligations into a wider body of rights and obligations placed on suppliers and DCC.

In addition, the [Smart Metering Installation Code of Practice](#) (SMICOP) regulates the behaviour that energy suppliers must adopt when visiting customers' home to do an energy smart meter installation.

There are already obligations on people to allow energy companies to replace meters on a regular basis on safety grounds and to ensure they continue to measure accurately. Suppliers may therefore approach customers whose meter need replacing with an energy smart meter offer. However, customers are still allowed to refuse that their obsolete meter is replaced with an energy smart meter and can ask for a 'dumb' meter instead.⁹²

3.4 The Queen's Speech 2017

At the Queen's Speech 2017,⁹³ the Government announced a Smart Meter Bill for the 2017-19 parliamentary session. The Bill does not contain any major changes to the status quo. Its primary purpose is to extend the Government's ability to make changes to smart meter regulations by five years in order to deliver the rollout.

3.5 The Smart Meter Bill 2017

The first reading of the [Smart Meters Bill 2017-19](#) occurred on 18 October 2017. The Bill extends again the powers the Secretary of State has to implement and direct the rollout of smart gas and electricity meters from 2018 to 2023. The Bill also legislates for a 'special administration regime' for the national smart meter communication and data service provider to ensure the service continues to be provide even in the unlikely case of its insolvency.

⁹² Which?, [Do I have to accept a smart meter?](#) [accessed 3 April 2017]

⁹³ Cabinet Office, [Queen's Speech 2017: background briefing notes](#), 21 June 2017, p.32

4. Evaluations of the energy smart meter rollout

4.1 Government's impact assessment and cost-benefit analysis

Impact assessments (2011-2014)

The Government published several impact assessments (IA) of the energy smart meter rollout between 2011 and 2014.

The last of them in 2014 showed that the rollout of energy smart meters will cost around £10.9 billion, delivering benefits of £17.1 billion. The figures were higher in terms of costs and lower in terms of gross benefits and net benefits than those published in the previous IA (the [January 2013 IA](#)). The overall domestic and non-domestic net benefit figure was expected to be about £6.2 billion.⁹⁴

Cost-benefit analysis (2016)

More recently, BEIS published a cost-benefit analysis in which the total estimated cost of the policy by 2030 remained virtually unchanged (**£11 billion**) but the figures for both total estimated gross benefits and net benefits went **down**: the Government now estimates that this policy will deliver benefits of £16.7 billion and net benefits of **£5.8 billion** by 2030.⁹⁵

The cost-benefit analysis also shows that the Government expects the rollout of energy smart meters to reduce the average household's combined electricity and gas bill by **£11** in 2020 and **£47** in 2030.

Critics⁹⁶ have highlighted that this is **lower** than the previous IA's estimated long-term savings which were at £24 per annum for the average household in 2020. However, fewer have commented on the fact that the Government's new estimate of long-term savings in 2030 is **higher** than the one published in 2014 (£39 at the time).⁹⁷

The Government explains in the cost-benefit analysis that the reduction in gross and net benefit figures is due to updates to cost updates and to assumptions around reduced fossil fuel and energy price projections.⁹⁸

The cost-benefit analysis also shows that the majority of the £16.7 billion of total gross benefits will come from supplier cost savings (**49%** of all total benefits) and energy savings (**32%** of total benefits). Benefits

⁹⁴ DECC, [Smart meter roll-out for the domestic and small and medium non-domestic sectors \(GB\)](#), 30 January 2014

⁹⁵ BEIS, [Smart meter roll-out cost-benefit analysis – Part I](#), August 2016

⁹⁶ For example, this criticism was voiced in the following articles: The Evening Standard, 'Not so smart meters', 15 November 2016; The Independent, 'Bad news on smart meters 'buried on day of Trump win'', 16 November 2016.

⁹⁷ DECC, [Smart meter roll-out for the domestic and small and medium non-domestic sectors \(GB\)](#), 30 January 2014

⁹⁸ BEIS, [Smart meter roll-out cost-benefit analysis – Part I](#), August 2016, Figure 1-1, p.14-15

will also be achieved in terms of carbon savings and air quality benefits (8%), peak load shifting (6%), and network-related benefits (5%).⁹⁹

There are also non-monetised benefits to be made, including the potential benefits associated with the development of a smart grid, increased ease of switching and therefore enhanced competition, and improved consumer experience such as an end to the worry of estimated bills.

The breakdown of the cost of the smart meter rollout according to the Government cost-benefit analysis shows that the bulk of total estimated costs will come from meters (**25%**), installation (**19%**) and DCC services (**19%**).¹⁰⁰ The remaining 37% are split across IHDs, communications hubs, system costs and other costs.

4.2 National Audit Office and Select Committee reports

The National Audit Office report (2011)

The National Audit Office (NAO) looked at [Preparations for the rollout of smart meters](#) in a June 2011 report¹⁰¹. The NAO was concerned about how far energy smart meters would change energy use over sustained periods, considering that evidence on sustained behaviour change by domestic consumers is limited and that the behaviour observed in other countries might not be relevant to consumers in Britain.

The head of the NAO said that DECC had to address 'major risks' to achieve value for money in delivering the programme since there was 'limited evidence' of how much and for how long British consumers' behaviour might change, and costs 'could escalate'.

The first Public Accounts Committee report (2012)

On 17 January 2012 the Public Accounts Committee (PAC) published its report [Preparations for the rollout of smart meters](#).¹⁰² The Committee welcomed the introduction of energy smart meters, but like the NAO, it highlighted that this large complex programme had significant uncertainties over the estimated costs and benefits involved. It felt it was "far from certain" that all consumers would benefit, and that many of the benefits would accrue in the first instance to energy suppliers. It said DECC needed to set out how it proposed to engage and inform consumers of the potential benefits to them.

In a response to the PAC's report,¹⁰³ the Government agreed that there was a need for transparency around the costs and savings. Under the

⁹⁹ BEIS, [Smart meter roll-out cost-benefit analysis – Part 1](#), August 2016, Figure 1-1, p.12

¹⁰⁰ Ibid., Figure 1-2, p.13

¹⁰¹ NAO, [Preparations for the roll-out of smart meters](#) HC 1091, 2010-2012, June 2011

¹⁰² PAC, [Preparations for the roll-out of smart meters](#). HC 1617, Sixty Third Report 2010-2011, 17 January 2012

¹⁰³ HM Treasury March 2012 [Treasury Minutes Government Responses on the Sixty Second to the Sixty Seventh Reports from the Committee of Public Accounts: Session 2010-12](#). Cm 8335

Energy Act 2011 DECC would require suppliers to report on their progress on implementation and on their costs and savings. DECC would also report annually on the benefits to consumers to provide transparency and help build confidence.

The second PAC Report (2014)

On 10 September 2014 the Public Accounts Committee published [a second report on the preparations for smart metering](#). The report set the potential bill savings against the cost to consumers of the energy smart meter rollout:

The Government estimates that £26 will be saved on average by consumers who pay average bills of £1,300 per annum—a saving of just under 2%. This saving has to be set against the cost of £10.6 billion which will be met by consumers at an average cost that will peak at £11 per annum in 2017.¹⁰⁴

The Committee recommended that in light of these costs and benefits the Department should keep the design of the programme under review in case costs escalated.

The first Energy and Climate Change Committee report (2013)

The House of Commons Energy and Climate Change Committee (ECCC) inquired into the Government's energy smart meter programme and [published its findings in July 2013](#).

The Committee considered energy smart meters had the potential to bring great benefits to consumers, suppliers and the UK energy infrastructure more widely. However, they also concluded that a positive experience for customers would only come if the programme made further efforts to ensure that benefits of the technology were spelt out to customers.

The second ECC report (2015)

In 2015, the ECC Committee followed up with a [second inquiry](#) on the progress of the energy smart meter rollout. The final report criticised the Government for failing to resolve the following issues:

- Technical communication problems with multiple occupancy and tall buildings which should have been resolved by now
- Compatibility problems between different suppliers and different meters
- A slow start to full engagement with the public on meter installation and long-term use
- A delay by the Government-appointed communications infrastructure company which has further set back confidence in the programme

¹⁰⁴ PAC, [Update on preparations for the roll-out of smart meters](#), HC 103, Twelfth Report 2014-2015, 10 September 2014

- A reluctance to improve transparency by publishing the Major Project Authority's assessments on the smart meter programme¹⁰⁵

The Committee warned the Government that failure to solve these issues meant that programme ran "the risk of falling short of expectations" and "could prove to be a costly failure."¹⁰⁶ The Committee also expressed scepticism at the likelihood of the rollout being completed by 2020.

The Government and Ofgem responded to the Committee with reassurances on the "good progress" that was "being made on developing technical solutions that will provide a Home Area Network (HAN) in all types of GB properties".¹⁰⁷ The Government disagreed with the Committee's recommendations regarding interoperability and said that SMETS 2 meters would solve this issue.¹⁰⁸

The Science and Technology Committee report (2016)

The Science and Technology Committee (STC) was the latest in running an [inquiry](#) into the energy smart meter programme. This 'evidence check' inquiry led the Committee to raise concerns over the Government's approach to the evidence check process. The Committee also commented on the "lack of clarity about the primary purpose of smart metering"¹⁰⁹ and that it was the Government's responsibility to make sure that consumers were engaged with the rollout before, during and after installation.

The Committee was satisfied with the evidence it received that the issue of data protection and security was taken seriously by GCHQ but it found that the issue of interoperability of energy smart meters remained unresolved.¹¹⁰

In answer to the report, the Government argued that the issue of customer engagement was being remedied through Smart Energy GB's national consumer engagement campaign.¹¹¹

4.3 Annual progress reports

In December 2012 the Government published the [First Annual Progress Report on the Rollout of Smart Meters](#), which gave an overview of the programme and of progress to that date.¹¹²

¹⁰⁵ ECC Committee, [Smart meters: progress or delay?](#), Ninth Report 2014-2015, HC 665, 7 March 2015, p.3

¹⁰⁶ Ibid.

¹⁰⁷ ECC Committee, [Smart meters: progress or delay?: Government and Ofgem Response to the Committee's Ninth Report of Session 2014-15](#), para. 1

¹⁰⁸ Ibid., para. 2

¹⁰⁹ STC, [Evidence Check: Smart metering of electricity and gas](#), HC 161, Sixth Report 2016-2017, 24 September 2016, p.5

¹¹⁰ Ibid.

¹¹¹ STC, [Evidence Check: Smart metering of electricity and gas: Government Response to the Committee's Sixth Report of Session 2016-17](#), 7 December 2016, para. 11

¹¹² DECC, [Smart Metering Implementation Programme: First Annual Progress Report on the Roll-out of Smart Meters](#), December 2013

The national 'main rollout' was initially intended to begin in 2014 and to complete in 2019. However, Ed Davey MP, the then Secretary of State for Energy and Climate Change, announced in a [Written Ministerial Statement](#) on 10 May 2013 that these dates had been put back to autumn 2015 for the full-scale rollout and the end of 2020 for completion. This was because the "consistent message [from industry] was that more time was needed if the mass rollout was to get off to the best possible start and ensure a quality experience for consumers."¹¹³

The Government has now published the second and third [annual progress reports on the smart meter rollout](#). The second report celebrated two milestones in the rollout programme:

- the establishment of the Central Delivery Body, which will develop and deliver the key, centralised messages about smart metering for homes and micro-businesses;
- and the entry into force of the Installation Code of Practice, which will help ensure a good customer experience and the delivery of programme benefits.¹¹⁴

The third report, published a year later, noted that since the second report, the following milestones had been achieved:

- launch of Smart Energy GB
- publication of an updated Impact Assessment
- the completion of the SMETS 2 specifications¹¹⁵

There have not been any new reports since then.

4.4 Smart meter statistics – quarterly reports

The Government also reports on the progress towards full rollout via [quarterly statistical releases](#) on energy smart meter installations. The [latest](#) of these releases showed that as of end June 2017, 6.66 million energy smart meters operated in smart mode by large energy suppliers in GB domestic premises; and over 594,500 energy smart and advanced meters operated in smart mode in non-domestic premises. Including advanced meters for non-domestic premises, there were at 30 June 2017 over 7.68 million smart and advanced meters in operation in Great Britain.¹¹⁶

In the past two years, the pace of installation of domestic energy smart meters has dramatically increased – by over 288% between the second quarter of 2015 and the second quarter of 2017.¹¹⁷

¹¹³ [Written Ministerial Statement by Edward Davey: Smart Metering](#), 10 May 2013

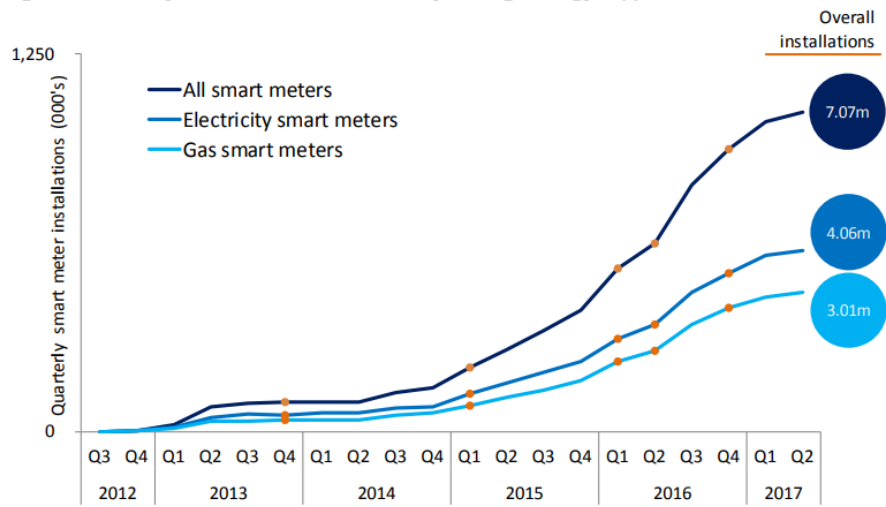
¹¹⁴ DECC, [Second annual report on the roll-out of smart meters](#), December 2013, p.6

¹¹⁵ DECC, [Third annual report on the roll-out of smart meters](#), December 2014, p.7

¹¹⁶ BEIS, [Smart Meters - Quarterly Report to end March 2017](#), p.3

¹¹⁷ Ibid.

Figure 1: Quarterly domestic installation activity for large energy suppliers



• Marks the inclusion of additional large suppliers to the series

Note, the above chart excludes historic data which can be found in the accompanying Excel Table 1a.

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