



Department for  
Business, Energy  
& Industrial Strategy

# SMART METERING IMPLEMENTATION PROGRAMME

Progress Report for 2018

December 2018

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# SMART METERING IMPLEMENTATION PROGRAMME

## Progress Report for 2018

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## Ministerial Foreword



Millions of households and small businesses have made the smart choice to get a smart meter with over 12.8 million<sup>1</sup> operating in smart mode across Great Britain. This world leading roll out puts consumers firmly in control of their energy use and will bring an end to estimated bills. Smart meters are also the foundation of a more flexible and resilient energy system forecast to save us billions of pounds over the lifetime of the roll-out and beyond, which is why the Government is committed to all homes and small businesses being offered a smart meter by the end of 2020.

This Programme is already benefitting millions of people across Great Britain, with research published this year showing that over 80%<sup>2</sup> of consumers with a smart meter say they have taken at least one step to reduce their energy usage since having one installed. Hundreds of thousands of households are choosing to get one each month and progress is set to continue as second generation smart meters are installed.

As technology like electric cars become more commonplace in our homes and businesses, it is important that our energy system is fit for purpose and can be used efficiently to accommodate these changes, at best value to consumers. Smart meters will future proof our energy system as we move to a more digital, data driven and intelligent smart system, and unlock smarter tariffs for households. Smart meters also help us to all do our bit to reduce carbon emissions, both by making the whole system more efficient and by providing better information on energy to consumers, helping to encourage savvy actions such as using LED lighting or more energy efficient appliances. That's why I had my own smart meter installed this year, and why I'm looking forward to the progress that will be made, in partnership with industry and other stakeholders, on rolling out this vital national infrastructure upgrade to even more homes and small businesses across the country in the years to come.

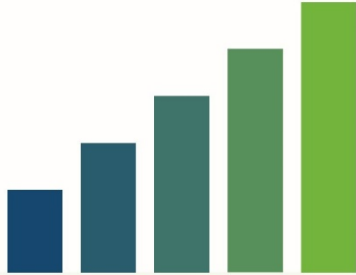
A handwritten signature in black ink, appearing to read 'Claire Perry'.

The Rt Hon Claire Perry MP, Minister of State for Energy and Clean Growth,  
Department for Business, Energy and Industrial Strategy

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<sup>1</sup> See: BEIS Smart Meter Statistics: [www.gov.uk/government/collections/smart-meters-statistics](http://www.gov.uk/government/collections/smart-meters-statistics)

<sup>2</sup> See: Smart Energy GB, Smart Energy Outlook, October 2018: [www.smartenergygb.org/en/resources](http://www.smartenergygb.org/en/resources)



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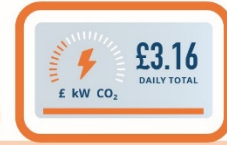
**12.8 MILLION**

smart and advanced meters operating in smart mode in homes and small businesses across Great Britain\*

\*as of the end of September 2018

More than

**80%**

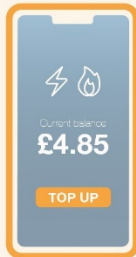


of people with smart meters say they have taken steps to reduce their energy use

By 2030 smart meters will take an estimated

**£1.2 BILLION**

off consumers' bills every year



**9/10**

customers with smart prepayment meters say that topping up has become easier



**£8.8 MILLION**

made available by Government to drive smart meter innovation in schools, retail and hospitality sectors

**£5 MILLION**

available to develop new tools using smart meter data to measure the thermal efficiency of homes



**£3 MILLION**

of funding to demonstrate smart charging of electric vehicles

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# Executive Summary

Smart meters are a vital upgrade to our national energy infrastructure, helping to drive Great Britain towards a 21<sup>st</sup> century energy system that works better for consumers. Smart meters are central to our move to a smarter and more flexible energy system of the future, driving us forward to meet our clean growth aims. They will help energy suppliers deliver better customer service and give accurate bills, and provide households with the knowledge they need to be more active and engaged consumers. Consumers can use this information to get the best energy deals and monitor and reduce their own energy consumption. There are now over 12.8 million<sup>3</sup> smart and advanced meters operating in smart mode across Great Britain. The smart meter roll-out is estimated to deliver a net benefit to consumers of £5.7 billion<sup>4</sup> over the lifetime of the Programme. It is estimated smart meters will take £300 million off consumers' bills in 2020, rising to more than £1.2 billion a year by 2030 – an average annual saving of £47 per household<sup>5</sup>.

## Progress in 2018

The Programme has made significant progress in 2018, with even more homes and small businesses choosing to have a smart meter installed. We have also worked with industry to improve the consumer experience and promote innovation which will maximise the future benefits of the smart meter roll-out.

- In May the **Smart Meters Act 2018** received Royal Assent, extending the Government's right to exercise powers over the roll-out to November 2023.
- The transition to **second generation smart meters** began this year with over 176,000 of these meters connected to the national smart metering communications infrastructure at the end of November 2018. These second generation meters are fully interoperable between all energy suppliers, so consumers will be able to retain their smart services when they switch energy supplier.
- To ensure all consumers with first generation smart meters are able to **retain smart services upon switching**, the Data and Communications Company (DCC) has been developing a solution to move them into the national smart metering communications infrastructure. The Government confirmed in 2018 that the DCC will be required to

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<sup>3</sup> See: BEIS Smart Meter statistics: [www.gov.uk/government/collections/smart-meters-statistics](http://www.gov.uk/government/collections/smart-meters-statistics)

<sup>4</sup> See: BEIS Smart meter roll-out (GB): cost-benefit analysis: [www.gov.uk/government/publications/smart-meter-roll-out-gb-cost-benefit-analysis](http://www.gov.uk/government/publications/smart-meter-roll-out-gb-cost-benefit-analysis)

<sup>5</sup> See: BEIS Smart meter roll-out (GB): cost-benefit analysis: [www.gov.uk/government/publications/smart-meter-roll-out-gb-cost-benefit-analysis](http://www.gov.uk/government/publications/smart-meter-roll-out-gb-cost-benefit-analysis)

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provide a service for enrolling two thirds of first generation meters, so they can be operated by all suppliers. The provision for enrolling the remaining third of meters will be considered in 2019. The Government also asked the DCC to prioritise meters that have lost smart services, so that those consumers can benefit first, and set a backstop to ensure that all meters are made interoperable, and so retaining smart functions when customers switch energy suppliers, by the end of 2020.

- Throughout 2018 the Government has continued to take action to **improve consumers' experience** and to help them fully benefit from smart meters. In February 2018, the Smart Meter Installation Code of Practice was amended to require that energy efficiency guidance delivered at install is tailored to each consumer's circumstances. This will further help consumers become aware of the changes they can make to improve the efficiency of their energy use, helping them to save money. The Programme has also continued to work with energy suppliers and consumer organisations in 2018 to refine and improve the consumer journey for smart metering.
- The Government met its commitment to conclude a review of the **Smart Meter Data Access and Privacy Framework**, which found that consumer privacy is being safeguarded while simultaneously allowing energy consumption data to be used to develop new services that benefit consumers and the energy system more widely.
- **Monitoring research** shows that consumers like, and are benefitting from, smart meters.
  - In November 2018, we published the second phase of the Smart Meter Customer Experience Study, which showed that satisfaction with smart metering continues to be high. **74% of consumers** reported they **were satisfied** with their overall smart meter experience a year after installation<sup>6</sup>.
  - **83% of people** with smart meters said they have a **better idea of their energy costs**<sup>7</sup>. Research also showed that more than **80% of people** with smart meters say they have **taken steps to reduce their energy use** and as a result, cut their bills<sup>8</sup>.

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<sup>6</sup> See: BEIS, Smart Meter Customer Experience Study, November 2018:

[www.gov.uk/government/publications/smart-meter-customer-experience-study-2016-18](http://www.gov.uk/government/publications/smart-meter-customer-experience-study-2016-18)

<sup>7</sup> See: Smart Energy GB, Smart Energy Outlook, October 2018: [www.smartenergygb.org/en/resources](http://www.smartenergygb.org/en/resources)

<sup>8</sup> See: Smart Energy GB, Smart Energy Outlook, October 2018: [www.smartenergygb.org/en/resources](http://www.smartenergygb.org/en/resources)

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- Smart meters are transforming the pre-payment customer experience, with **9 in 10** saying that **topping up has become easier** since getting their smart meter<sup>9</sup>.
  - **Innovation** will be key to unlocking the potential of smart meter data. This area was further supported by the allocation of an £8.8 million innovation competition<sup>10</sup> in March 2018 to help schools and business in the retail and hospitality sectors to access innovative products and tools to save energy and money.
  - The Programme has continued to work with industry in 2018 to **prioritise safety** in the smart meter roll-out. This has included driving discussions to ensure parties work together to not only monitor, but take every opportunity to improve on historical safety performance. This has seen 550,000<sup>11</sup> pre-existing unsafe situations being identified that were unrelated to smart metering, helping to protect homes across Great Britain.

## Forward look

In the year ahead, the Government will continue to work closely with industry and consumer organisations so that even more consumers and small businesses can experience the full benefits of smart meters.

- In 2019, we expect energy suppliers to serve more of the country **with second generation smart meters**, supported by software and hardware developments that unlock the capability to install in more premises.
- The **enrolment of first generation smart meters** into the national smart metering communications infrastructure will be underway in 2019, with priority given to return smart functionality to those meters that lost it when consumers switched suppliers.
- The Government expects to decide in 2019 on the activation of the **New and Replacement Obligation** which requires energy suppliers to take all reasonable steps to install a compliant smart meter where a meter is installed for the first time (for example in new build properties) or where a meter is replaced.
- The Programme will continue to develop and deliver **sector-specific engagement** to raise awareness of smart metering amongst microbusinesses and Small and Medium-sized Enterprises.
- The Government has committed to update the **cost-benefit analysis** for the Programme and complete a stocktake of consumer benefits in 2019.

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<sup>9</sup> See: BEIS, Smart Meter Customer Experience Study, November 2018:

[www.gov.uk/government/publications/smart-meter-customer-experience-study-2016-18](http://www.gov.uk/government/publications/smart-meter-customer-experience-study-2016-18)

<sup>10</sup> This is in reference to the Non-Domestic Smart Energy Management Innovation Competition.

<sup>11</sup> In the period from the start of 2017 to the end of September 2018.



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- The Government welcomes the recent review of the Programme by the National Audit Office and is taking action in each of the recommendation areas.

The Programme will continue its key role in taking Britain towards a more secure, affordable and cleaner energy system.

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# Chapter 1 - Introduction

**This chapter explains the role of smart meters in the GB energy system, roles and responsibilities in delivering the Programme and the structure of the report.**

## The role of smart meters in the GB energy system

The development of a world-leading smart energy system delivering secure, cheap and clean energy is an important part of the Government's Industrial Strategy<sup>12</sup>. As our Clean Growth Strategy highlights, smart technologies and services will play a vital role in decarbonising the energy sector<sup>13</sup>. Smart meters are an essential upgrade to our energy infrastructure that will support the transition to a smarter energy system and encourage consumers to be better informed and engaged.

The roll-out is not only an investment in our future; it will also support the delivery of tangible and immediate energy-saving benefits for households and small businesses across Great Britain. Smart meters offer a range of intelligent functions, provide consumers with near real time information on their energy use, and bring an end to estimated billing. With accurate information on their In-Home Displays (IHDs), consumers can easily understand how they can make small changes to the way they use energy in order to use less and save money on their bills. This information can help them choose a better tariff or inform their decision about switching their energy supplier, increasing their savings even further. Smart meters will also help enable a smarter, more flexible energy system. For example, in the future consumers will be able to choose new smart household gadgets and appliances that talk to their smart meter and help reduce their household bills.

Smart meters are therefore an important foundation for the Government and Ofgem's Smart Systems and Flexibility Plan which was published in July 2017<sup>14</sup>. We are currently implementing actions set out in this plan (and subsequent progress update which was published in October 2018<sup>15</sup>) to deliver a smarter, more flexible energy system that supports innovation in new smart products and services, potentially saving Great Britain up to £40 billion between now and 2050.

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<sup>12</sup> See: [www.gov.uk/government/topical-events/the-uks-industrial-strategy](https://www.gov.uk/government/topical-events/the-uks-industrial-strategy)

<sup>13</sup> See: [www.gov.uk/government/publications/clean-growth-strategy](https://www.gov.uk/government/publications/clean-growth-strategy)

<sup>14</sup> See: [www.gov.uk/government/publications/upgrading-our-energy-system-smart-systems-and-flexibility-plan](https://www.gov.uk/government/publications/upgrading-our-energy-system-smart-systems-and-flexibility-plan)

<sup>15</sup> See: [www.gov.uk/government/publications/upgrading-our-energy-system-smart-systems-and-flexibility-plan](https://www.gov.uk/government/publications/upgrading-our-energy-system-smart-systems-and-flexibility-plan)

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## Programme roles and responsibilities

The successful delivery of smart metering benefits depends upon coordinated effort from a wide range of organisations. The Smart Metering Implementation Programme is led by the Department for Business, Energy and Industrial Strategy (BEIS), regulated by the Office of Gas and Electricity Markets (Ofgem), and delivered by energy suppliers. The investment costs to suppliers from smart meters are recovered from energy bills in the same way as traditional metering. Smart meters will bring opportunities for significant efficiency savings to industry, for example through reduced call centre activity necessary to deal with bill queries, lower costs of serving pre-payment customers, better debt management and no longer requiring meter readings. These savings will reduce the cost to serve for energy suppliers. We expect suppliers to pass on the savings they make from smart metering to their customers.

The Government's role includes developing smart metering policy and strategy, providing the right framework against which energy suppliers and network operators can plan, and ensuring benefits are delivered to consumers. Ofgem are responsible for the regulation (including monitoring, reporting and enforcement) of the licence obligations placed on energy suppliers and network operators by the Government to deliver smart meters. In due course, the Government's intention is that smart metering should be a self-sustaining system governed by industry and regulated by Ofgem.

The Data and Communications Company (DCC) was granted its licence by the Department for Energy and Climate Change (DECC)<sup>16</sup> in September 2013 to establish and manage the data and communications network for smart meters. As a monopoly provider of services to the market, the DCC is regulated by Ofgem, which scrutinises the DCC's spending to ensure value for money. Under the licence, the DCC must also comply with the Smart Energy Code (SEC) which provides the regime for the overall governance of smart metering arrangements.

## Aim and structure of this progress report

This Progress Report sets out the developments in the Programme since December 2017 to the end of November 2018 and a forward look of activity for 2019.

- Chapter 1 – this chapter has set out the background to the Programme.
- Chapter 2 – looks at the roll-out progress in 2018.

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<sup>16</sup> The Department for Energy and Climate Change is now part of BEIS.

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- Chapter 3 – explains how the Programme is delivering for the consumer and ensuring that benefits can be realised.
  - Chapter 4 – highlights ways in which the roll-out is encouraging learning and innovation.
  - Chapter 5 – the report concludes with a look ahead to 2019.

The annexes include a summary of the smart metering system and glossary of terms.

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## Chapter 2 - Roll-out Progress

This chapter looks at the progress made in 2018 in rolling out smart meters, the transition to second generation smart meters (SMETS2), and in ensuring first generation smart meters (SMETS1) are made interoperable between energy suppliers.

### Overall progress

Smart meters are the next generation of gas and electricity meters and will deliver a much needed digital transformation of our energy system. It is estimated that smart meters will take £300 million off consumers' bills in 2020, rising to more than £1.2 billion a year by 2030 – an average annual saving of £47 per household<sup>17</sup>. The Government is committed to ensuring that every home and small business in Great Britain is offered a smart meter by the end of 2020.



**Figure 1:** Smart and advanced meters operating in smart mode across homes and small businesses.

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<sup>17</sup> See: BEIS Smart meter roll-out (GB): cost-benefit analysis: [www.gov.uk/government/publications/smart-meter-roll-out-gb-cost-benefit-analysis](https://www.gov.uk/government/publications/smart-meter-roll-out-gb-cost-benefit-analysis)

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During 2018 the roll-out of smart meters continued to make good progress, with over 12.8 million<sup>18</sup> smart and advanced meters operating in smart mode across homes and small businesses in Great Britain up to the end of September 2018, and over a million smart meters installed every quarter. Over 50 energy suppliers are now installing smart meters to their consumers, helping them save energy and money. We have seen overall smart meter installer numbers increase during the roll-out to meet consumer demand.

During 2018, the Government extended the duration of its powers until 2023 through the Smart Meters Act 2018, to ensure we can oversee the completion of the roll-out and help consumers get the most from their smart meters.

The majority of meter installations to date have been first generation smart meters (SMETS1). They have provided energy suppliers with valuable experience and are helping consumers save energy and money. The market is now transitioning to installing second generation smart meters (SMETS2).

## First and second generation smart meters

Ahead of the national smart metering communications infrastructure being in place, the Government defined a standard, known as 'SMETS1', to ensure minimum common functionality across smart meters and to stop the variability in the smart-type meters which some energy suppliers were already installing at that time. This was important for ensuring consumers had a consistent experience and also to ensure that these meters could later be enrolled into the national smart metering communications infrastructure and made interoperable between all energy suppliers.

A number of energy companies have been installing these SMETS1 meters for their domestic customers, using their own communications systems to provide smart services. SMETS1 meters installed to date have enabled consumers to realise the benefits of smart metering early and have also given energy suppliers the opportunity to build their capability ahead of installing SMETS2 meters to the majority of their customers.

Due to SMETS1 meters working on a number of separate data and communications systems, when a consumer switches energy suppliers their meter can lose its smart functionality if the new supplier cannot communicate with the meter. This issue will be solved when SMETS1 meters are enrolled into the national smart metering communications infrastructure run by the Data and Communications Company (DCC). This upgrade will happen automatically without consumers needing to do anything.

For SMETS2 meters, a national smart metering communications infrastructure built by the DCC enables communications between all energy suppliers, network operators, other

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<sup>18</sup> See: BEIS Smart Meter Statistics: [www.gov.uk/government/collections/smart-meters-statistics](http://www.gov.uk/government/collections/smart-meters-statistics)

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authorised service users (for example price comparison sites) and the meter. This means SMETS2 meters will be fully interoperable between all energy suppliers, so consumers will be able to retain smart services when they switch energy suppliers.

By the end of 2020 the Government's aim is that everyone with a smart meter should be able to switch suppliers without their meter losing smart functionality.

## The transition to second generation smart meters

2018 was a key year in the transition from SMETS1 to SMETS2 meters. A number of parties have a role in ensuring a smooth transition to SMETS2 so that meters are interoperable with all energy suppliers from the point of installation. These include the DCC, energy suppliers, meter manufacturers and other contracted third parties.

The DCC went live in November 2016 allowing it to support the installation of SMETS2 meters. In order for them to prove their systems, energy suppliers have undergone a period of testing with the DCC and have progressed from installations in test labs to low level pilots, before ramping up installations in customers' homes. At the end of November 2018, industry information showed there were over 176,000 gas and electricity SMETS2 meters connected to the DCC system, which is a significant increase from the position at the start of 2018. These numbers are expected to increase significantly over the coming months, as suppliers incorporate SMETS2 installations into business as usual for their smart roll-outs and phase out the installation of SMETS1 meters.

## Ensuring first generation smart meters are made interoperable

The Government intends all substantive populations of SMETS1 meters to be operated via the DCC's national smart metering communications infrastructure. There are a number of different SMETS1 meter cohorts (i.e. broad meter types by manufacturer). The DCC has been working on the designing and testing the technical solutions to bring each cohort into its system in three stages. Over the past year, important progress has been made towards achieving this goal.

- Following consultation in Summer 2018, the Government concluded that:
  - it would require the DCC to provide a service for enrolling the first two out of three cohorts of SMETS1 meters. This represents around two thirds of the expected total population of SMETS1 meters. Once these meters are enrolled in the DCC, consumers will be able to switch energy supplier and retain smart functionality. In early 2019, the Government is expected to consider the provision of enrolment services for the remaining SMETS1 meters once there is sufficiently mature information from existing and prospective service providers and the DCC. The

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Government has asked the DCC to prioritise enrolling SMETS1 meters which have lost their smart functionality so that those consumers can benefit from re-instated smart functionality as soon as practicable.

- energy suppliers will be required to take all reasonable steps to enrol SMETS1 meters into the DCC within 12 months of the point it is possible to do so<sup>19</sup>, with a backstop requirement to replace any unenrolled SMETS1 meters with SMETS2 meters by the end of 2020. This is intended to ensure a fully interoperable smart meter market as early as possible, allowing all consumers with smart meters to switch seamlessly while retaining full smart functions by the end of 2020 at the latest.
- The Government has consulted on two sets of amendments to the smart metering regulatory framework so that it supports the enrolment and operation of SMETS1 meters in DCC. These changes are primarily designed to adapt the existing regulatory provisions (which were drafted with SMETS2 meters in mind) to take account of technical differences between SMETS1 and SMETS2 meters and systems. The first set of amendments was brought into legal effect in July 2018<sup>20</sup>.

Over the course of 2018, the DCC has made significant progress towards launching their SMETS1 service, including the following.

- Successfully completing contract negotiations with a range of service providers to deliver communications services and software development in order to provide enrolment services for the first two out of three SMETS1 meter cohorts to be enrolled.
- By the end of August 2018, the DCC had successfully completed the majority of its preliminary SMETS1 service development for the initial cohorts of meters to be enrolled. The DCC has now begun undertaking comprehensive testing of that service.
- The DCC has consulted on changes to regulatory documents that govern the detailed design of its SMETS1 service, which have been baselined through industry governance. The Government will consult on incorporating the final versions of these documents into the regulatory framework in early 2019.

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<sup>19</sup> Or within 12 months of the point a supplier gains an unenrolled SMETS1 meters following a change of supplier event.

<sup>20</sup> See: <https://smartenergycodecompany.co.uk/latest-news/government-response-to-the-march-2018-consultation-on-regulatory-changes-to-enable-provision-of-a-smets1-service-by-the-dcc/>



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## Chapter 3 - Delivering for Consumers: Experience and Benefits

This chapter focuses on the outputs from the Government's latest smart meters research, the work of industry to share good practice on consumer engagement as well as Smart Energy GB's campaign to generate consumer interest. It also sets out how Government have changed the non-domestic policy framework to ensure businesses are given access to the full benefits of smart meters.

### Consumers with smart meters like them

Throughout 2018 the Government has continued to monitor consumer experiences of and benefits realised from smart metering. Smart Energy GB's regular Outlook Tracker survey<sup>21</sup> and findings from our latest research show that as the roll-out of smart meters has accelerated, and consumers continue to report high levels of satisfaction with and advocacy of smart metering<sup>22</sup>.

In November 2018 we published the second phase of the Smart Meter Customer Experience Study<sup>23</sup> - a multi-phase research project designed to understand customer attitudes, experiences and outcomes at different points of the smart meter customer journey. The research revealed that:

- **Satisfaction with smart metering continues to be high and is sustained over time** - around three-quarters (74%) of respondents were satisfied with their smart meter almost a year after installation.
- **Prepayment customer experience is being transformed for the better with smart metering** - smart prepay customers are especially likely to be satisfied with their smart meters, with 8 in 10 respondents satisfied around a year following installation. Smart prepay respondents were also more likely to recommend smart meters, with six in ten giving the maximum score of 10 out of 10 when asked how likely they would be to recommend a smart meter to friends and family and only 5% giving a score of 4 or below. When asked about ease of topping up their meter

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<sup>21</sup> See: Smart Energy GB, Smart Energy Outlook, October 2018: [www.smartenergygb.org/en/resources](http://www.smartenergygb.org/en/resources)

<sup>22</sup> BEIS' Early Learning Project (2015) surveyed customers that had installations between 2011-13. 89% reported satisfaction with their smart meter installation and 72% reported satisfaction with their overall smart meter experience.

<sup>23</sup> See: BEIS, Smart Meter Customer Experience Study, November 2018: [www.gov.uk/government/publications/smart-meter-customer-experience-study-2016-18](http://www.gov.uk/government/publications/smart-meter-customer-experience-study-2016-18)

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almost 9 in 10 (88%) said topping up had become easier with a smart meter (and 86% said it had become “a lot easier”).

- **Consumers are using smart meters to monitor their energy consumption and to change their behaviour** - almost a year following installation 80% of respondents said they still had their IHD plugged in and were using it. Additionally, more than 6 in 10 (62%) felt that having a smart meter had made a difference in some way to how they use energy in their home.
- **Effective guidance and support during and after installation are essential to enable consumers to realise benefits** - receipt of high quality advice during the installation was routinely associated with positive outcomes, including overall satisfaction and IHD engagement, which in turn was associated with improved understanding of consumption and changes to household behaviours.

## Improving the consumer journey

We are actively working with energy suppliers and consumer organisations to refine and improve the consumer journey to maximise the benefits and experience for consumers of the smart meter roll out.

Empowering consumers to reduce their energy usage is a key aim of the smart meter roll-out. To help deliver this objective, energy suppliers are required to offer energy efficiency guidance to consumers during a smart meter installation so that consumers are made aware of changes that they can make to their home and energy habits to improve the efficiency of their energy usage. Evidence shows that the impact of energy efficiency guidance is increased when it is tailored to be of specific relevance to consumers, based on the setup of their home and their existing energy usage habits<sup>24</sup>.

In February 2018 the Smart Meter Installation Code of Practice, which governs the service that energy suppliers must provide to consumers at the point of installation, was amended to require the energy efficiency guidance delivered at install to be tailored to domestic consumers based on their home, and for micro-business customers, to the extent possible based on their premises. The change to the Code was made to ensure that consumers receive effective energy efficiency guidance that they are more likely to engage with, as installers will have to adapt their advice to ensure that it is relevant to an individual consumers' circumstances.

Looking at the wider consumer journey, the Programme's Consumer Reference Group (CRG) has met regularly through 2018, attended by industry representatives, consumer

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<sup>24</sup> See: [Smart Metering Early Learning Project 2015](#) and [Smart Metering Energy Efficiency Advice Project 2017](#)

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groups and Ofgem. The Group's objective is to provide advice and, where appropriate, solutions to challenges that arise as the roll-out progresses, to ensure consumers remain protected and benefits are delivered throughout the smart meter roll-out. The Group has developed products to be used for engagement with consumers, and energy suppliers were encouraged to adopt them to ensure customers are provided with a consistent experience of the smart meter roll-out. These products include<sup>25</sup>:

- **Smart loss of functionality principles:** helping energy suppliers to ensure that they provide consistent and accessible information to consumers so that they can make informed choices about smart metering and are made aware that temporary interoperability issues will be resolved; and
- **Back-billing principles:** helping to manage the transition to smart meters by ensuring that suppliers have robust arrangements in place to identify and handle a potential back bill prior to the point of meter exchange and help minimise incidences of back billing.

The CRG has considered a range of topics in 2018 including:

- supporting work within the wider industry to develop good practice guidelines for energy suppliers in relation to smart customer communications;
- supporting the preparation of deployment within wider industry to develop and provide accessible In-Home Displays (IHDs) that will be suitable for all domestic consumers including those with a range of disabilities, such as the visually impaired, the hearing impaired and those with particular dexterity issues, as well as for those with low levels of numeracy and literacy;
- supporting the dissemination of findings from research into, for example, energy supplier approaches to the customer journey for d/Deaf<sup>26</sup> customers; and
- establishing a CRG non-domestic sub-group to consider the consumer journey for smaller businesses.

In 2019, CRG will focus on sharing good practice on customer engagement on topics including energy supplier approaches to providing energy efficiency advice. Consideration will also be given to the customer journey during the enrolment and adoption of SMETS1 meters into the national smart metering communications infrastructure.

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<sup>25</sup> See: [www.nea.org.uk/smartenergygb/consumer-reference-group/](http://www.nea.org.uk/smartenergygb/consumer-reference-group/)

<sup>26</sup> The term 'deaf' includes people who are deaf, Deaf, Deafblind, deafened and hard of hearing. The capital D 'Deaf' is also used as a cultural label that refers to people who are profoundly deaf, whose first or only language is BSL and may see themselves as part of a cultural and linguistic minority known as the Deaf community. 'deaf' which indicates those who may not know any sign language, are more likely to identify as English users and are also more likely to consider themselves as having "hearing loss".

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## Generating consumer understanding of, and enthusiasm for, smart meters

Smart Energy GB<sup>27</sup> is the independent not-for-profit organisation responsible for the national public engagement campaign for the roll-out of smart meters in Great Britain. In 2018 they have made further progress in ensuring that households across Great Britain understand the benefits of smart meters and in generating significant levels of consumer demand to upgrade from analogue to smart meters.

- In January 2018, Smart Energy GB published a report examining the lasting impacts of the partnerships they have created, [working in partnership to make Britain's smart energy revolution a reality for all](#). Working with partners allows Smart Energy GB to reach a diverse range of audiences across Great Britain, including vulnerable groups and those who may experience additional barriers to accessing information about smart meters. During 2018 their partnership work has targeted over 65s and over 60s who are offline, those who are severely or profoundly deaf and those who are on low incomes. Smart Energy GB has supported these areas with delivery of communications to consumers via national partnerships, funding local organisations for on-the-ground activity, training local champions to work with local communities and specially developed resources.
- [The smart route to electric vehicles](#) report was published by Smart Energy GB in May 2018. This research explains how smart meters should accelerate the uptake of electric vehicles and underpin Britain's transition to a more sustainable, greener economy.
- Smart Energy GB's latest campaign, "Save your energy for..." was launched in June 2018 (see Figure 2). The campaign highlights how a smart meter could save households an average of 354 kWh per year, enough energy for 115 baths or to power a mobility scooter for 1,112 miles. Real life examples like these feature across the campaign, bringing to life the energy saving potential of smart meters.
- [Smart meters and energy usage](#) published in July 2018, is a survey of energy behaviour amongst those who have a smart meter, and those who have yet to get one. The report highlighted the positive changes to energy consumption experienced by households who choose a smart meter, and noted that those who don't yet have a smart meter intend to look more into monitoring their energy consumption, a key benefit of upgrading to the new technology.

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<sup>27</sup> See: [www.smartenergygb.org](http://www.smartenergygb.org)



The advertisement is split into two main visual sections. On the left, a close-up photograph of a young child with blonde hair and blue eyes, wearing swimming goggles, is submerged in a bathtub filled with white foam. The child's hand is near their mouth. On the right, a graphic shows a smart meter display. The display is divided into two columns: 'Today's usage' and 'Electricity now'. Under 'Today's usage', there is a lightning bolt icon with '£0.71' and a water drop icon with '£0.58'. Under 'Electricity now', there is a circular gauge with a needle pointing to '£0.11 p/h' and a 'kWh' label. Below the meter graphic, the text reads: 'GET A SMART METER AND YOU COULD SAVE ENOUGH ENERGY FOR THIS MANY HOT BATHS'. This is followed by a large, bold number '115'. Below the number, a paragraph states: 'With a smart meter you could save an average of 354kWh of energy a year. Because when you can actually see how much energy you're using, you can make a few small changes and use less of it. Save your energy for bathtime.' Below this, it says: 'Contact your energy supplier about getting your free smart meter.' In the bottom right corner, there is a circular logo for 'CAMPAIGN FOR SMART METERS' and the website 'smartenergyGB.org'. At the very bottom, small text reads: 'Data valid by 2020. © 2019 Smart Energy GB. Representation of a typical person's energy usage on EES reported average annual usage of 754/754 kWh with a smart meter compared to a traditional meter was 109/109 kWh in a year and been a bath.'

**Figure 2:** Smart Energy GB’s “Save your energy for...” campaign.

- Over the summer, property TV presenters Kirstie Allsopp and Phil Spencer and comedian Susan Calman toured Great Britain with Smart Energy GB to inspire households to upgrade to a smart meter. They visited 10 cities across the country sharing how much energy consumers could save if they upgraded to a smart meter, securing significant national and local media coverage for their tour.
- October saw Smart Energy GB publish the latest wave of [Smart Energy Outlook](#), the largest independent study of national public opinion on energy and smart meters. The bi-annual survey of almost 10,000 people found that 98% of people across Great Britain are now aware of smart meters. People over the age of 65 are the most likely age group to have a smart meter (almost a quarter of those surveyed had one). The survey showed that consumer demand for smart meters is strong. 44% of people in Great Britain who don't yet have a smart meter want to get one installed within the next six months. That equates to almost 15 million people who want their energy supplier to upgrade them from analogue to smart meters.

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## Non-domestic consumers are given access to the full benefits of smart meters

Earlier this year, we completed a review of the non-domestic policy framework in response to market developments. In March 2018 the Government published its response<sup>28</sup> to a 2017 consultation on non-domestic smart metering policy proposals and draft legal text. The response set out the Government's final conclusions on a package of measures designed to give non-domestic consumers access to the full benefits of smart meters whilst recognising the diverse nature of these energy users and the need for proportional regulation. In light of the consultation, the Government implemented the following measures:

- Energy suppliers to non-domestic premises are required to use the national smart metering communications infrastructure for the operation of SMETS2 meters. This means that most non-domestic energy suppliers were required to become DCC Users by 31 August 2018.
- This requirement does not apply to energy suppliers who specialise in supplying larger businesses with mostly high-energy consuming sites, who only have advanced meters and no SMETS2 meters within their portfolio. However, they must become a DCC User if they intend to operate a SMETS2 meter at a later date. This decision gives specialist, small energy suppliers the flexibility to decide when to become a DCC User based on the needs and preferences of their larger energy consumer portfolio.
- Energy suppliers will be allowed to offer Small and Medium-sized Enterprises (SMEs) and larger business consumers (but not microbusinesses) with sites in scope of the smart metering mandate, a choice between an advanced meter and a smart meter. The energy supplier must provide relevant information to enable the consumer to make the best choice for their business needs.

The measures outlined above ensure that small businesses will be able to retain their smart metering service when they switch energy suppliers, which will make switching easier, and create a market that works better for consumers. These measures maintain choice in meter technology for larger, more engaged business consumers that benefit from a more competitive energy market. Energy suppliers to large consumers will also be exempt from having to use the national smart metering communications infrastructure unless they intend to install or operate a smart meter. We will review this policy before the end of 2019 to ensure that it is operating as expected and consumers are benefitting.

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<sup>28</sup> See: [www.gov.uk/government/consultations/non-domestic-smart-metering-policy-proposals-and-draft-legal-text](http://www.gov.uk/government/consultations/non-domestic-smart-metering-policy-proposals-and-draft-legal-text)

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We are currently considering how to ensure small businesses are aware of, and interested in, smart meters, and are able to access data from their smart meters. We will be seeking views on extending the remit of the organisation responsible for the national campaign about smart meters, Smart Energy GB, to the non-domestic sector with the aim of increasing smart meter take-up.



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## Chapter 4 - Learning and Innovation

**One of the Programme's roles is to ensure that as the roll-out of smart meters progresses, lessons are learnt, good practice is shared across all delivery partners, and fed back into policy making as appropriate to make the roll-out more efficient and effective. The Programme is also responsible for maximising the benefits of smart metering through promoting innovation. This chapter gives an overview of activities supporting both of these objectives in 2018.**

### Ensuring a safe smart meter roll-out

The safety of both customers and installers is and will continue to be the number one priority for the Programme, energy suppliers and network operators.

Energy suppliers have been responsible for installing meters for decades. The risks associated with smart metering are fundamentally the same as with traditional metering, and as such there are long established industry regulations and procedures to reduce the risk of incidents occurring during a meter installation. For example, as part of any gas meter installation, a visual safety check of all downstream appliances (for example boilers, gas fires, hobs) is carried out as standard. Given Gas Safe data shows that 1 in 6 homes<sup>29</sup> has an unsafe gas appliance, this is an important wider benefit of the smart meter roll-out. The Programme represents a unique opportunity to identify pre-existing safety issues in customer's homes, many of which would not have been identified as quickly or at all. From the start of 2017 up to the end of September 2018, as part of the checks performed during a smart meter installation, around 550,000 unsafe situations (for example unsafe boilers, gas fires or issues with network assets, such as the incoming electrical supply to customer's homes) were identified.

During 2018, the Programme has continued to play an important role ensuring industry parties work together to not only monitor, but also seek to reduce safety incidents and improve on historical safety performance. This has involved working closely with energy suppliers, network operators and safety experts, including Electrical Safety First, the London Fire Brigade, Gas Safe as well as the Health and Safety Executive.

We have facilitated the sharing of best practice across industry parties, including smaller energy suppliers. This has ranged across reviewing contractor safety management approaches, reviewing installer training syllabuses, showcasing initiatives/tools used by some energy suppliers to address safety issues, considering behavioural safety initiatives

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<sup>29</sup> See: [www.staygassafe.co.uk/risks-in-the-home](http://www.staygassafe.co.uk/risks-in-the-home)



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and putting in place procedures in the event of a product defect/recall process being required.

The Programme has also worked closely with the National Skills Academy for Power (NSAP) to ensure that meter installer training appropriately reflects lessons learnt and that there is a robust feedback loop into training providers. The Programme is therefore contributing to the review and refresh of training standards across the whole industry.

## Promoting good practice and continuous improvement

In addition to the work on safety, during 2018 the Programme's Operations Group has continued to work with energy suppliers and the electricity and gas networks to maximise efficiency and co-operation between them to resolve issues identified during installations. This has included showcasing collaboration initiatives and sharing lessons drawing on information about aborted installations so as to minimise these.

During the course of 2018 we have built on our existing regular engagement and monitoring to provide energy suppliers with a greater understanding of how their roll-out is progressing against their peers.

We have continued to share latest developments and good practice with independent energy suppliers, via quarterly meetings and newsletters. In particular, we have endeavoured to ensure that suppliers were sighted on progress and numerous technical developments in the DCC. We have ensured energy suppliers have the opportunity to inform policy development that affects them, by raising their awareness of consultations, as well as drawing their attention to upcoming regulatory deadlines or new regulations coming into effect. In addition, we promote the ongoing sharing of consumer engagement methods to increase first time installation success rates and energy efficiency advice best practice.

We will continue to identify examples of good practice that can then be shared with industry for mainstreaming throughout the remainder of the roll-out.

## Review of the Data Access and Privacy Framework

The Smart Meter Data Access and Privacy Framework, which was published in 2012, governs access to domestic and microbusiness consumers' energy consumption data via smart meters by energy suppliers, energy networks and third parties. It also sets out the purposes for which data can be collected and the choices available to consumers in

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managing this access. In line with commitments made in 2015, the Government has undertaken a review of the Framework and published the findings in November 2018<sup>30</sup>.

Overall, the review did not identify any areas where amendments to the Framework were required. Based on the available evidence around consumer attitudes and approaches to accessing consumption data, the review concluded that appropriate requirements are in place to safeguard consumer privacy whilst enabling energy consumption data to be utilised to support the development of new services and the transition to a smarter energy system.

The review identified areas where further work is necessary to ensure that the Framework's objectives are being met. We will work with relevant partners to:

- Support the sharing of good practice in relation to providing information to consumers on their data access choices and how their energy consumption data will be used.
- Clarify the Framework's interaction with wider data protection legislation.

Whilst we do not anticipate that a further standalone review of the Framework will be necessary, consideration of data access and privacy will be incorporated into ongoing monitoring of the smart metering regulatory framework.

## Promoting energy management innovation in the non-domestic sector

Innovation will be key to unlocking the potential of smart meter data. The Programme is taking several steps to maximise the benefits of smart metering for consumers by funding innovation competitions in the non-domestic as well as the domestic sector.

In early 2018 the Government launched a Non-Domestic Smart Energy Management Innovation Competition (NDSEMIC)<sup>31</sup>, an £8.8 million investment to develop products/services which target smaller non-domestic sites to help them manage their energy use better. The competition emerged from Government-funded research<sup>32</sup> which found that existing engagement with smart metering data amongst smaller non-domestic sites varies, and that cost, time and lack of ability to interpret data can be barriers to non-domestic engagement with smart energy data and energy management. The study found

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<sup>30</sup> See: [www.gov.uk/government/publications/smart-metering-implementation-programme-review-of-the-data-access-and-privacy-framework](http://www.gov.uk/government/publications/smart-metering-implementation-programme-review-of-the-data-access-and-privacy-framework)

<sup>31</sup> See: [www.gov.uk/government/publications/non-domestic-smart-energy-management-innovation-competition](http://www.gov.uk/government/publications/non-domestic-smart-energy-management-innovation-competition)

<sup>32</sup> See: [www.gov.uk/government/publications/smart-metering-in-non-domestic-premises-early-research-findings](http://www.gov.uk/government/publications/smart-metering-in-non-domestic-premises-early-research-findings)

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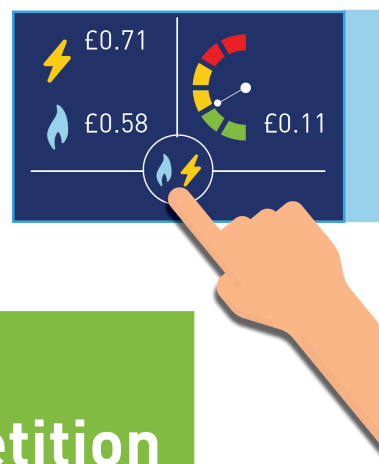
that smart meter data has the potential to prompt non-domestic sites into action, provided they can interpret data within the context of their own organisation.

As a result, NDSEMIC is developing tools and services which tailor energy insights to organisational contexts, through a range of mechanisms such as benchmarking, real-time alerts, bespoke advice and regular performance trends. The competition targets three sectors: hospitality, schools and retail as part of a broader sector-based policy approach, in recognition of the case for tailored and segmented engagement for non-domestic sites around smart meters.

In phase 1 of the competition, the Government awarded funds to nine competition partners<sup>33</sup>. In phase 2 of the competition, the Government has continued to fund seven of the projects: ANDtr, Considerate Hoteliers, Element Energy, Hildebrand, Hoare Lea, Samsung and Transition Bath. The competition includes a £1.5 million research and evaluation programme, which is running alongside the funded projects to learn and evaluate effective ways to engage non-domestic sites with their energy data. In phase 2 of the competition, competition partners are piloting their innovations with a small number of sites to test feasibility and collect user feedback. In phase 3 competition partners will be trialling their innovations on a wider scale, allowing for research into the impacts of the innovations, including sector-level insights. An interim report will be published in the first half of 2019 and a final report summarising the learnings from the competition will be published in 2020.



**Supporting  
innovation to  
turn energy data  
into energy savings**



**£8.8 million  
innovation competition**

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<sup>33</sup> Details of individual projects can be found here:

[www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/716654/180503\\_NDSEMIC\\_phase\\_1\\_project\\_summaries\\_REP\\_v03a\\_rg.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/716654/180503_NDSEMIC_phase_1_project_summaries_REP_v03a_rg.pdf)

Designed to develop exciting new and intuitive solutions to turn energy data into energy saving actions to help sectors that traditionally do not have dedicated on-site staff with responsibility for energy management.



## Funding will support:



### Prototyping

Innovative ways to visualise energy data to help people working in different sectors to take action.



### Testing

Feasibility and behavioural change.



### Piloting & evaluation

In real businesses and schools so solutions can be tailored to the unique needs of the sectors.

## What types of solutions are being developed?

Next generation, easy-to-use data tools will be an important stepping stone to delivering local, smart energy systems.

But what kinds of features and benefits will help people to take control of their energy use?



### Notifications

Real time text message alerts on energy spikes or broken equipment.



### Gamification

Comparative league tables, reward schemes, using energy management as an educational tool.



### Ability to control

Smart control mechanisms for electricity and gas – lighting, heating, cooling and refrigeration.



### Budget control

Tracking against a set target. Real time view on progress.



### Dashboard

Centralised monitoring to see full picture, help to schedule work patterns, trading hours, maintenance.



### Load-shifting

Demand-side response engagement facility.

**Figure 3:** NDSEMIC programme overview infographic.

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## Supporting innovation in the use of domestic smart meter data

Beyond the core benefits of smart meters in terms of avoided and more accurate meter readings, we recognise the potential for innovation around the use of data that smart meters will provide and have taken further action in 2018 to support this.

- In September 2018 the Government launched a new £5 million funding scheme to develop, test and demonstrate technologies that measure the **thermal performance of homes using smart meter and other data** (under the name of Smart Meter Enabled Thermal Efficiency Ratings - SMETER). Of this funding, up to £4.1 million is provided for innovation projects to develop the tools themselves, while Government is also providing up to £900,000 for a Technical Assessment Contractor to independently test and demonstrate the tools developed as part of the innovation projects. Phase 1 of the competition will run between January and September 2019. By supporting innovation and gathering evidence on potential impacts, the competition will deliver the commitment in the Government's Clean Growth Strategy<sup>34</sup> to explore how the data available through the national smart metering platform can, with customers' consent, support personalised recommendations for saving energy.
- The Government's vision is that it should be possible not only to access smart meter data remotely via the Data Communications Company (DCC) but also that consumers can retrieve data from their smart meter locally via devices connected to the Home Area Network (HAN). This has the potential to empower consumers, better engaging them with their energy use, unlocking new smart products and services. Devices accessing data in this way are often referred to as **Consumer Access Devices (CADs)**. Whilst there are licence obligations requiring energy suppliers to take all reasonable steps to pair relevant consumer devices with smart metering systems, the Programme recognises that the roles and responsibilities around the pairing process are not always clear or as customer friendly as they might be. With this in mind, we convened a working group of relevant stakeholders. Through 2018 this group has supported the development of a set of guiding principles, which set out how pairing could work in practice, and where the different roles and responsibilities lie. These guidelines are published on the Smart Energy Code Administrator and Secretariat (SECAS) Website<sup>35</sup>.
- Smart meter data can be used to manage significant domestic loads such as electric vehicles, and smart meter communications systems can perform load control of such assets in a secure and accurate way. The smart metering system is designed to offer all this over a secure system while ensuring interoperability for consumers when

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<sup>34</sup> See: [www.gov.uk/government/publications/clean-growth-strategy](http://www.gov.uk/government/publications/clean-growth-strategy)

<sup>35</sup> See: <https://smartenergycodecompany.co.uk/document-download-centre/download-info/publication-beis-cad-testing-pairing-document/>

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changing service providers, supporting a competitive market for the provision of load management services. The Government is supporting the **build and demonstration of smart meter-based load control devices**. In particular, Government has made available £3 million of funding to support a demonstration project to show how electric vehicle chargers can be operated using the smart metering infrastructure, which is currently being tendered.

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## Chapter 5 - Forward Plan of Activity

**This chapter looks ahead to 2019, including our plans for engagement in the non-domestic sector, our commitment to further review the smart meter cost-benefit analysis as well as our commitment to undertake a consumer benefits stocktake in 2019.**

### The continued roll-out of smart meters in 2019

The roll-out of smart meters will continue to progress in 2019. The transition to SMETS2 meters will mean more consumers are able to retain their smart functionality when switching energy supplier.

- The second half of 2019 should see **further technological solutions** start to be delivered to serve some of the harder to reach premises in Great Britain. For example, in October 2018 the DCC successfully delivered a further major software deployment, which upgrades the communications interface with the DCC, enabling the operation of Dual Band Communications Hubs (DBCH)<sup>36</sup>. This makes them suitable for use in premises where the building material and/or distance between the gas and electricity meters would rule out the use of a Single Band Communications Hub (SBCH). This unlocks at least 25% of premises for energy suppliers to roll out to, with the required hardware to be delivered in 2019.
- The **enrolment of SMETS1 meters** into the national smart metering infrastructure will be underway. The Data Communications Company will prioritise the enrolment of meters that have previously lost smart services (“dormant” meters). Energy suppliers are obligated to operate meters in smart mode once enrolled, allowing consumers to regain smart services.
- In addition, energy supply licence conditions enable the Secretary of State to set a date from which suppliers must take all reasonable steps to install a compliant smart meter where a meter is installed for the first time (for example in new build properties) or where a meter is replaced – this is referred to as the **New and Replacement Obligation (NRO)**. We expect to make a decision on the activation of the NRO in 2019.

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<sup>36</sup> The DBCH uses a different radio frequency within the home, alongside the radio frequency used by the SBCH.

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## Plans for engagement in the non-domestic sector

The smart meter roll-out covers approximately two million non-domestic sites, most of which are microbusinesses and Small and Medium-sized Enterprises (SMEs). The Programme will continue to work on a sector basis to tailor communications activity to best meet the needs of different businesses, raising awareness and encouraging take-up of smart meters.

During the initial phase of sector engagement, the Programme has prioritised the retail, hospitality, and schools sectors, selected on the basis of high energy usage and the high number of premises within each sector. Engagement activity in 2019 (building on early learning research) will focus on a number of key stakeholders and channels including local authorities and networks (for example Local Enterprise Partnerships), trade associations, chambers of commerce, business-to-business service providers, and industry-led events.

## Further reviewing our smart meter cost-benefit analysis

In 2011, the Government established the policy for smart meters and this decision was supported by an Impact Assessment which was published in August 2011. The Department updated this Impact Assessment in the light of policy decisions in 2012, 2013 and 2014. In November 2016, it published an updated Smart Meter Roll-out Cost-Benefit Analysis (CBA)<sup>37</sup> which found that:

- The smart meter roll-out is set to deliver significant net benefits to consumers, estimated at £5.7 billion over the lifetime of the Programme, yielding £1.5 of benefits for every £1 invested.
- It estimated that smart meters will take £300 million off consumers' bills in 2020, rising to more than £1.2 billion a year by 2030 – an average annual saving of £47 per household.

The Programme is committed to updating the CBA in Summer 2019 to reflect the latest evidence and changes in the underlying regulatory framework supporting the roll-out.

## Consumer benefits stocktake

As part of the parliamentary debates leading to the Smart Meters Act 2018, the Government committed to publishing a stocktake report of progress towards delivering the

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<sup>37</sup> See: BEIS Smart meter roll-out (GB): cost-benefit analysis: [www.gov.uk/government/publications/smart-meter-roll-out-gb-cost-benefit-analysis](http://www.gov.uk/government/publications/smart-meter-roll-out-gb-cost-benefit-analysis)



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consumer benefits of the Programme. In preparing the report, we will take evidence from consumer representative bodies and Ofgem. The report will be published in 2019.

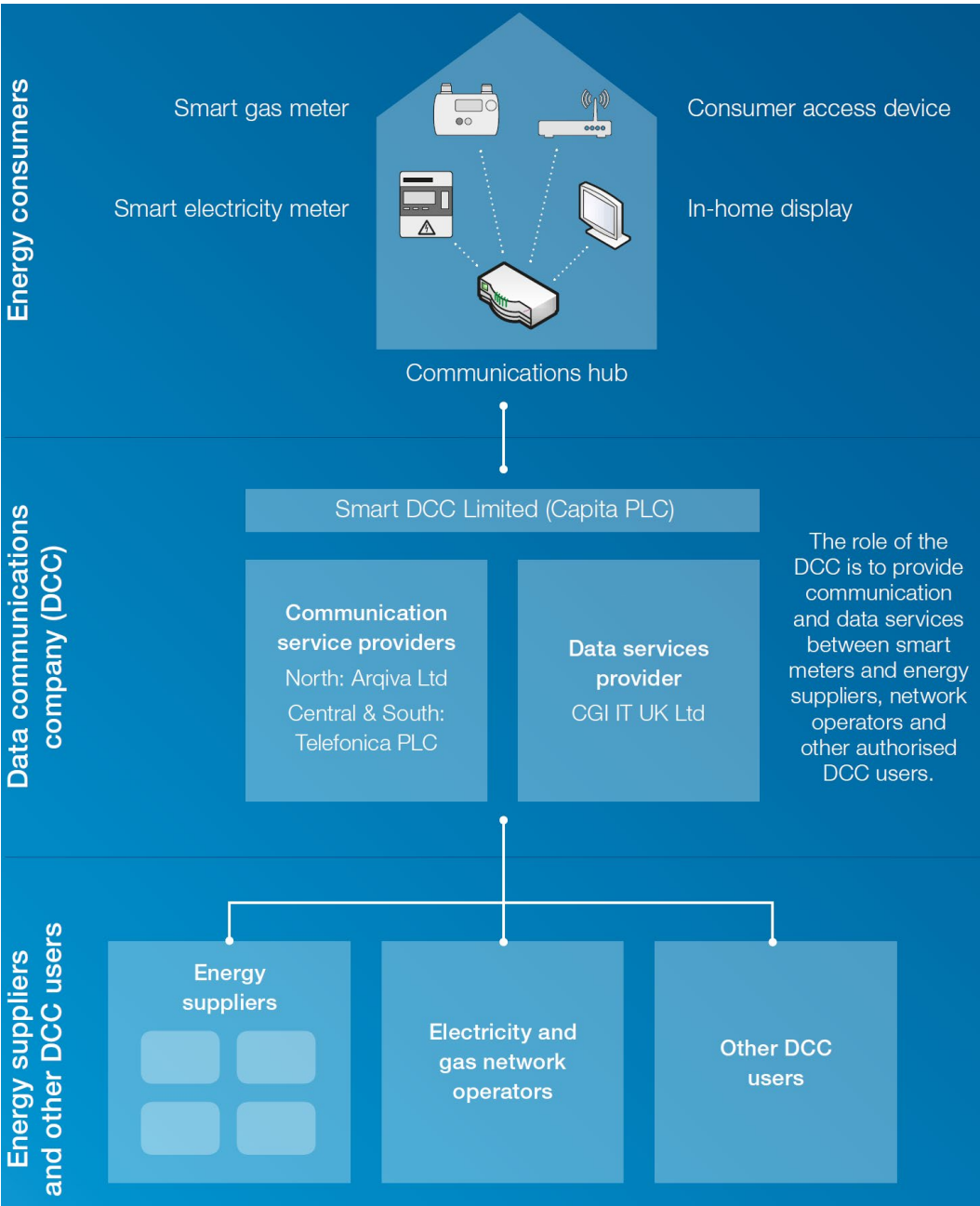
## Review of the Programme by the National Audit Office

The National Audit Office (NAO) scrutinises public spending for Parliament. Their public audit perspective helps Parliament hold Government to account and improve public services. The review, published in November 2018, assessed the current economic case for the roll-out of smart meters, looked at whether the Government is on track to roll-out meters by 2020 and considered whether the Government is maximising the chances that smart meters will achieve their intended long-term benefits. The study follows up two previous NAO studies on the roll-out, which published in 2011 and 2014.

The Government welcomes the opportunity to consider the progress of the smart meter roll-out so far through the National Audit Office review. The Programme is aware of the challenges highlighted and is taking action in each of the recommendation areas.

# Annex A - The Smart Metering System

The diagram below illustrates the main parts of the smart metering systems showing the equipment and communications within energy consumers' homes. It shows the organisations that will use the information provided by smart meters (DCC Service Users), and the system provided by the Data and Communication Company (DCC) which will link these organisations with the smart meters.



**Figure 4:** Overview of the smart metering system

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## **Equipment and communications within energy consumers' homes**

The Smart Metering Equipment installed by energy suppliers will normally consist of a smart electricity meter, a smart gas meter, and a Communications Hub (which will typically sit on top of the electricity meter). Energy suppliers will offer all domestic customers an In-Home Display at no upfront cost as part of the installation process. These devices are explained below.

### **Smart electricity and gas meters**

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

### **In-Home Display**

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

### **Communications Hub and the Home Area Network**

The Communications Hub has two functions: it allows the smart meters and In-Home Display to communicate with each other via the DCC over a Home Area Network, in a similar way to wireless computer networks, but using a different technology. The Hub also provides a link to the Wide Area Network that, via the DCC, allowing information to be sent to and from meters by energy suppliers, network operators and other authorised service users.

### **Regulatory and Commercial arrangements: Industry Roles**

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

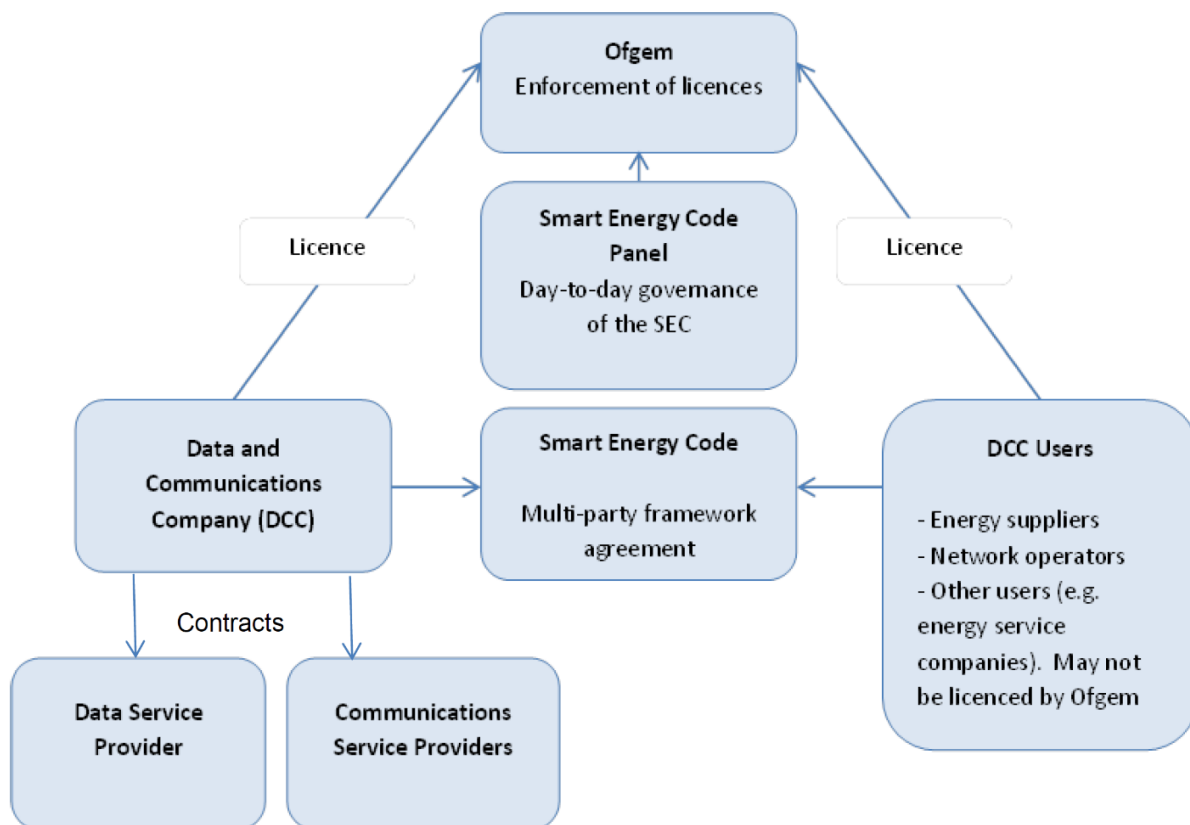
The DCC is granted a licence to provide communication services between smart meters and the business systems of DCC users (energy suppliers, network operators and other authorised service users). The DCC's role, as defined in its licence, is to ensure the provision of efficient, economical, coordinated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

The Data Service Provider's primary responsibility is to develop, host and maintain a software application to provide functionality for access control, scheduling and translation

for high volume messaging between the business systems of multiple DCC users and the smart metering Communications Hubs in consumer premises via the networks provided by the Communications Service Providers.

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

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



**Figure 5:** The structure of the enduring regulatory and commercial arrangements.

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## Annex B - Glossary

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

**Advanced meter** - a meter which must, at minimum, be able to store half-hourly electricity and hourly gas data, to which the customer can have timely access and the supplier has remote access. Meters described as “advanced” in this report may have additional functions found in a smart meter that meets the Government’s technical specification. Advanced meters which fall under the smart meter roll-out obligation are those installed in smaller non-domestic sites.

**Communications Hub** - a device which complies with the requirements of the Communications Hub Technical Specifications and which contains two, logically separate Devices; the Communications Hub Function and the Gas Proxy Function.

**Communications Hub Technical Specifications (CHTS)** - a document (which forms part of the Smart Energy Code) which sets out the minimum physical, functional, interface and data requirements that will apply to a Communications Hub.

**Communications Service Provider (CSP)** - bodies awarded a contract to be a service provider of communications services to DCC as part of DCC’s Relevant Services Capability. Arqiva Limited and Telefónica UK Limited have been appointed to provide these services.

**Consumer Access Device (CAD)** - A CAD can be any device which communicates with the HAN to provide it access to the tariff information and energy consumption data stored on the smart electricity meter (electricity data) and communications hub (gas proxy function, gas data).

**Data and Communications Company (DCC)** - the holder of the Smart Meter communication licence, Smart DCC Ltd.

**Data Service Provider (DSP)** - the company awarded a contract to be a service provider of data services to DCC as part of DCC’s Relevant Services Capability. CGI IT UK Limited has been appointed to provide these services.

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

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**Dual Band Communications Hub (DBCH)** - a Communications Hub that is capable of using 868MHz frequency bands for the HAN along with the existing 2.4GHz HAN frequency bands.

**Electricity Smart Meter** - a Device meeting the requirements placed on Electricity Smart Metering Equipment in the SMETS.

**Gas Smart Meter** - a Device meeting the requirements placed on Gas Smart Metering Equipment in the SMETS.

**Home Area Network (HAN)** - the wireless communications network formed by the Devices which form the Smart Metering System within a premises.

**In-Home Display (IHD)** - an electronic Device, paired into the Smart Metering System, which provides near realtime information on a consumer's energy consumption.

**Meter Operator (MOP)** - an agent appointed by an energy supplier to provide, install and maintain electricity and gas meters.

**National Skills Academy for Power (NSAP)** - a skills academy for the energy and power industry in the UK.

**Non-Domestic Smart Energy Management Innovation Competition (NDSEMIC)** - a Government led competition which aims to drive innovation in the energy services market in three priority non-domestic sectors: hospitality, retail and schools.

**Office of Gas and Electricity Markets (Ofgem)** - the Government regulator for the electricity and downstream natural gas markets in Great Britain.

**Single Band Communications Hub (SBCH)** - a Communications Hub that is only capable of using 2.4GHz frequency bands for HAN communications.

**Small and Medium Sized Enterprises (SMEs)** - business whose personnel numbers fall below certain limits: Micro Companies can employ up to 10 workers; Small Scale Companies can employ up to 50 workers and Medium Scale Companies up to 250 employees.

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

**Smart Energy GB** - the independent not for profit organisation responsible for the national consumer awareness campaign for the roll-out of smart meters in GB.

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

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**Smart Meter Enabled Thermal Efficiency Ratings (SMETER)** - a Government led competition which aims to test and demonstrate technologies that measure the thermal performance of homes using smart meter and other data.

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

**Smart Metering Equipment Technical Specifications (SMETS)** - a specification (which forms part of the Smart Energy Code) of the minimum technical requirements of Smart Metering Equipment. (Communications Hubs are separately dealt with in the Communications Hub Technical Specifications).

**Smart Metering Equipment Technical Specification version 1 (SMETS1)** - the first version of the Smart Metering Equipment Technical Specification which was designated by the Secretary of State.

**Smart Metering Equipment Technical Specification version 2 (SMETS2)** - the second version of the Smart Metering Equipment Technical Specification which was designated by the Secretary of State.

**Wide Area Network (WAN)** - the network that is used for two way communications between Communications Hub Functions and the DCC.

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