Smart Metering Implementation Programme

Smart Metering for Non-Domestic Customers

January 2013

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Introduction

The Government's vision is for every home in Great Britain to have smart electricity and gas meters, and for smaller non-domestic premises in both the private and public sectors to have smart or advanced metering suited to their needs. The roll-out of smart meters will play an important role in Britain's transition to a low-carbon economy and help us meet some of the long-term challenges we face in ensuring an affordable, secure and sustainable energy supply.

Customers will have near real-time information about their energy consumption to help them control energy use, save money and reduce emissions. There will be an end to estimated billing, and switching between suppliers will be smoother and faster. New products and services will be supported in a vibrant, competitive, more efficient market in energy and energy management. Suppliers will have access to accurate data for billing and to improve their customer service. They will also be able to reduce costs, for example by reducing call centre traffic, removing the need for a site visit to read meters and better manage debt. Energy networks will have better information upon which to manage and plan current activities and the move towards smart grids and a secure, low-carbon energy system.

The Smart Metering Implementation Programme ("the Programme") will deliver the roll-out of smart metering to both the domestic and smaller non-domestic sectors. This document sets out the Programme's approach to smaller energy users in the non-domestic sector. It is designed to give clarity to all of those affected by smart metering – whether as customers, customer representatives or industry parties – about the key aspects of the Programme. It does not include any new policy proposals, but brings together in one place the decisions and proposals already made by the Programme that affect the non-domestic market.

Smart meters will be installed over two implementation phases: the Foundation Stage and mass roll-out. During the Foundation Stage, which began in April 2011, the Government is working with industry, consumer groups and other stakeholders to ensure that all the necessary groundwork is completed for mass roll-out. Mass roll-out will start in late-2014 and be completed by the end of 2019. The Foundation Stage is crucial to a successful mass roll-out. Some customers will receive smart or advanced meters during the Foundation Stage, as energy companies start up their programmes in preparation for the mass roll-out. The majority of customers will receive their smart meters during mass roll-out.

Smart and advanced metering is not new to the non-domestic sector. In the 1990s, metering able to provide detailed information about energy use was required for the largest non-domestic sites; the roll-out of advanced metering to medium-sized sites began in 2009 and will be completed in 2014; and already many smaller sites are equipped with advanced metering. In recognition of this existing activity, which brings many benefits to customers today, the Government has designed a slightly different approach to roll-out for the non-domestic sector than taken in the domestic market.

The smaller non-domestic sites affected by the roll-out of smart and advanced metering include 2.1 million electricity and up to 1.5 million gas sites. These sites are enormously varied. They include private and public sector organisations, and range from small shops to chain stores, from small industrial units to schools. It follows that customers will be approached differently by suppliers – a micro-business may, for example, be treated in much the same way as a domestic customer, is likely to receive smart or smart-type metering and will enjoy greater protections than a larger business. A large public or private sector customer with its own energy manager may

have particular metering needs, and may, for example, already be installing advanced metering across its property portfolio. In terms of the rules governing the roll-out, the key differences in the treatment of micro-businesses and other non-domestic customers lie in the areas of customer protection, engagement and data access and privacy.

Chapter 1 explains the types of metering that are, and will be, available to non-domestic customers. **Chapter 2** sets out how the roll-out will be taken forward.

The Government's commitment to the roll-out is built on a positive business case that is supported by a detailed economic Impact Assessment. This Assessment indicates that the smart metering roll-out will carry a net benefit of around £6.7 billion, to which the smaller non-domestic market makes a significant contribution. Like households, non-domestic customers can enjoy benefits just as households by managing their energy use better.

Consumer benefits are discussed in **Chapter 3**, which also highlights some of the interactions between smart metering and other DECC programmes, the indicative costs of the roll-out and how the roll-out and its benefits will be monitored.

Smart metering will change the relationship between suppliers and customers in various ways. Smart metering will be installed over a concentrated period, and will permit suppliers to interact with customers and their meters in different ways. Customer protection therefore needs to be fit for purpose in this changing environment. **Chapter 4** explains the protections that we have put in place for non-domestic customers, including the rules applying to micro-businesses, and the approach to engaging non-domestic customers.

Next steps

This document sets out the position as of January 2013, and will be updated as necessary in light of such developments. As the document makes clear, whilst many decisions have already been taken and rules put in place, the Smart Meter Implementation Programme will be taking other decisions over the coming months that will be important for non-domestic customers. In January 2013, the Government published the first part of its response to the Smart Metering Equipment Technical Specification 2 (SMETS2). The second part of the response, including decisions on requirements for the installation of DCC communications hubs and arrangements for the security and governance of smart metering equipment, will be published in April 2013. Also in April 2013, the second Smart Energy Code (SEC) consultation will set out proposed arrangements for the enrolment and adoption of smart meters by the Data and Communications Company and the arrangements for the treatment of meters that are opted out of DCC. In respect of consumer engagement, Central Delivery Body has to be established by the end of June and must publish its work programme by the end of 2013.

Chapter 1: Smart and advanced metering in the non-domestic market

Context

1.1   Non-domestic energy customers and sites differ in size, turnover, sector and intensity of energy use, and are found in both the private and public sectors[1]. Across all categories, Great Britain has around 4 million non-domestic meter points, compared to around 50 million domestic sites, but those meters measure significant levels of energy use. Despite representing less than 10% of sites in total, non-domestic electricity customers are responsible for around two-thirds of demand; non-domestic gas customers are responsible for more than 40% of demand from around 10% of sites. Further background information on the non-domestic supply and metering markets is set out at **Annex 1**.

Larger energy users

1.2   During the 1990s, metering capable of providing detailed information about energy use was pioneered in the non-domestic market among the largest electricity and gas users for settlement and billing purposes. In that period, requirements for the use of half-hourly electricity and daily-read gas meters were introduced, and later included in gas Network Codes and the electricity Balancing and Settlement Code (see **Annex 1** for an explanation of the structure of the market). Over time, more customers and more service companies saw the scope for collecting the detailed data available from these meters remotely, and using it to help to manage energy use. In addition, sites outside the formal half-hourly and daily read markets began to see the benefit of the improved billing that could flow from detailed usage data and the using information to help them to improve their energy management. The services industry also began to offer innovative solutions on the customer's side of the meter through sub-metering that could give detailed information about individual areas or pieces of equipment within a plant.

1.3   Such metering and metering services are usually known as advanced metering or automated meter reading (AMR), and can be delivered through a range of technologies. For example, an advanced meter that can be read remotely may be a single integrated device; alternatively, the advanced functionality may be achieved by the addition of a pulse- or optical-reading device that can take meter information and transmit it to a service provider. This functionality can be added without interfering with the supply and is most commonly found in the gas sector. In the smart metering roll-out, a degree of "smartness" will be applied to larger gas meters by adding devices in this way (see below). In general, advanced functionality is less extensive than smart functionality.

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[1] Non-domestic sites are defined in Supply Licences. A non-domestic site is one at which the customer is supplied with electricity or gas primarily for non-domestic purposes. Where a non-domestic customer has an agreement with a third party for provision of residential or other accommodation at the premises, the customer is treated as non-domestic. Where non-domestic premises occur as part of a non-domestic multi-site supply contract, they are treated as non-domestic.

Medium energy users

1.4 In 2009, using the smart metering powers in the Energy Act 2008, the Government introduced rules for the provision of advanced metering to the middle range of non-domestic users – 160,000 electricity sites within profile classes 5-8 and 40,000 gas sites with average annual consumption of between 732 and 58,600 MWh. Advanced metering is defined as being able to provide half-hourly electricity and hourly gas information that is remotely accessible by the supplier and to which the customer can have timely access. The regulations require advanced metering to be installed where existing metering was replaced or newly installed, and, in any case, by April 2014[2]. We understand that suppliers are making good progress towards meeting this target.

1.5 This requirement was supported by other interventions that incentivised the installation of non-domestic advanced metering. These included the Carbon Reduction Commitment (CRC, now known as the CRC Energy Efficiency Scheme)[3] in 2010 and the 2009 Framework Agreement[4] developed by the Office of Government Commerce (now the Government Procurement Service) for the installation of smart and advanced metering at public sector sites. Ofgem and industry participants are currently considering proposals to introduce half-hourly settlement for existing profile class 5-8 sites[5].

Smaller energy users

1.6 The Government's vision is that, by the end of 2019, smart or advanced metering will be installed at the remaining 2.1 million non-domestic electricity and 1.5 million non-domestic gas sites. These smaller non-domestic energy users include private and public sector organisations, and the roll-out will reach an enormous variety of sites, from small shops to chain stores, from small industrial units to schools.

1.7 Under the Energy Act 2008, the Government has amended electricity and gas suppliers' licences to require them to take all reasonable steps to (alongside installing smart meters in domestic sites) install smart or advanced metering at their smaller non-domestic sites by the end of 2019. A smaller site is one that is in electricity Profile Class 3 or 4, or uses less than 732 MWh of gas per annum. More specifically, in those regulations:

- a **smart meter** is defined as meeting the Smart Metering Equipment Technical Specifications (SMETS). SMETS sets the minimal equipment functionality needed for smart metering equipment. It has been developed by Government to support interoperability of equipment and the delivery of smart metering benefits. **Table 1** summarises the high-level functionality required of all smart meters, which is the same for both the domestic and non-domestic sector, except that smart non-domestic gas meters will not be required to have a

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[2] The licence conditions and accompanying guidance are at
http://webarchive.nationalarchives.gov.uk/20130109092117/http://www.decc.gov.uk/assets/decc/what%20we%20do/supporting%20consumers/smart%20energy%20meters/file49172.pdf
[3] The CRC/CEES is a mandatory scheme for the reporting and pricing of carbon emissions. It applies to organisations using more than 6,000 MWh of electricity per annum. Further details are at
http://www.decc.gov.uk/en/content/cms/emissions/crc_efficiency/crc_efficiency.aspx
[4] The Framework Agreement is designed to support accurate billing, energy monitoring and CRC/CEES requirements through five-year contracts for advanced metering and related services. Details are at
http://gps.cabinetoffice.gov.uk/contracts/rm679
[5] Details of the consultation are at http://www.elexon.co.uk/mod-proposal/p272-mandatory-half-hourly-settlement-for-profile-classes-5-8/

valve allowing remote disconnection and reconnection of supply**.** We expect suppliers to make individual choices on whether to use this functionality, and, if not using it, whether to purchase meters without it or to disable the valve.

- An **advanced meter** is defined in the same way as in the 2009 regulations for advanced metering at medium-sized energy sites (see paras 1.4-1.5). It is only in the non-domestic sector that both smart and advanced meters are being installed as part of the roll-out. This reflects the fact that, in parts of the non-domestic market, there are already well-established advanced metering arrangements in place, which are delivering benefits to customers. The Government does not want to disrupt these arrangements. It recognises that many organisations, especially those that operate across multiple sites, have already installed advanced metering, and are likely to wish to continue to have a common metering and data service across their property portfolio.

1.8   The regulations allow installation of advanced metering at smaller non-domestic sites until April 2014, or until December 2019 where a customer has a contractual obligation with a supplier or another provider that was entered into before April 2014. Advanced metering will not have to be removed by a particular date but, once it comes to be replaced at the end of its natural life, it will have to be replaced by a smart meter that complies with SMETS.

1.9   Our current assessment is that 77% of electricity meters and 60% of gas meters at smaller non-domestic sites will be smart, with the remainder being advanced. We expect the use of advanced metering to be commonest at larger sites, or smaller sites of multi-site organisations.

1.10 For technical reasons, there are two situations where advanced metering will be required for the foreseeable future. This will apply in both the domestic and non-domestic sectors:

- for around 400,000 larger gas meters - often known as "U16" meters – for which there is no "smart" product on the market, and where the relatively limited levels of demand mean that a competitively priced smart meter is unlikely to emerge.

- for around 25,000 current transformer electricity meters, which cannot meet the SMETS as they cannot be remotely disconnected.

Table 1: High-level smart metering functionality

A	Remote provision of accurate reads/information for defined time periods; delivery of information to customers, suppliers and other designated market organisations.
B	Two-way communications to the meter system; communications between the meter and energy supplier or other designated market organisation; ability to upload and download data through a link to the wide area network; ability to transfer data at defined periods; remote configuration and diagnostics; software and firmware changes.
C	Home area network based on open standards and protocols providing "real time" information to an in-home display; other devices able to link to the meter system
D	Support for a range of time of use tariffs; multiple registers within the meter for billing purposes
E	Load management capability to deliver demand side management; ability remotely to control electricity load for more sophisticated control of devices in the home
F	Remote disabling and enabling of supply to support remote switching between credit and prepayment modes[6]
G	Exported electricity measurement; measure net export
H	Capacity to communicate with a measurement device within a microgenerator; receive, store and communicate total generation for billing

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[6] This functionality is not required for non-domestic gas meters.

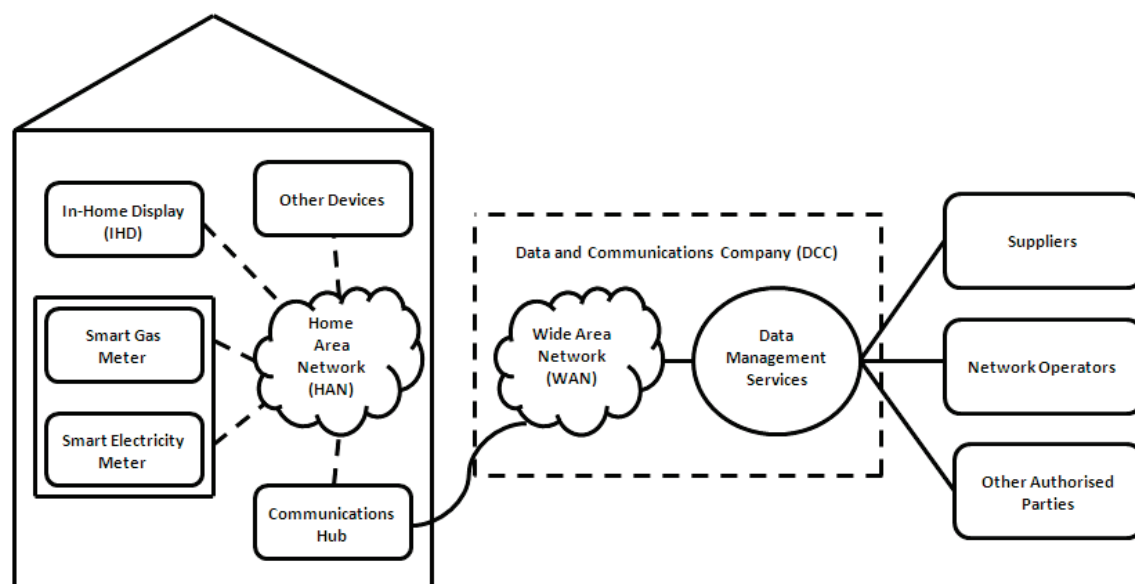# Chapter 2: The smart metering system

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Context

2.1   The meter's ability to communicate remotely is key to delivering the benefits of smart and advanced metering. Where energy suppliers are installing advanced or early smart metering, they are establishing their own arrangements for communicating with the meters, for example by using mobile phone signals. For mass roll-out, the Government is establishing a new Data and Communications Company (DCC), which will be responsible for two-way communications and the transfer of data between smart meters and energy suppliers, network companies and other authorised third parties. Non-domestic suppliers will be able to opt in to this contracted service. DCC may also offer services to smart-type and advanced meters, subject to their, and the DCC users', meeting certain criteria.

The Data and Communications Company (DCC)

2.2   The establishment of a GB-wide Data and Communications Company (DCC) brings various benefits, including ensuring that customers can continue to switch supplier; the ability for metering data to be shared with network companies, facilitating more efficient network management; and the ability of customers to give third parties access to their data, for example as part of an energy advice service or to allow tariff comparisons.   DCC services are expected to be available from late-2014. Beyond 2014, there are plans to move the meter registration systems into DCC. This will allow further improvements to be made to industry processes, including streamlining the switching process.

2.3   The end to end system is illustrated in Figure 2. In this illustration, those ultimately taking data from meters – and, in the case of suppliers, also putting data on them - are on the right. The DCC will carry out the data function, collecting data from meters and sending messages to reconfigure meters where required. The Wide Area Network (WAN) is the overall means by which data is routed to DCC. In the premises, data is passed through the communications hub. The internal system in the premises – of which the Home Area Network (HAN) is a key element - allows the data collected by the meter to be viewed by the customer through a display - as shown in the illustration - or other authorised consumer device, if used. In the future, the HAN could also be a means by which smart appliances in the premises – eg charging points for electric cars – could be managed.

2.4   A new industry code will support the efficient and effective operation of the smart metering system: the Smart Energy Code (SEC)[7]. The SEC will set out how different parties (suppliers, network operators, DCC and other authorised parties, including, potentially, energy service providers, will work together. Customers will not be parties to the SEC, nor will they have rights or obligations under it. Like most other industry codes, the SEC will form a contractually binding agreement between these parties. The SEC was subject to an initial consultation in 2012. Further consultations will take place during 2013.

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[7] In November 2012, the Government responded to its consultation on Stage 1 of the SEC: http://www.decc.gov.uk/assets/decc/11/consultation/smart-metering-imp-prog/6908-stage-1-smart-energy-code-cons.pdf

Figure 1: the end-to-end smart metering system[8]

Opting-in to DCC

2.5 Non-domestic suppliers will have a choice over whether to use DCC, and their decision is likely to be informed by factors such as cost, quality of service and the views of their customers. This choice has been allowed to reflect the range of existing arrangements, often bundled, around metering installation, data collection and energy advice. The Government does not wish to interfere with the customer choice and competition that already exist in this market.

2.6 Nevertheless, we expect the great majority of non-domestic meters to be opted in to DCC. Large suppliers with substantial numbers of domestic customers are likely to wish to use a common data service for both their domestic and smaller non-domestic sites. In addition, in the longer term, DCC is expected to assume responsibility for metering registration services, which is likely to increase its attractiveness to all suppliers.

2.7 As well as its core role of providing communications services for compliant smart meters, DCC may also offer bespoke contracts to non-domestic suppliers for the provision of services for advanced (including smart-type) meters, subject to their meeting certain criteria.

2.8 The arrangements governing DCC users, including what happens when meters join or leave DCC will be set out in the SEC (see para 2.4 above).

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[8] There will be no requirement on suppliers to offer non-domestic customers an IHD. IHDs may be offered as part of a supplier's package, or customers may use a Consumer Access Device to provide a similar function.

Opting-out of DCC

2.9   We expect that most smart meters opted out of DCC will be those provided to multi-site organisations, often by energy service providers. These meters may be configured in a particular way, perhaps to provide a common "advanced" service across a portfolio of sites. The ability of suppliers to opt out therefore creates opportunities to tailor energy services to a particular company's needs.

2.10   In its August 2012 consultation on SMETS 2[9], the Government proposed that smart meters opted out of DCC should not be required to have a DCC communications hub, to avoid unnecessary investment in assets that might not be used over a long period. In January 2013, the Government published the first part of its response to the SMETS consultation. The second part, including the decision on the DCC communications hub, will be published in April 2013.

2.11   The Government is currently considering the extent to which opted-out smart meters should be required to comply with prescribed security arrangements – both in respect of the total system and the individual meter.

2.12   The Government considered whether it would be helpful to require suppliers to make clear to the customer whether he is being opted into or out of DCC, and the possible effects of that decision. It has concluded that there may instead be a role for DECC in ensuring that non-domestic customers are aware of the consequences of being opted out of DCC[10]. DECC is providing early information to non-domestic customers and others about the operation of the current smart-type and advanced markets with a view to helping customers get the most appropriate metering for their business.

2.13   The Government has made clear that the decision not to mandate use of DCC in the non-domestic sector may be reviewed in future, for example if strong evidence emerged of serious interoperability issues or if smart grid requirements were not being met. Opted-in smart meters can perform two key functions for distribution networks: they can provide detailed information for day-to-day network management or longer term planning; and, subject to appropriate contractual arrangements, they can allow remote load-management. Opted out meters or advanced meters do neither directly. However, they can provide detailed information that can – subject to commercial contract - be accessed by networks.

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[9] The SMETS2 consultation is at http://www.decc.gov.uk/assets/decc/11/consultation/smart-metering-equipment-technical-specifications-2/6129-consultation-second-version-smets.pdf

[10] See the Government's December 2012 response to its consultation on smart metering data access and privacy: http://www.decc.gov.uk/assets/decc/11/consultation/smart-metering-imp-prog/7225-gov-resp-sm-data-access-privacy.pdf

Chapter 3: The benefits of smart metering

Context

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3.1 The Government's commitment to the roll-out is built on a positive business case that is supported by detailed economic Impact Assessments. These Assessments – based, among other things, on assumptions of non-domestic usage reductions of 2.8% for electricity and 4.5% for gas - indicate that the smart metering roll-out as a whole will deliver a net benefit of around £6.7 billion, to which the smaller non-domestic market makes a significant contribution. Like households, non-domestic customers can enjoy benefits by managing their energy use better.[11] Figure 2 summarises the benefits falling to various parties.

3.2 The Smart Meter Implementation Programme's monitoring will track suppliers' progress towards completing the roll-out, monitor costs and enable benefits to be optimised.

3.3 An immediate benefit of smart and advanced metering is that accurate meter-readings can be obtained, without the need for a physical meter-reading and access to premises. This avoids problems that can arise from estimated reads and on change of supplier or property ownership or tenancy. But the wider benefits of smart metering flow from more active customer engagement with the meter and the information it can provide. Smart meters can pave the way for radical changes in the way that businesses use energy, how much they use and how much they pay for it.

3.4 The measures customers can take have two broad forms: improving energy use; and taking energy efficiency measures in respect of the building fabric or equipment. The first step in controlling energy use is to understand it, and smart metering and related technologies allow customers to do this. Customers can then decide which measures they should take. In terms of information about use, larger non-domestic customers already have a range of options open to them, from sophisticated energy management involving information about individual parts of a site to relatively simple web-based tools. For smaller customers, a range of solutions, including web-based tools and display devices, is likely to be available in the future. The technologies that customers choose will depend on the nature of their business, including its energy-intensiveness, turnover etc.

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[11] The January 2013 version of the Impact Assessment is at
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/68903/impact_assessment_for_smart_meters_equipment_technical_spec_2_gov_response.pdf

Figure 2 Key smart metering benefits

Customers	Suppliers
• accurate billing without physical meter-reading • detailed information about energy use – both current and for multiple time-periods • quicker, easier switching • facilitating energy efficiency measures • platform for "smart home" services • support for microgeneration • access to innovative, competitive energy services	• avoided site visits to read meters • enabling innovation in tariffs and prepay • reduced back-office and call-centre costs • delivering energy efficiency commitments • debt management
Networks	**Great Britain**
• improved information to deal with faults, help simplify planning and thus reduce costs, and target investment and improvements • support for future smart grids	• reduced CO_2 emissions • helping to meet climate change obligations

Energy Use

3.5   Customers can carry out a range of actions to optimise energy use. The most sophisticated may be most appropriate for more complex businesses with significant levels of energy use. The simplest may be most appropriate for relatively small users with levels of energy use similar to that of domestic customers. The most sophisticated metering involves the use of smart or advanced meters to collect total data and the installation of sub-metering within the premises directly to track and control use in particular physical areas as part of a programme of Automated Monitoring and Targeting (aM&T). But smaller, less complex sites can use the half-hourly or hourly information provided by smart or advanced meters to look at patterns of use – within or between days, weeks and months – and note and address anomalies, such as high levels of usage outside normal working hours. Typically, non-domestic customers access this information via a web-based link provided by the supplier or energy service provider, but smart metering will enable customers to view near real-time information on-site, either on a stand-alone display (similar to those that energy suppliers are required to offer to domestic customers) or via a range of additional devices.

Energy efficiency

3.6   The scope for energy efficiency improvements will depend on various factors, and critically the tenure of the property (freehold or leasehold) and its physical structure. Where a customer owns the building, there may be scope for improvements in energy efficiency to limit heat loss or gain. Where the property is let, there may be scope for landlords to take measures under the Government's Green Deal, whilst tenants may be able to use equipment that is more energy-efficient. By helping to establish demand and cost, usage data can provide a means of examining whether other equipment would provide better value-for-money.

Time-of-use tariffs and other innovation

3.7   As the roll-out progresses, suppliers are likely to introduce innovative tariffs and payment methods. In particular, smart meters enable the use of tariffs that vary according to the time of day, in a much more sophisticated way than current Economy 7 offers. Such tariffs would offer an opportunity to reduce energy bills for those non-domestic customers who operate, or can shift demand by operating, at periods when prices are lower. In societal terms, shifting demand on a relatively large scale could reduce the need to construct new generation facilities.

3.8   Smart metering also offers scope for changes in the way that customers pay for their energy. In the domestic market, there is potential to move to an offer that has more in common with the pay-as-you-go service associated with mobile telephones. In the non-domestic market, prepayment is more likely to entail payment in advance using the internet and telephone, rather than using a network of payment points. In general, the greater security against bad debt that smart meters' remote disconnection capacity gives suppliers should increase suppliers' readiness to make offers to non-domestic customers and potentially reduce the use of security deposits.

3.9   The remainder of benefits fall to a variety of parties, particularly suppliers, in terms of reduced costs in serving customers, and to distribution companies, in terms of greater capacity to monitor and manage their networks. Suppliers in a competitive market can be expected to pass through to customers the operational savings that they make.

3.10   Smart metering will also support other programmes and initiatives being undertaken by DECC and others. Figure 3 shows some of the key linkages. More details about DECC's approach to energy efficiency in the domestic and non-domestic markets are set out in the Energy Efficiency Strategy, which was published in November 2012.[12]

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

Figure 3: smart metering and other DECC and energy efficiency initiatives

Smart grids Smart meters provide the platform for future smart grids by supporting efficient use of electricity infrastructure through better information and improved communication.	**Delivery of the Green Deal** The Green Deal will be launched in January 2013. Its non-domestic element will be targeted at a range of both purely commercial sites (office blocks), public spaces (e.g. community theatres), or a mix of both (e.g. pubs). It aims to improve the energy efficiency of businesses in a cost-neutral, or, in some cases, cost-beneficial, way. Smart metering supports the Green Deal by giving customers information that will prompt them to consider energy efficiency measures (and hence encourage Green Deal take-up).
Development of the energy services market Smart metering is key to delivering more extensive energy services offers by providing the means of collecting data and monitoring and managing energy use. These offers may be made by existing service providers, new market entrants or energy suppliers.	**Facilities management** Smart meters are key to energy management of facilities. By providing information about how much energy is used, and when, they form the base block of subsequent more detailed monitoring and management activity, such as sub-metering at an area or appliance level. Facilities managers can then use this data to make decisions and advise senior management.
Smart controls Smart meters will be able to interact with smart appliances via the HAN. The technical specifications allow equipment manufacturers to develop products that will interact with the smart metering system.	**Microgeneration** Smart meters support the installation and use of microgeneration by measuring export, with information able to be transferred to suppliers via the DCC.
Electric vehicles New sources of demand such as charging points for electric vehicles will place new pressures on electricity networks. The improved information that smart meters gives networks will be key to meeting these demands.	**Energy efficiency guidance in the public sector** Alongside the Energy Efficiency Strategy, DECC will publish guidance for the public sector on financing energy efficiency. This will be targeted at finance directors and other public sector decision makers outlining why, amongst other things, energy efficiency decisions should be considered financial decisions. Smart metering provides data to support investment in energy efficiency measures.

Costs of the roll-out

3.11 The roll-out obligation will be placed on suppliers, who will be responsible for ensuring that a smart or advanced meter has been installed (and, in most cases, will carry out the installation) (see Annex for an explanation of the metering market). This will require substantial capital investment: we estimate that the roll-out to smaller non-domestic sites will cost around £650 million.

3.12 Suppliers will recover the costs of the roll-out from customers, as they do when installing meters now. Our Impact Assessments, which involve detailed consideration of the costs and benefits of a smart roll-out, assume that the average cost of smart electricity and gas meters will be £44.95 and £59 respectively, with respective installation costs of £29 and £49 (this installation cost falls to £68 if both meters are installed together). There will be additional costs for the communications hub. These costs may vary once suppliers begin their roll-outs. In theory, suppliers may apply these charges when a meter is installed, but, in practice, costs are likely to be recovered over time – usually over the life of the meter. Most suppliers are likely, as with traditional meters, to bundle the cost of the meter in the supply price.

Monitoring and evaluation

3.13 The Government has overall accountability for delivery of the Smart Meter Implementation Programme's business case. Monitoring and evaluation of the roll-out will provide an essential feedback loop to inform decisions by Government and other parties about smart metering implementation and benefits realisation. Monitoring arrangements and their objectives are set out in detail in the Programme's Monitoring and Evaluation Strategy[13], published in May 2012. The Government responded to this consultation in December 2012.[14]

3.14 Implementation of the Strategy will be supported by a series of evidence collection and reporting activities. Industry will be the primary source for much of the evidence and new regulations allow the Secretary of State and Ofgem to request information from both domestic and non-domestic energy suppliers, and the Secretary of State from network companies. We will also draw on other sources of information, such as consumer surveys conducted by DECC and from the proposed CDB.

3.15 Where monitoring and evaluation identifies risks to benefits realisation or opportunities to enhance benefits, DECC could pursue a range of actions. These include: influencing stakeholders; amending (subject to consultation and Parliamentary approval) the smart meter regulatory framework, where the Government retains powers until the end of 2018; or through wider DECC policy development, such as on energy efficiency obligations.

3.16 The Government will publish information on progress to enable Parliament and other stakeholders to scrutinise and engage with the Programme. DECC intends to publish an annual report, supplemented by quarterly updates, as well as research and other evaluation outputs.

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[13] Strategy and Consultation on Information Requirements for Monitoring and Evaluation, May 2012: http://www.decc.gov.uk/assets/decc/11/consultation/smart-meters-monitoring-evaluation/5454-strategy-cons-smart-meters-monitor-eval.pdf

[14] Response to Consultation on Information Requirements for Monitoring and Evaluation, December 2012: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/43136/7206-gov-resp-cons-sm-monitor-evaluation.pdf

Chapter 4: Engaging and protecting customers

Context

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4.1   Customer confidence and support is vital to the success of the smart meter roll-out, and the Programme has therefore put in place measures at an early stage designed to promote both. These measures also recognise that smart meters – from their installation to operation – can fundamentally change customer-supplier relationships. The Consumer Engagement Strategy is designed to facilitate supplier access to properties and maximise Programme benefits.

4.2   Electricity and gas customers are protected by general consumer law and by specific rules, chiefly contained in supply licences overseen by Ofgem. These protections – such as micro-businesses' right of access to a statutory energy redress scheme - will also apply to the installation and operation of smart meters. However, because of the objectives of the Smart Meter Implementation Programme and because smart meters open up new types of interaction between the supplier and the customer, the Government is putting further protections in place. These include detailed rules around the installation visit and data access. For its part, Ofgem has put in place new monitoring arrangements to track instances of remote disconnection of supply and switching to prepay for non-domestic customers.

Consumer engagement strategy

4.3   In December 2012, the Government published its decisions on a smart metering Consumer Engagement Strategy[15]. The aims of the strategy are to:

- build consumer support for the roll-out, by increasing confidence in the benefits of smart meters and providing reassurance on areas of consumer concern;

- facilitate the realisation of consumer benefits, by building acceptance of the installation of smart meters and helping consumers to use smart metering to manage their energy consumption; and

- ensure that vulnerable, low income and prepayment consumers can benefit from the roll-out.

4.4   Energy suppliers will be required to establish and fund a central delivery body (CDB) to help meet these objectives. The CDB will primarily be active in the domestic sector, facilitating access to premises and helping to maximise benefits. However, the Government is convinced of the importance of non-domestic consumer engagement.   Like their domestic

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[15] Government Response to a Consultation on a Consumer Engagement Strategy, December 2012: http://www.decc.gov.uk/assets/decc/11/consultation/smart-metering-imp-prog/7224-gov-resp-sm-consumer-engagement.pdf

counterparts, non-domestic consumers will not fully benefit from smart metering unless they take enduring action in response to the data provided. The Government expects that individual suppliers, energy service providers, the CDB and the Programme will each have an important role to play in non-domestic engagement.

4.5   In terms of centralised engagement, the Government will require larger suppliers to ensure that the CDB engages micro-business non-domestic consumers where any steps taken for domestic consumers can be easily adapted and supplemented to meet micro-business engagement needs. We envisage that the CDB's activities in this area will principally involve ensuring that consistent and accurate information on smart meters is readily available. There would be nothing to prevent the CDB from working with business intermediaries, such as trade associations, if those intermediaries provided a cost-effective way of reaching particular business sectors.

4.6   Suppliers do not ordinarily draw a firm line between micro and small businesses, and businesses will move between these economic and regulatory categories. The Government therefore expects that any micro-business activity will benefit many other smaller businesses, and, indeed, that the CDB will be open to taking their needs into account in its work. In addition, the Government has included a power in Licence Conditions to enable the Secretary of State to require the CDB to extend its focus beyond micro-businesses if evidence justifies this in the future. Although funded by suppliers the CDB will be independently chaired, and its Board will include consumer representatives.

4.7   In advance of the establishment of the CDB, the Government is publishing information about current smart and advanced metering to aid non-domestic customer understanding. It will work with stakeholders to make this information available through a range of channels.

The Installation Code of Practice

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

4.9   The Government is requiring suppliers to develop, and comply with, a licence-backed Installation Code of Practice that will address the consumer experience throughout the smart meter installation process at both domestic and micro-business premises.[16] This will ensure that consumers receive an appropriate standard of service and are treated fairly and transparently.

4.10   Domestic and non-domestic energy suppliers have worked together to develop a single Code of Practice, which is expected to come into effect in Spring 2013, following an Ofgem review and approval process.[17] In most areas, the Code of Practice is expected to be the same for both domestic and micro-business customers, but there are some differences to reflect the

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[16] The Government's decisions on the Code are set out in its April 2012 response to consultation: http://www.decc.gov.uk/assets/decc/11/consultation/smart-metering-imp-prog/4841-government-response-to-licence-conditions-for-inst.pdf

[17] The version of the Code submitted to Ofgem for approval in December 2012 is at http://www.energy-uk.org.uk/publication/finish/37-smart-meter-policies/786-smart-meter-installation-code-of-practice-smicop-january-2013.html

different needs of the sectors and to provide consistency with the wider regulatory environment.

4.11 The marketing and sale of goods and services at the installation visit will not be prohibited in the micro-business sector as it is in the domestic market, but the Code of Practice is expected to set out commitments from suppliers around their behaviour in relation to any sales or marketing activity in which they engage during micro-business installations.

4.12 In respect of charging, non-domestic market customers may pay for meters in various ways – upfront (usually where the customer has decided to install a particular meter), over the life of a supply contract or over the life of the meter (the method used in the domestic sector). The Code of Practice will allow these approaches to continue. However, the Government expects that, for the great majority of non-domestic meters, especially amongst micro- and small business customers, cost-recovery will take place over the life of the meter.

4.13 The Code of Practice formally only applies to installations of smart meters that comply with SMETS. However, we expect suppliers also to apply the spirit of the Code of Practice to other installations, and many non-domestic suppliers have indicated a readiness to apply it to advanced meters, and to installations for larger customers.

4.14 The Code will be governed by a Board that will include representatives of domestic and non-domestic suppliers and Consumer Focus. Consumer Focus, as the statutory consumer body, will represent both domestic and micro-business customers.

4.15 Existing protections – whether in primary legislation or in energy regulation – will also apply to smart meters. In the non-domestic sector, micro-businesses and sole traders wishing to pursue a complaint involving a smart meter will first approach their supplier. If their complaint is not resolved to their satisfaction, they have access to the Energy Ombudsman, which runs the industry's statutory redress scheme[18].

Data access and privacy

4.16 In April 2012, DECC consulted on data access and privacy rules for smart meters. It responded to this consultation in December 2012[19]. In the domestic sector, the Programme has developed a set of universal rules about data privacy and supplier and third party access to data. The non-domestic sector will have different rules that reflect the greater variety of metering arrangements and, as in other areas, work with the grain of the existing market. These are explained below.

Customer and 3rd party access to data and data privacy

4.17 As a minimum, all non-domestic customers with smart meters, whether opted in or out of DCC, will have the same minimum rights of access to data as those with advanced meters – timely access to half-hourly electricity or hourly gas data.

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[18] Details of the scheme can be found at http://www.ombudsman-services.org/downloads/About%20OS%20Energy.pdf
[19] Data Access and Privacy: Government Response to Consultation, December 2012:
http://www.decc.gov.uk/assets/decc/11/consultation/smart-metering-imp-prog/7225-gov-resp-sm-data-access-privacy.pdf

4.18 In addition to the greater freedom in the non-domestic market to use different meter types and communications arrangements, a further difference between the domestic and non-domestic roll-out requirements is that suppliers will not be required to offer non-domestic customers an in-home display (IHD). There is a broad range of customers and premises in the non-domestic market. A simple display may not, therefore, be the best way of engaging customers, who may find other approaches - such as web-based tools, which are already widely deployed in the non-domestic market – more valuable. However, customers will be able to access meter data, which may be viewed on a similar device – known as a consumer access device - via the HAN. We expect manufacturers and retailers in the electronics market to deliver appropriately configured devices if there is customer demand, and, indeed, it is open to suppliers to provide devices as part of their commercial offerings.

4.19 Where smart meters are opted in to DCC, customers will be able securely to access detailed data over the HAN via consumer access devices (as well as through other services that suppliers may offer). Third parties will, with the customer's agreement, be able to access data via the DCC.

4.20 In respect of the data available to suppliers, micro-business customers with meters using DCC will be able to opt out of giving suppliers access to half-hourly detailed information if they do not wish their supplier to have it. The supplier will have to give the micro-business advance notice that it intends to access such data; the micro-business will have the right to opt out at this point. Suppliers will have a right to monthly data for billing and other regulated duties.

4.21 Data access for smart meters opted out of DCC will be on the basis of what is contained in the contract between the customer and the supplier or other provider, subject to the minimum requirement for timely access to data. Given that the requirement would fall on the supplier, but that the suppliers might not be responsible for data services to the customer, the Programme will be working with interested parties to promote best practice. The provision of detailed data may be a chargeable service, although that does not mean that suppliers or other parties will necessarily make a charge.

4.22 Under DCC, domestic smart meters will be able to provide distribution networks – especially electricity networks – with data that can help with planning and managing networks. The Programme will require that opted-in non-domestic smart meters also provide this information. In this case, customer agreement would not be required. Whilst there would be no formal obligation on network operators to aggregate non-domestic customers' energy consumption data (as there will be for households), network operators would be expected to consider the potential for such an approach in developing their plans to minimise any non-domestic customers' potential concerns.

4.23 Data from opted-out smart meters and advanced meters installed under the exceptions would not have to be collected and provided to networks, but there would be nothing to prevent networks from reaching appropriate commercial arrangements with suppliers or service providers if there were benefits in their having access to this data, for instance for planning purposes. This approach enables networks to form a commercial judgment on the desirability of acquiring data. Going forward, the Government will consider the necessity and merits of introducing, at some point in the future, and as smart grids develop, a requirement to ensure that energy consumption data of appropriate granularity is transferred to network operators.

Disconnection and remote switching to prepayment

4.24 With smart – and, in some cases, advanced – meters, suppliers can remotely disconnect a customer for non-payment or remotely switch a customer's payment method to prepay. There are existing statutory requirements in these areas, which apply equally to customers with smart meters. In respect of disconnection, the Gas Act 1986 and the Electricity Act 1989 require suppliers to give both domestic and non-domestic customers a minimum of seven days' notice before supply is disconnected or a prepayment meter is installed. Such notice cannot be given until twenty-eight days have elapsed since a written demand for payment was made. These rules will continue to apply in respect of smart meters. Other rules govern restoration of supply and payment of compensation on the rare occasions where a supply is disconnected in error.

4.25 Because the ways in which supply is disconnected or prepayment is put in place can change with smart metering, in January 2012, Ofgem began to monitor supplier activity in the non-domestic sector in these areas. Suppliers must now provide quarterly information about the number of disconnections at smaller sites, the number of disconnections at premises where supply is measured by a smart meter, the number of prepayment meters installed and the number of smart meters switched to prepayment mode. Suppliers must also provide this information for a subset of micro-business customers. Ofgem will use this information, together with other evidence, to determine whether any further regulatory protection is needed. Ofgem's activities in this area are set out in an Open Letter published in November 2011.[20]

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[20] The Open Letter is at
http://www.ofgem.gov.uk/Sustainability/SocAction/Publications/Documents1/nondomsmartmeterspringpackageopenletnov.pdf

Annex: Understanding the non-domestic market

The supply market

Electricity

The electricity industry divides the market into two broad categories based around usage levels: those sites (known as the "half-hourly market") whose demand is so significant that it must be measured and settled on a half-hourly basis; and the remainder of the market, where customers' consumption is profiled (that is, settlement is based on a pattern of electricity use for categories of customer, rather than specific usage data for each customer). Although there are regional variations, profile classes broadly reflect demand – the higher the profile class number, the greater the load factor and level of electricity use. Profile classes 3-8 are non-domestic (profile classes 1 and 2 are domestic customers with standard credit and Economy 7-type meters respectively).[21] Broadly speaking, although a number of other companies have significant market niches, as in the domestic sector, non-domestic electricity supply is dominated by the "Big 6" suppliers. They supply 78% of the half-hourly market by volume, and 93% of non-domestic, non-half-hourly sites.[22]

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[21] More details of profiling can be found in Elexon's publication, "Load Profiles and Their Use in Electricity Settlement" - http://www.elexon.co.uk/wp-content/uploads/2012/01/load_profiles.pdf

[22] Ofgem, "The Retail Market Review – Updated Proposals for Businesses", 26 October 2012 - http://www.ofgem.gov.uk/Markets/RetMkts/rmr/Documents1/RMR_non-domestic%20proposals_consultation.pdf

Table 1 Non-domestic electricity market[23]

	Number of sites	Total annual consumption all sites [Terawatt hours]	% total GB demand	Introduction of rules requiring use of smart or advanced metering[24]
Half-hourly	117,000	132.0	45%	Half-hourly metering required from 1990 under Electricity Pool arrangements and, from 1998, by the Balancing and Settlement Code.
Profile class 5-8	158,000	17.3	7%	Advanced metering requirements inserted into supply licences by DECC in 2009, requiring all sites to have advanced metering by 2014.
Profile class 4 [Economy 7 type]	484,000	11.1	12%	Smart metering requirements inserted into supply licences by DECC in 2012, requiring all sites to have smart or advanced metering 2019.
Profile class 3	1,620,000	23.4		
Total	2,379,000	183.8	64%	

Gas

The principal division in the industry is between the largest users, whose meters are read daily (the "daily read" market)[25] and the remainder, who fall into five annual consumption bands. There is no gas equivalent of electricity profile classes.

A number of non-Big Six suppliers, often subsidiaries of large multi-national companies, are very active in the non-domestic gas market. Big 6 suppliers hold only 8% of the daily-read market by volume, and 22% of the total non-domestic market. In general, non-Big 6 suppliers focus on large users and multi-site organisations, and do not have large numbers of micro-business customers.

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[23] Source: DECC, Digest of UK Energy Statistics, 2010.
[24] Rules governing advanced and smart metering have evolved over time, with coverage gradually extending from larger to smaller sites. This is reflected in the right-hand column.
[25] Sites with annual consumption of 58,600 MWh or more are classified as "daily read" and are billed on exact consumption based on daily meter readings.

Table 2 Non-domestic gas market[26]

	Number of sites	Rules governing smart or advanced metering[27]
Daily read [>58,600 MWh]	360	Daily-read metering required from 1990s, and later formalised under Network Codes.
5,860-58,600 MWh 2,196-5,860 MWh 732-2,196 MWh	28,500	Advanced metering requirements inserted into supply licences by DECC in 2009, requiring all sites to have advanced metering by 2014.
73.2-732MWh <73.2 MWh	c1. 5 mn	Smart metering requirements inserted into supply licences by DECC in 2012, requiring all sites to have smart or advanced metering by 2019.
Total	c1.5 mn	

The metering market

In both the domestic and non-domestic sectors, the metering market, like the supply market, is open to competition, and is no longer the sole preserve of distribution networks. Competition is more developed in electricity, where price controls on metering services were removed in 2007, and where suppliers often contract out metering services to third parties, known as meter operators. Price controls remain in place for the great majority of gas sites, where network companies retain a large share of the metering stock and third party involvement in metering is less common. Ofgem recently conducted a Review of Metering Arrangements, and is currently considering its future approach to price controls in the gas market.

Suppliers may, therefore, use network-based services, establish their own metering businesses or contract with independent companies – meter operators (electricity) or meter asset managers (gas) – to install meters at their customers' premises.

[26] DECC, Digest of UK Energy Statistics (DUKES), 2011 (2010 data)
[27] Rules governing advanced and smart metering have evolved over time, with coverage gradually extending from larger to smaller sites. This is reflected in the right-hand column.

Customers – sometimes at the instigation of an energy service company - may also contract direct with a meter provider for meter installation at a particular site or across a group of sites. Suppliers must accept the use of such customer-installed meters unless they have proper grounds for refusing to do so. Such customer-owned and installed meters are most likely to be found at larger non-domestic sites or within multi-site organisations.

Energy services

As well as offers from suppliers, there is a market, which is particularly well-established amongst larger users and organisations with a number of sites, for meter-related services from third parties. These services may range from web-based data provision, through targeted energy advice to active, fee-based intervention to reduce a customer's energy costs and energy site management. We expect the energy services market to continue to play a significant role amongst larger users, but it also has the potential to embrace smaller sites, for instance through the provision of innovative web- and telephone-based products.