Smart Metering Implementation Programme

Prospectus

Foreword

As we make the transition to a low carbon economy, smart meters have a vital role to play. Consumers will be given the information they need to fully understand and manage their energy consumption effectively, save money and reduce carbon emissions. This will be central to help tackle climate change and to deal with consumer concerns about the rising costs of energy.

In this technological age it is right that suppliers should be able to read and manage meters remotely. This will allow them to reform their processes – reducing costs and providing more streamlined customer service while at the same time fully safeguarding the data privacy of their customers.

Smart meters are also key to enabling smarter grids that permit more active management of the networks to support increased levels of renewable generation and electric vehicles.

This is a major programme which on any view will take several years to complete. It will involve visits to 27 million homes and changes that will have effects across the whole industry. To deliver the full benefits we will need not only the active support of industry but of a wide range of stakeholders. The programme represents a cornerstone of Government energy policy and ambitious targets will be needed to secure the benefits as quickly as possible.

The Government and the energy regulator are determined to implement the rollout faster than originally planned, because of the benefits it will bring to consumers and suppliers. We have therefore asked for responses to a number of consultation questions within two months, with a three month deadline for the remainder. We both welcome your engagement with this important programme and look forward to working together with all who have a role in implementing it. In these times of austerity it represents a major commitment of investment - we must ensure it achieves the many benefits it promises while ensuring a cost effective roll out of smart meters across Great Britain.

Charles Hendry MP   **The Lord Mogg KCMG**
Minister of State for Energy   Chairman, Gas & Electricity Markets Authority

Table of Contents

Executive Summary

Smart metering

The Government believes that every home in Great Britain should have smart energy meters, giving people far better information about and control over their energy consumption than today. Businesses and public sector users should also have smart or advanced energy metering suited to their needs. The rollout 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.

Smart meters will provide consumers with greater visibility of and control over their energy use – helping them deliver environmental benefits. The greater energy awareness generated by smart meters will in turn encourage uptake of the Green Deal, the Government's overarching consumer-led policy to enable households to reduce their energy consumption by improving energy efficiency. Smart meters will help suppliers to deliver improved customer service, enhance the potential for innovative new services and tariffs, and deliver cost savings for industry and, ultimately, consumers. Smart metering will be an essential enabler for a move to a low carbon energy system involving greater use of electric vehicles, renewable energy and more active management of energy networks, often referred to as smart grids. Smart metering also has the potential to support the development of competition in Britain's energy markets, including through the development of new suppliers and services.

To secure early delivery of these important and wide-ranging benefits, the Government wishes to accelerate significantly the rollout compared to previously published targets. In order to bring forward the start of rollout and help deliver early benefits, we are proposing a staged approach to implementation under which suppliers will start to install smart meters that meet the minimum requirements defined in common technical specifications ahead of a central data and communications entity being established. We will also look to the industry to examine all the opportunities for realising more ambitious but achievable targets for the rate at which suppliers must install smart meters.

This document, which represents the joint views of the Department of Energy and Climate Change (DECC) and the Gas and Electricity Markets Authority (GEMA), sets out proposals for how smart metering will be delivered, including design requirements, central communications, data management and the approach to rollout. Based on further analysis, DECC's impact assessments have been updated and are published alongside this document. There remains a strong business case for taking the programme forward, with predicted benefits across the domestic and smaller non-domestic sectors of £17.8 billion over the next twenty years and a net benefit of £7.2 billion. These benefits derive in large part from reductions in energy consumption and cost savings in industry processes. The aim is to ensure this business case is delivered in a cost-efficient and timely way.

Our proposals build on the extensive and valuable discussions we have had with stakeholders. They also draw on the experience of other European and international

smart metering programmes. The proposals - and a range of alternative options - are assessed in the set of supporting documents published alongside this consultation document.

Consumers' interests lie at the heart of the programme. The programme team has worked closely with our Consumer Advisory Group and drawn on consumer research to shape our thinking on a number of the key issues, including how to best deliver the benefits of the programme. We have also set out our initial thinking on the additional consumer protections that are likely to be required around a range of issues, including safety, data privacy and security, use of the remote disconnection and switching facilities, and the particular requirements of vulnerable customers.

Ofgem intends to introduce a package of measures in spring 2011 to provide for the continued safeguarding of consumers' interests. Given that some suppliers are starting to move early and install smart meters on a commercial basis, this would help ensure that vital consumer protections in areas such as remote disconnection and the standards that we expect representatives of the suppliers to adhere to when installing new meters in customers' homes are in place to deal with early movers. This package could also include measures around interoperability aimed at providing suppliers with the necessary confidence to start installing smart meters and ensuring consumers can continue to switch suppliers in a straightforward manner. Such measures are likely to be important during the interim period between definition of the common technical specifications and the establishment of the central data and communications entity.

In relation to data privacy, we have proposed as a principle that consumers should be able to choose how their consumption data is used and by whom, except where data is required to fulfil regulated duties. Reflecting the importance of privacy and security issues we have established a Privacy and Security Advisory Group and are incorporating best practice on privacy and security by design into our work across the programme.

Key proposals

In developing our approach, we have balanced two factors. Firstly, there is the need for a degree of standardisation and co-ordination to promote competition so that, for example, customers can easily switch supplier. Secondly, there is a desire to create opportunities and incentives for industry to innovate, to provide customers with products and services that best meet their needs and deliver the programme as cost effectively as possible.

Within a customer's home or business the metering system will be made up of smart meters for gas and electricity, a 'home area network' to communicate between devices in the home (or business), and 'wide area network' equipment for communicating back to the supplier or other authorised parties. For domestic consumers, suppliers will also be required to provide an in-home display giving near real-time information on energy consumption in an easily understandable form.

We have set out our proposed design requirements for the different elements of the smart metering system within a Functional Requirements Catalogue, which is

published in the "Statement of Design Requirements" supporting document. This covers the following aspects:

- For the metering system, the Catalogue builds on the high-level list of requirements previously identified (including remote meter reading and management) and provides detailed functionalities that are broadly in line with emerging requirements of industry participants. The Government's view, subject to consultation, is that a gas valve should be included in domestic meters that will enable remote enablement and disablement of supply. We are now looking to work closely with industry parties with smart metering expertise to take the functional requirements to the next level of technical detail as quickly as possible.

- For the in-home display we have proposed the minimum information that should be displayed, including information in pounds and pence that we know is easier for consumers to understand. Displays meeting these minimum requirements, combined with appropriate advice and support, will provide consumers with the information to help them understand and change their energy use. Over time, we expect more advanced displays and other applications to be offered that will exceed these minimum requirements.

- For the home area network there is a clear need for open and interoperable standards for any solution used. We will work with the industry and Ofcom to determine the technical specifications for home area networks.

- For wide area network communications between the meters and relevant industry participants we are proposing the creation of a new central entity to identify and procure the most cost-effective solutions for smart metering data management and communications. Given that communications technology is continuing to evolve we believe the wide area network communications module should be upgradable without the need for the meter to be exchanged.

We believe that having a central data management and communications entity will provide a cost-effective, co-ordinated approach to the transfer of smart metering data. We propose that, subject to further analysis, this entity will focus initially on providing those functions that are essential for effective data transfer. We will continue to investigate whether any additional functions should subsequently be brought within its scope and the mechanisms available for achieving this. Subject to responses to this consultation, we intend to create, through a competitive licence application process, a new licensed entity that will procure and manage contracts for a range of service providers that will enable it to deliver the required data and communications services.

Energy suppliers are best placed to take on responsibility for the rollout of smart meters. It will be crucial to ensure the customer experience is a positive one and that the rollout is conducted as efficiently and effectively as possible and delivers the intended benefits, including energy savings. We propose to introduce appropriate target profiles in suppliers' licences concerning the rate of rollout they need to deliver. In the early stages of rollout we propose to give suppliers broad flexibility to respond to consumer demand for smart meters and to learn from experience. This flexibility will also enable suppliers to link the rollout of smart meters with other initiatives to improve household energy efficiency such as the Green Deal.

In parallel, through a formal review process during the initial stages of rollout, we propose that consideration will be given to further measures that could be used to increase the effectiveness of rollout and secure the anticipated energy savings during later stages. These could include requirements to facilitate the development of smart grids, carry out co-ordinated activities at a local level to facilitate consumer engagement or ultimately follow a common area-based plan, prioritise specific customer groups, assist vulnerable consumers or support energy efficiency initiatives.

Positive consumer engagement is key to delivering smart metering benefits. The next stage of work will include an investigation of initiatives to promote consumer engagement. This will cover activities to build consumer knowledge and awareness, and how the programme could assist particular consumer groups such as the vulnerable.

Implementation and next steps

Ofgem E-Serve has been managing, on behalf of DECC, this first phase of a central programme to design and implement new cross-industry arrangements for the delivery of smart metering.[1] We have clear joint programme governance arrangements in place, consistent with the scale of the programme and the challenging timescales involved. Later this year, we will decide upon and set out the governance and management arrangements for subsequent phases of the programme.

This document makes detailed proposals for consultation on the design and delivery of the smart metering system. The regulatory arrangements to provide for these proposals will be introduced using powers under the Energy Act 2008 to amend existing licences and industry codes and to create a new licence, code and licence application regulations in respect of the central data and communications entity.

We will set out our final decisions in the light of responses to consultation - and the ongoing work of the programme. These will provide the basis for further detailed implementation work required later in the programme. The final chapter of this document describes the plan and milestones for the next stages.

Industry participants and other stakeholders will play a crucial role in ensuring delivery of the programme and the associated benefits. We are committed to working with stakeholders to develop the detail of the requirements and the regulatory framework and to support the wider programme of work across industry and other organisations.

We welcome responses from all stakeholders to the proposals set out in this document. Details on how to respond and a full list of consultation questions are at Appendix 1. In order to make progress as quickly as possible, we are seeking early responses on some issues and will be setting up two expert groups to draw on the experience of industry participants and other stakeholders. Where appropriate, these

---

[1] Ofgem E-Serve is responsible for Ofgem's support and delivery functions.

expert groups may be requested to consider issues raised in this document in parallel with this consultation in order to inform final decisions. We will also establish an Implementation Co-ordination Group to provide a strategic view across the implementation issues involving key industry and other delivery partners in the programme.

We believe this collaborative approach is crucial in enabling us to accelerate the programme and bring forward the benefits of smart metering. We will continue to draw on the expertise of our Consumer Advisory Group and our Privacy and Security Advisory Group and to engage with the full range of stakeholders in the programme.

1. Introduction

Our vision

1.1. The Government is committed to every home in Great Britain having smart energy meters, empowering people to manage their energy consumption and reduce their carbon emissions. Businesses and public sector users will also have smart or advanced energy metering suited to their needs. The rollout of smart meters will play an important role in Great 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. The smart meter roll out is integral to the Green Deal, the Government's overarching policy to enable households to reduce the amount of energy they use by improving their energy efficiency.

1.2. Smart meters will provide consumers with more visibility and control of their energy consumption and spending, with real-time information available through in-home displays and other initiatives tailored to consumer needs and preferences. Supported by the Green Deal and other national, local and community-based initiatives to promote energy efficiency, consumers will be empowered to use this information to change their consumption behaviour, thereby becoming more energy efficient and reducing their carbon emissions.

1.3. Smart meters will allow consumers to play a more active role in the energy market and make related cost and carbon savings. Consumers will be able to switch more easily between suppliers and benefit from more innovative energy tariffs, including time-of-use tariffs that support the shift of energy consumption to lower-cost time periods.

1.4. Subject to appropriate consumer permissions and protections, suppliers and others will be able to use consumption data to provide better energy efficiency products and advisory services, including automation of energy services to reduce costs and increase comfort and control. The data provided by smart metering may also help inform community initiatives designed to tackle climate change.

1.5. Consumers' interests and benefits will be at the heart of smart metering delivery and consumer protections will need to keep pace with technological change. Vulnerable consumers will need to be protected and the privacy of consumer data assured. Specifications will be required to ensure effective and secure end-to-end operation of the smart metering system, to streamline the change of supplier process and to increase transparency of tariffs, thereby increasing competition. Combined with accurate billing, these features will provide an improved customer experience.

1.6. The smart metering system will enable simplified and improved industry processes. For example, accurate data and improved industry data flows and management systems will enable suppliers to radically simplify and improve the speed and efficiency of customer processes. This will include switching supplier, moving home, bill queries, debt management and tariff changes. Both suppliers and

their customers will benefit from an end to estimated bills and site visits to obtain meter readings, as well as the improvement in the ability to detect electricity outages or potential fraud.

1.7. Smart metering will enable the energy industry to manage the generation and distribution system more cost effectively and will facilitate increased use of renewable energy. Time-of-use tariffs and other incentives to manage demand will help to reduce peak demand, which will in turn reduce the need for investment in network and generation capacity. Subject to appropriate consumer permissions and protections, smart metering data will enable network operators to make better-informed investment decisions and will support network operators to develop "smart grids", using the data to plan and manage the distribution and transmission systems so as to reduce costs, losses and outages.[2]

1.8. The smart metering system will provide infrastructure with the potential to support other initiatives. Subject to the introduction of appropriate regulatory arrangements, this may provide a means of supporting smart water metering. With an increasing proportion of consumers owning electric vehicles, there will be potential to charge these vehicles at home using smart meter controls that maximise the use of cheap, low-carbon electricity, or refuel at alternative charging points while paying for the electricity through the customer's energy bill.

Our approach

1.9. The Government confirms its commitment to the rollout of electricity and gas smart meters to all homes in Great Britain and to the broad framework for delivering that rollout including:

- Energy suppliers will be responsible for procuring and installing smart meters
- Communication of data to and from smart meters at domestic sites will be managed centrally by a new, GB-wide function
- All smart meters must comply with a set of high-level functional requirements
- All domestic customers will be provided with a standalone display capable of delivering real-time information on their energy consumption in a readily accessible form
- Electricity and gas meters at smaller non-domestic sites[3] must have smart functionality on the same timescales as for domestic sites (subject to certain exceptions)

---

[2] A smart grid can be defined as "an electricity network that can intelligently integrate the actions of all users connected to it - generators, consumers and those that do both - in order to efficiently deliver sustainable, economic and secure electricity supplies" (Electricity Networks Strategy Group, November 2009)
[3] For the purposes of this document, we define smaller non-domestic electricity and gas sites as those sites in electricity profile classes 3 and 4 and those non-domestic gas sites with consumption of less than 732 MWh per annum.

1.10. Building on this framework, Ofgem E-Serve has been managing, on behalf of DECC, the first phase of a central programme to design and implement new cross-industry arrangements, with the aim of developing a scoping document - this 'Prospectus' - by summer 2010. This document represents the joint views of DECC and GEMA following this phase of work.

1.11. Our key principles for the work in Phase 1 to develop proposals for the smart metering regulatory regime and wider implementation plan include:

- Ensuring that smart metering rollout supports the overall objectives for the programme and is delivered in an economic and efficient manner that protects the interests of current and future consumers
- Facilitating more efficient energy management in homes and small businesses across the energy networks leading to carbon reduction
- Providing sufficient certainty for the industry to facilitate investment
- Providing necessary functional specifications for the technology elements of the smart metering system (including enabling smart grids)
- Delivering a co-ordinated approach for the rollout of smart meters to homes and businesses
- Where possible, providing flexibility in the commercial and regulatory arrangements to allow for future developments (such as smart grids)
- Addressing interfaces with other relevant public policies, for instance the Green Deal
- Developing proposals with full stakeholder engagement and keeping consumers at the heart of the programme
- Paving the way for a smooth transition to Phase 2 of the programme.

1.12. Application of these principles has led to the production of the proposals set out in this document. We have assessed options against a standard set of evaluation criteria, consistent with our ongoing statutory obligations. These include considerations of time, cost and risk, as well as the impact on consumers, the degree to which benefits are delivered against objectives, and data privacy and security.

1.13. Design of the smart metering system is a complex process, involving a wide range of options and choices at every level. Often there is a key choice between how far we leave the market to develop the detail of the solution or whether government mandates a particular approach. On the one hand is the option to mandate features to promote a positive consumer experience and achieve interoperability between suppliers, which is fundamental for the smooth functioning of the retail market.[4] On the other hand, there is the option to allow the market to adopt innovative features to suit market opportunities or take advantage of emerging technologies. Our proposals have sought to find an appropriate balance between these different approaches.

---

[4] Technical interoperability refers to the technical ability of one party to use a meter installed by another party. Commercial interoperability refers to the ease with which a new party can agree price and other contractual terms for the use of a meter installed by another party. Interoperability is important in preventing barriers to customers switching supplier and for the effective operation of the competitive market.

1.14. Development of an implementation plan needs to take account of the fact that smart metering will facilitate innovation both in technology (e.g. automated demand-side management by smart appliances) and in energy product offerings (e.g. dynamic time-of-use tariffs). Accordingly, we have focused on systems and functions that are essential for full-scale rollout to begin and that will provide a foundation for later developments to deliver the planned benefits case. We have also considered additional functions that could be prescribed at a later stage.

1.15. We believe that the broad approach we have adopted in our proposals will support market innovation while achieving interoperability and cost efficiency through mandated common features as necessary. Our proposals also seek to keep the programme sufficiently focused to enable the smart metering rollout to commence, in line with an ambitious timeframe, while setting out a framework for delivery of the full benefits through development of the smart metering system.

1.16. Alongside this document, revised impact assessments are being published for the rollout of smart meters to the domestic sector and for the rollout of smart meters and advanced meters to small and medium non-domestic and public sector sites.[5] These are based on the proposals set out in this document and continue to demonstrate a strong positive business case for the smart metering programme.

1.17. The programme will develop measures to help ensure that the benefits will be delivered and to identify any changes or new requirements that may be necessary. It is likely that the assessment of benefits will change and new benefits will emerge over time. The programme will manage the interface with the Government's other energy efficiency initiatives to maximise net benefits in delivering the overall vision and objectives for the programme, and to underpin other areas of low-carbon innovation. Stakeholders will be engaged closely in this work as they will be responsible for delivering many of the benefits.

1.18. In this first phase of the smart metering programme, we have developed a series of operational and commercial proposals and an implementation strategy. This document sets out our proposals in each of these areas. Ofgem is also publishing a number of supporting documents to this consultation.[6] These set out in more detail the alternative options considered and analysis undertaken. The supporting documents are as follows:

- Consumer Protection
- Statement of Design Requirements
- In-Home Display
- Communications Business Model
- Data Privacy and Security
- Implementation Strategy
- Rollout Strategy

---

[5] *Impact Assessment of a GB-wide smart meter rollout for the domestic sector* and *Impact Assessment of advanced/smart meters rolled out to small and medium non-domestic sites*, DECC, July 2010
[6] These documents can be found on the Ofgem website (www.ofgem.gov.uk)

- Regulatory and Commercial Framework
- Non-Domestic Sector

1.19.   DECC has also published a supporting paper on disablement and enablement functionality for smart gas meters.

Stakeholder engagement

1.20. The support of a wide range of stakeholders is critical for the success of the smart metering programme. Stakeholder engagement has therefore been a vital part of our work to date and will become increasingly important as the programme moves forward.

1.21. In developing this Prospectus we have considered the consumer perspective, as well as the views of industry participants who will take on responsibility for delivery of the smart metering system. We have held various stakeholder events, workshops and evidence-gathering sessions, which have all been well attended, as well as a large number of bilateral meetings with individual stakeholders and representative groups. We have also established a Privacy and Security Advisory Group to draw on government expertise in the areas of data protection and system security.

1.22. We have involved consumer representatives in a variety of ways. This includes setting up a specific smart metering Consumer Advisory Group made up of consumer groups and experts, through discussion with Ofgem's Disability Advisory Forum and, for the non-domestic sector, through discussions with Ofgem's Small and Medium Users Group. To help inform the programme, Ofgem also commissioned specific research into consumer awareness of, and attitudes towards, smart metering. This research is published alongside this document.[7]

1.23. We are very grateful for the time and effort of all the stakeholders who contributed to the programme and to the development of this Prospectus. We welcome their views on our proposals and look forward to their continuing engagement and closer collaboration as the programme moves forward. Our plans for this further engagement are set out in Chapter 4.

The structure of this document

1.24. The next two chapters introduce our proposals for the introduction of smart metering:

- Chapter 2 sets out our proposals from a consumer perspective.
- Chapter 3 sets out our proposals from an industry perspective, describing the impact on the roles and responsibilities of industry participants.

---

[7] *Consumers' views of Smart Metering*, Report by FDS International, July 2010

1.25. Chapter 4 sets out our proposed next steps for the implementation of smart metering, describing the subsequent phases of the programme.

1.26. Appendix 1 summarises the questions on which we are seeking views through this consultation. Appendix 2 summarises our key proposals.

Timescales for responses

1.27. We are determined to make progress with implementation of the smart metering rollout quickly. We have therefore set two different deadlines for responses. We are seeking responses on a number of key aspects of this consultation on a shorter timescale – **by 28 September 2010**– to facilitate earlier decisions where this is possible and appropriate. The deadline for responses on the remaining questions is **28 October 2010.**

1.28. Questions for response by **28 September 2010** cover three key areas:

- The proposed functional requirements catalogue and the approach for developing technical specifications for smart metering equipment. We are also seeking early responses to the more detailed questions set out in our Statement of Design Requirements supporting document.

- Our proposed strategy for roll out including the consumer experience, proposals for a code of practice on installation, the use of installation targets and potential future obligations on local coordination. We are also seeking early responses to the more detailed questions set out in our Roll Out Strategy supporting document.

- Our proposed implementation strategy, including our proposal for a staged approach to implementation, the timeline for agreement of the technical specifications and whether there are any other ways we can bring the rollout forward. We are also seeking early responses to the more detailed questions set out in our Implementation Strategy supporting document.

1.29. Questions for response by **28 October 2010** relate to:-

- Data privacy and security;
- Consumer protection;
- Energy displays and information provision;
- The approach to smaller non-domestic consumers;
- Responsibilities for customer premises equipment;
- Our proposal for a new Smart Energy Code; and
- The establishment and scope of the central data and communications function

1.30. Appendix 1 of the Prospectus lists the full set of consultation questions in one place and sets out the questions for which the deadline for responses is 28 September 2010, and those for which the deadline is 28 October 2010.

2. The Consumer Experience

This chapter sets out our proposals for the smart metering rollout from the perspective of energy consumers. It describes how smart metering will help consumers understand their energy use, will enable improved customer service and facilitate new approaches to debt management and prepayment. It sets out our approach to assuring the privacy and security of consumers' smart metering data. It describes the customer experience of smart meter rollout. Finally, it describes how our proposals differ slightly for consumers in the smaller non-domestic sector.

2.1. Consumers' interests are central to the smart metering programme. The introduction of smart metering will deliver important benefits for consumers. This includes real-time information to help them understand and optimise their energy use, thereby helping them save money and play their part in reducing carbon emissions. Smart metering will improve the service consumers receive from their suppliers (for example, an end to estimated bills), promote competition (for example, faster customer switching) and open up new products and services, such as the provision of tailored energy efficiency advice and more innovative tariffs.

2.2. Consumer take-up of the opportunities facilitated by smart meters and consumers' ability to use effectively the information that meters provide will be vital to the success of the programme. It is important that consumers can take advantage of the benefits of smart metering and that the rollout is delivered in an efficient and effective manner.

2.3. There are already significant measures in place, both in suppliers' licences and in general consumer law, to provide protection and enable consumers to exercise choice. As the regulator, Ofgem expects suppliers to meet these in full. Nevertheless, some familiar consumer issues will present themselves differently in the context of smart metering and smart metering may raise other issues for consumers.

2.4. Ofgem is reviewing current safeguards to ensure consumers' interests remain protected. For example, Ofgem is considering the protections around sales and marketing activities and vulnerable customers in the context of smart metering. We set out here concerns that have been identified, the issues they raise and our proposals for determining what further consumer protection measures are needed. We intend to introduce any measures considered necessary at the earliest opportunity.

Helping consumers understand their energy use

2.5. The most visible part of the smart metering system for domestic consumers will be the standalone in-home display (IHD). This will provide near real-time information on their energy consumption in a readily accessible form. Suppliers will be responsible for providing domestic customers with a display device during the rollout.

2.6. A substantial proportion of the benefits of smart metering are expected to come from improved energy efficiency, either through reductions in energy consumption or shifting of consumption away from times of peak demand. The provision of the display is important in promoting greater consumer awareness of energy usage. Additional measures, such as those taken up under the Green Deal, the provision of consumer information and energy efficiency advice, will also have an important role to play here.

2.7. Subject to the responses to this consultation, our intention is that the minimum functional requirements for the IHD should include:

- Presentation of information on current electricity and gas consumption.
- Presentation of information on historical consumption so that consumers can compare current and previous usage.
- To facilitate consumer understanding, usage information must be displayed in pounds and pence as well as kilowatts and kilowatt hours and the display must include a visual (i.e. non-numerical) presentation that allows consumers to easily distinguish between high and low levels of current consumption.[8] We are seeking views on whether information on carbon emissions should also be included.
- Presentation of accurate account balance information (amount in credit or debit).
- Capability to display information on both gas and electricity consumption.

2.8. More detail on these requirements is set out in the "In-Home Display" supporting document.

2.9. When smart meters are installed, suppliers will be required to provide a sufficient level of advice on the use of the IHD, to help customers understand how they can use the information to save money by reducing their consumption. Where a customer makes it clear that they do not wish to have an IHD, suppliers will need to make alternative arrangements for providing consumption information, for example via customer bills. If, within a year of the installation visit, a customer changes their mind and decides that they would like an IHD, they will be entitled to receive one from their supplier, free of charge, that meets the functional requirements set out above. This will encourage suppliers to properly explain the advantages of IHDs and encourage take-up at the initial visit.

2.10. In providing IHDs, suppliers will need to ensure that they comply with their responsibilities under applicable rules, including those related to consumer protection. This will need to be consistent with the basis on which the IHDs have been supplied and the use they make of them in their relationships with customers. If the device is being used as the primary interface for prepayment customers then suppliers would have an enduring obligation to ensure an IHD was available. More detail on suppliers' responsibilities in relation to providing IHDs is set out in the "In-Home Display" supporting document.

---

[8] Our consumer research suggests that consumers generally understand monetary amounts better than units of energy (such as kilowatt hours) and that many consumers will be able to engage more easily with information displayed in a non-numerical way.

2.11. Consumers will have different preferences for the way they would like to receive information about their energy consumption. We expect that suppliers and other service providers will build on these minimum specifications, for example by providing a wider range of services around information on usage or additional functions.

2.12. We expect suppliers to consider the needs of disabled customers when providing them with display devices. For example, this may include the use of large display screens and big buttons. Displays with audio output may also be of particular benefit for blind or partially sighted customers. We welcome views on whether additional measures are needed in this area, such as a wider obligation requiring suppliers to take account of the needs of these customers.

2.13. By ensuring that open standards are used in the way that smart meters communicate with IHDs and other devices connected to the home area network, consumers will, subject to appropriate security controls, be able to add their own display and other devices (such as smart appliances). For example, over time, we would expect that some consumers may wish to buy more sophisticated devices directly from the consumer electronics market. We would also expect to see the development of more options for consumers to access smart metering information through a range of media (e.g. the internet or mobile phones). We will consider further with industry the practical arrangements for this.

2.14. We believe that the IHD is an important step to improving consumers' understanding of their energy usage. These proposals seek to strike a balance between flexibility for suppliers and others to innovate, which we recognise will be important, and minimum requirements necessary to engage consumers and enable them to manage their energy usage more effectively.

2.15. In addition to the direct feedback provided by the IHD, consumers will be able to access consumption data stored on their meter. It is important that consumers have access to this data, for example to compare tariffs, and are able to easily share it with third parties should they wish to do so. We believe that there are important principles which should underlie any access to this information. Consumers should be able to access this information easily and securely; at an appropriate level of granularity; free of charge; and in a suitable format. We will carry out further work to establish how this can be best achieved in practice.

Question 1: Do you have any comments on the proposed minimum functional requirements and arrangements for provision of the in-home display device? *(Deadline for response: 28 October)*

Data privacy and security

2.16. Smart metering will result in a step change in the amount of data available from electricity and gas meters. This will in principle enable energy consumption to be analysed in more detail (e.g. half-hourly) and to be 'read' more frequently (e.g. daily, weekly or monthly). Smart meters will allow consumers to view their

consumption history and compare usage over different periods, for example through the IHD or internet applications. We believe it is essential that consumers can readily access the information available from their meters. They should be free to share this information with third parties, for example to seek tailored advice on energy efficiency or which supplier or tariff is best for them.

2.17. The frequency with which meters are read and the level of detail of data to be extracted will vary according to the mode of operation (i.e. prepayment or credit) and the type of tariff the customer has chosen. For example, as now, suppliers will need regular meter readings to provide accurate bills. For many credit customers, meter readings every month or so are likely to be sufficient for billing purposes. Where suppliers offer innovative tariffs, such as those based on time of use, they will need more detailed consumption information.

2.18. We recognise the potential sensitivity of data on consumers' energy usage and the potential to raise privacy concerns for individuals. We have taken a rigorous and systematic approach to assessing and managing the important issues of data privacy and will continue to do so in the next stages of our work. We will look to build on safeguards already in place, notably the Data Protection Act 1998, to develop a privacy policy for smart metering data. We note that EU energy regulators are developing a proposal for how data privacy issues should be governed, which we believe could provide the right foundation on which to build our privacy policy.[9] We therefore propose that:

> *"The customer shall choose in which way consumption data shall be used and by whom, with the exception of data required to fulfil regulatory duties."*

2.19. This reflects the important principle that data control rests with the customer, while recognising that there are a range of instances when third parties will have a legitimate need to access that data, for example for suppliers to bill customers. In other areas, access to the data should be subject to customer consent.

2.20. We will be undertaking further detailed analysis to establish the different potential data requirements of industry participants and whether such data collected needs to be personal or aggregated. This will then allow us to set out in more detail how this principle would work in practice in terms of fulfilling regulatory duties and where consent needs to be obtained (including whether this should be on an opt-in or opt-out basis for different uses).

2.21. In order to guarantee data privacy in line with our privacy policy, it is imperative that the smart metering system is secure. Building on best practice, we have looked at the privacy and security issues across the end-to-end metering system. We will now be looking to develop the more detailed requirements for how these risks should be addressed, which will then be reflected in the technical specifications that the industry will be required to adopt.

---

[9] *Draft Guidelines of Good Practice on Regulatory Aspects of Smart Metering for Electricity and Gas*, European Regulators' Group for Electricity and Gas (ERGEG), 22 June 2010

2.22. To support our work in this crucial area, we have held discussions with stakeholders and have established a Privacy and Security Advisory Group, including the Information Commissioner's Office and other key agencies, to provide expert advice to the programme. We will continue to expand and deepen our engagement with stakeholders on these issues. In this context, we are considering broadening the group to include external stakeholders.

2.23. Data privacy and security issues are explored more fully in the "Data Privacy and Security" supporting document.

Question 2: Do you have any comments on our overall approach to data privacy? *(Deadline for response: 28 October)*

Customer experience of smart meter rollout

2.24. Energy suppliers will be responsible for the deployment of smart meters. We expect suppliers to use their relationships with customers to deliver the effective and efficient rollout of smart meters and to help customers achieve the intended benefits. We believe that it is very important that the consumer experience of the rollout and installation process is as positive as possible and promotes awareness of the benefits that smart metering can deliver. This will be important in securing energy savings. Our proposed approach to requiring suppliers to deliver the rollout of smart metering is set out in Chapter 3.

2.25. Positive consumer engagement is key to delivering smart metering benefits in terms of reductions in energy consumption and carbon emissions. The next stage of work will include an investigation of initiatives to promote engagement, such as activities to build consumer knowledge and awareness, and how the programme could assist particular consumer groups such as the vulnerable. This will include analysis of the potential approach to campaign initiatives at national and local levels and linkages with the approach to marketing in the wider Green Deal.

2.26. Given the need to visit over 27 million homes, the rollout of smart metering across Great Britain will take place over a number of years. Some consumers will receive smart meters relatively quickly, while others will not do so for several years. We believe suppliers should be able to respond to enthusiastic consumers. Where a supplier is unable to fulfil such requests, consumers may be able to switch to a supplier that can.

2.27. We believe that local authorities and other trusted third parties can play a valuable role in promoting consumer awareness and engagement of smart metering, as they will do with wider promotion of energy efficiency measures under the Green Deal. We would expect suppliers to explore ways of working with local authorities and other organisations to inform consumers about smart metering and what to expect from installation visits. Experience in other areas, such as the Digital Switchover programme, has shown that the involvement of trusted third parties can be very helpful, particularly for vulnerable consumers.

2.28. There is also evidence that consumers may benefit from packages of energy efficiency measures, which could include smart metering.[10] We are exploring ways to ensure that synergies with other government schemes are harnessed where appropriate, including signposting customers to other sources of advice and support on installing energy efficiency measures. Chapter 3 explains that the Government may seek additional powers in the forthcoming Energy Security and Green Economy Bill to facilitate such measures.

2.29. We have also considered whether there is a case for prioritising certain groups of consumers as part of the rollout process. There are important issues around the role smart meters can play in tackling fuel poverty, for example. We believe it is essential that such groups are not left behind – but also that they need others in the community familiar with smart meters who can provide advice and support if needed. We do not propose to set specific priorities initially but the need for such measures will be kept under review as the rollout progresses.

2.30. The proposed approach to the rollout of smart meters is discussed in more detail in the "Rollout Strategy" supporting document.

2.31. Consumer groups have expressed concerns about risks arising from the need for suppliers to access customers' properties when installations take place. We propose to put in place appropriate safeguards to give consumers confidence about the installation process. The industry would be required to develop a code of practice for the installation process. This would help provide consistent messages for customers about what to expect and to ensure certain standards are maintained.

2.32. We recognise that the installation visit represents an opportunity to engage consumers on energy efficiency issues. However, we also share the concerns of consumer groups about the potential for installation visits to be used by suppliers for unwelcome sales and marketing purposes. In our view, it would be inappropriate for suppliers to gain entry to a customer's home under the pretext that the visit was solely for the purposes of meter installation and then - once inside - use that opportunity to attempt to effect a sale. We consider it important to ensure that the installation visit is not used for unwelcome sales activities. As such, we are looking at the coverage provided by existing protections to assess what further action we can and should take to achieve this objective. We welcome views on what approaches will best enable the rollout to support take-up of energy efficiency measures while guarding against the potential misuse of the installation visit.

2.33. Consumer groups have also expressed concerns about the efficient level of costs to be incurred by suppliers in rolling out smart meters and how these costs will be recovered from customers. The competitive market should both provide an incentive for suppliers to be as efficient as possible and provide protection for consumers. The updated impact assessments estimate that consumers will benefit on average, recognising that there will be variances among consumers. More details are provided in the updated impact assessments and the "Consumer Protection" supporting document.

---

[10] *The Big Energy Shift: Report from Citizens' Forums*, Ipsos MORI, June 2009

2.34. We believe that it would be unfair if the installation of a smart meter resulted in an upfront charge on customer bills. Subject to responses to this consultation, we therefore intend to prohibit suppliers from imposing upfront charges on customers for the smart metering equipment that suppliers are required to provide. Suppliers will still be able to offer their customers value-added products and services, such as an enhanced IHD, for an upfront charge or as part of a new tariff package.

Question 3: Do you have any comments on the proposed approach to ensuring customers have a positive experience of the smart meter rollout (including the required code of practice on installation and preventing unwelcome sales activity and upfront charging)? *(Deadline for response: 28 September)*

Improved customer service

2.35. Smart metering will enable suppliers to read meters remotely, without a meter reader needing to visit a customer's property. This will benefit customers because they will receive entirely accurate bills, rather than ones based on a combination of both physical readings and estimates of consumption, and will not need to be at home for their meters to be read. More timely meter readings will help smooth the process when a customer changes supplier or moves home. In the longer term, improvements to industry systems will enable a faster, smoother change of supplier process.

2.36. Customers will also benefit from the cost savings made by suppliers not having to visit their homes to physically read meters. We expect these and other savings to be passed through to customers.

2.37. Smart metering will also enable wider customer service benefits. For example, suppliers and networks may be able to receive alerts if a customer goes off supply (e.g. there is a power cut) and when supply is restored. This will enable corrective action to be taken sooner, thereby minimising disruption to customers such as reducing the amount of time they spend without supply. Meters will also be fitted with tamper alarms, meaning that costs due to fraud should be reduced.

A new approach to debt management and prepayment

2.38. Smart meters can operate in either credit or prepayment mode and suppliers can remotely switch meters between the two. Remote functionality will allow switching between payment methods and will open up additional payment channels for prepayment customers. Physical keys will no longer be needed so payment options can become more flexible – as they are for mobile phone top-ups (e.g. over the phone or via the internet). However, existing arrangements will need to be maintained that enable consumers to top-up with cash at payment outlets given many customers do not have access to bank accounts.

2.39. The prepayment capability of smart meters is supported by a function in the meter that allows the energy supply to be disabled. This functionality may be triggered locally when all credit has been used (including any emergency or 'friendly' credit applied to avoid interruptions during defined time periods such as overnight) or may be initiated remotely by the supplier in cases where debt follow-up procedures have been exhausted. As a result, suppliers should be better able to manage customer debt, resulting in cost savings that can be passed on to consumers. Consumers will also benefit through alternative approaches to debt management. These could include "trickle" or limited duration disconnection and immediate reconnection when a debt is paid off or if a customer is identified as vulnerable. We are proposing functional requirements to ensure safety issues are addressed when supply is restored following any disconnection.

2.40. We recognise that some aspects of remote functionality may raise concerns for consumers. These include the way in which suppliers notify customers of or carry out a switch to prepayment mode or disconnection of supply. Suppliers will need to continue to comply with their obligations to identify vulnerable customers or where prepayment is not suitable. Ofgem will consider whether any additional rules and protections should apply in this area. This is discussed further in the "Consumer Protection" supporting document.

2.41. Existing licence and other protections will still apply where there are smart meters in place. For example, existing legislation sets out timescales for notification and obtaining a warrant to access a customer's premises. Providing adequate warning to customers will remain important even where suppliers can disconnect or switch between credit and prepayment remotely. Ofgem will shortly publish interim guidance on the application of existing licence conditions regarding remote disconnection and remote switching to prepayment. More generally, through the "Consumer Protection" supporting document, Ofgem is consulting on the issues that may arise as a result of remote functionality and whether existing protections are appropriate and sufficient going forward.

2.42. Subject to responses to this consultation, Ofgem intends to introduce a package of measures in spring 2011 to provide for the continued safeguarding of consumers' interests. Given that some suppliers are starting to move early and install smart meters on a commercial basis, this would help ensure that vital consumer protections in areas such as remote disconnection are in place to deal with early movers. This package could also include measures around interoperability aimed at ensuring consumers will not face barriers in switching suppliers.

Question 4: Have we identified the full range of consumer protection issues related to remote disconnection and switching to prepayment? *(Deadline for response: 28 October)*

Non-domestic consumers

2.43. The previous discussion has focused on domestic consumers. Most of the issues raised are also applicable to consumers in the smaller non-domestic sector.

Exceptions to this are set out in this section. These issues are explored in more detail in the "Non-Domestic Sector" supporting document.

2.44. We are not mandating the provision of an IHD in the smaller non-domestic sector. Nevertheless, we believe that it is essential that these customers can readily access the information available from their meters. They should also be able to share this information with authorised third parties, for example to obtain tailored advice on energy efficiency and which supplier or tariff is best for them. We will carry out further work to establish how this can be best achieved in practice.

2.45. It may be that decisions on what data is provided for an individual customer or site are best taken by customers and their suppliers or agents when they agree contracts. This approach was followed in the licence modifications dealing with metering for larger non-domestic sites. However, we welcome views on whether information provision should also be left to commercial arrangements for smaller non-domestic sites. For example, an alternative could be a licence obligation on suppliers to facilitate customer rights to access a certain level of data.

2.46. While we are proposing the installation of smart meters at smaller non-domestic sites on the same timescale as for domestic sites, we recognise that some smaller non-domestic consumers already have meters with advanced rather than full smart functionality. If customers have advanced meters installed before April 2014 and they wish to retain these meters, then these meters will not need to be replaced by smart meters. This also applies to meters installed after April 2014 under pre-existing contracts. This approach will help customers to continue to make energy and carbon savings from these meters and minimise disruption and cost. We will consider whether there needs to be any further flexibility for installations of advanced and smart meters. This is discussed further in the "Non-Domestic Sector" supporting document.

2.47. Our proposals for the potential use of central data and communications arrangements in the non-domestic sector are discussed in Chapter 3.

Question 5: Do you have any comments on the proposed approach to smaller non-domestic consumers (in particular on exceptions and access to data)? *(Deadline for response: 28 October)*

3. Industry Roles & Responsibilities

This chapter sets out our proposals for design of the smart metering system and the respective roles and responsibilities of industry participants that will be required to deliver it. It describes the proposed functional requirements of the different elements of smart metering equipment in customers' homes and businesses. It sets out the proposed arrangements for the central co-ordination of smart metering communications and data management. It presents our proposals for the design of the smart metering regulatory regime, for assuring the security of the system and our strategy for the rollout of smart metering. It also describes how smart metering will facilitate the development of smart grids.

3.1. Smart metering will help to enable innovation in both energy demand management (e.g. smart grids and smart appliances) and energy supply (e.g. new tariffs). Introducing smart metering will require a major change to industry processes and practices. Our aim is to create a regime in which there is certainty on what needs to happen in the shorter term, while providing flexibility for market development and innovation in the longer term.

3.2. Our overall approach will be to place obligations on industry parties to deliver the objectives of the programme, while providing an environment that encourages technology and product innovation.

3.3. Subject to responses to this consultation, we intend to achieve this approach by:

- Setting minimum functional requirements and a process for the development of technical specifications that will deliver interoperability of metering and related equipment, thus promoting competition;
- Requiring suppliers to achieve milestones that will meet the objective for the completion of the smart metering rollout;
- Creating a new function to centrally coordinate communications and data management for the smart metering system and putting in place a new regulatory framework, which will set out detailed industry arrangements relating to smart metering; and
- Putting in place best practice governance arrangements that will facilitate the development of industry rules and processes.

3.4. It is important to recognise that the deployment of smart metering to over 27 million homes will take a number of years to complete. Smart and traditional metering systems will need to operate in parallel during this transition. We want suppliers to be able to start the rollout of smart metering as soon as practicable. Our aim is therefore to provide certainty on the design of the smart metering system as quickly as possible to allow the industry to finalise its rollout plans.

3.5. Our view is that not all the aspects of the smart metering system need to be in place to facilitate the start of rollout. We therefore propose a staged approach to implementation.

Customer premises equipment

3.6. Establishing a set of minimum functional requirements for the smart metering system that can then be developed into technical specifications is important to ensure technical interoperability and promote effective operation of the end-to-end system. This is fundamental for the smooth functioning of the retail market. The required high-level functionality of the smart metering system is set out in Figure 1.

Figure 1 - High-level functions of the smart metering system

	High-level functionality	Electricity	Gas
A	Remote provision of accurate reads/information for defined time periods - delivery of information to customers, suppliers and other designated market organisation	✓	✓
B	Two way communications to the meter system • communications between the meter and energy supplier or other designated market organisation • upload and download data through a link to the wide area network, transfer data at defined periods, remote configuration and diagnostics, software and firmware changes	✓	✓
C	Home area network based on open standards and protocols • provide "real time" information to an in-home display • enable other devices 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 to remotely control electricity load for more sophisticated control of devices in the home	✓	
F	Remote disablement and enablement of supply • that will support remote switching between credit and prepayment modes	✓	✓*
G	Exported electricity measurement • measure net export	✓	
H	Capacity to communicate with a measurement device within a microgenerator • receive, store, communicate total generation for billing	✓	

* Domestic sector only

3.7. The rollout of smart metering will involve the introduction of a range of new equipment into customers' premises, including:

- Gas and electricity meters with smart functionality;
- An in-home display (IHD) for domestic customers;
- A wide area network (WAN) communications module to connect to the central communications provider; and
- A home area network (HAN) to link different meters within customer premises, the communications module and the IHD (and potentially other consumer devices, such as microgeneration and load control devices).

3.8. Detailed proposals on the functional requirements for the smart metering system are set out in the "Statement of Design Requirements" supporting document. Some of the key features are as follows:

- The smart metering system will support the high-level functions set out above. A full list of the services that must be supported by the smart metering system is included in the appendix to the supporting document.
- Electricity and domestic gas meters will be mandated to have functionality to support remote enablement and disablement of supply.
- The HAN must use open standards and protocols – so as to achieve interoperability and enable innovation by equipment manufacturers. This also keeps open the option of extending the smart metering system in future to support additional services such as water metering, where appropriate.
- IHDs will be connected to gas and electricity meters through the HAN. The minimum functionality to be provided by an IHD was described in Chapter 2.
- The WAN communications module must be capable of being separated from the meter to enable the module to be upgraded without exchanging the meter.

3.9. Following extensive consultation with a range of stakeholders and independently commissioned analysis, the Government's view, subject to consultation, is that the policy benefits of including a gas valve in the minimum functional requirements for domestic smart meters and the certainty this brings outweigh those of leaving the inclusion of a gas valve to supplier choice. The analysis underpinning this is set out in the DECC paper on "Disablement/enablement functionality for smart gas meters" published alongside this document and the analytical annex to the impact assessment. Supporting analysis by Gemserv on the same issue is also published today.[11]

3.10. Our view is that the draft technical specifications for the various elements of the smart metering system should be developed with industry. To take this work forward as quickly as possible, we will establish an expert group to develop the functional requirements proposed in this document into technical specifications (see Chapter 4 for more details). We welcome views on how quickly the industry would be able to develop these technical specifications.

---

[11] *Analysis on disablement/enablement functionality for smart gas meters*, Gemserv, July 2010

3.11. In developing the proposed functional requirements for the smart metering system, we have taken into account the views of network companies in relation to smart grids. Our view on how the smart metering system will help the development of smart grids is set out in the box on page 29. We also expect that smart metering functionality will enable other value-added services, such as energy management and access to home automation initiatives.

3.12. As noted above, there are some differences between the functional requirements for the domestic and non-domestic sectors. In particular, meters for the smaller non-domestic sector will not be mandated to include a gas valve and suppliers will not be required to provide IHDs to their non-domestic customers. More details on the proposals for the non-domestic sector are set out in the "Non-Domestic Sector" supporting document.

3.13. Definition of technical specifications will ensure that equipment at customer premises does not need to change with a change of supplier (although suppliers will be free to offer higher specification IHDs to customers if they so desire). In addition, suppliers will need to develop commercial terms for use of their meters on change of supplier (to deliver what we term "commercial interoperability"). This issue will become more important as smart meters are rolled out since the value of the meter and cost of installation are greater than the comparable costs of traditional metering. We will work with the industry to consider how best to address this issue, taking into account the findings emerging from the review of current metering arrangements launched by Ofgem in April 2010.[12] The programme will, if necessary, bring forward proposals to ensure the effective operation of this aspect of the market.

3.14. The proposed responsibilities for different elements of the smart metering system are set out in Figure 2. The intention is, subject to consultation responses, that energy suppliers should be responsible for the purchase, installation and maintenance (where appropriate) of all customer premises equipment. For households that take their gas and electricity from different suppliers, we are proposing arrangements to facilitate sharing of the communications equipment between suppliers. This will enable either gas or electricity suppliers to install their meters separately or both together. More details on these proposed requirements are set out in the "Regulatory and Commercial Framework" supporting document.

Question 6: Do you have any comments on the functional requirements for the smart metering system we have set out in the Functional Requirements Catalogue? *(Deadline for response: 28 September)*

Question 7: Do you see any issues with the proposed approach to developing technical specifications for the smart metering system? *(Deadline for response: 28 September)*

Question 8: Do you have any comments on the proposals that energy suppliers should be responsible for purchasing, installing and, where appropriate, maintaining all customer premises equipment? *(Deadline for response: 28 October)*

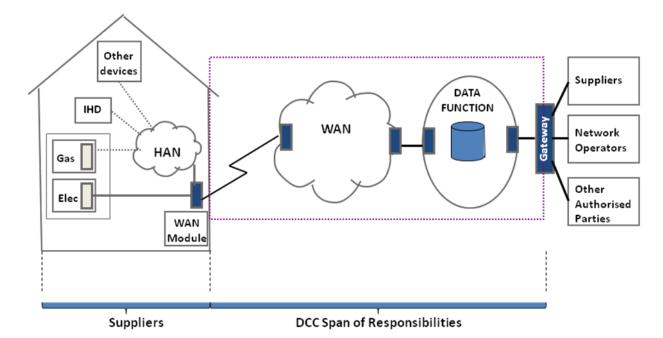[12] *Review of Current Metering Arrangements*, Ofgem, April 2010

Figure 2 - Proposed smart metering system responsibilities

Central communications and data management

3.15. Communication of data to and from smart meters in the domestic sector will be managed centrally by a new, GB-wide function covering both the electricity and gas sectors. We refer to this new function as the central data and communications entity ("DataCommsCo" or "DCC"). This will provide benefits of efficiency and interoperability. DCC will also provide a basis to simplify and improve industry processes, including change of supplier, and to enable the development of smart grids.

3.16. The new central data and communications function will provide a two-way communications channel between smart meters and a central communications hub to which smart meter data users (suppliers, network companies and other authorised third parties) will have access for specified purposes.

Scope of activities

3.17. The key issues in relation to the scope of the activities of this new central data and communications function relate to:

▪   The extent to which it should provide data management services and related activities; and
▪   Whether or not it takes on the role of meter registration service provider (a role which currently sits with the network companies in electricity and primarily with

Xoserve in gas). Meter registration functions play an important role in the change of supplier process.

3.18. Subject to further analysis, we propose that the scope of DCC's activities should be limited initially to those functions that are essential for the effective transfer of smart metering data, such as secure communications and access control and scheduled data retrieval. We also believe that DCC will need to take on board meter registration in order to realise the full benefits of smart metering. We welcome views on the practicalities and timing of the inclusion of this activity. We will continue to investigate whether any additional functions should subsequently be brought within the scope of DCC's activities and the mechanisms available for facilitating this. At this stage, we envisage that DCC will not absorb settlement functions from the existing central bodies.

3.19. We believe this approach will allow the new function to be set up as soon as possible, while enabling wider benefits to be delivered. This includes an improvement for customers changing supplier. Our ambition is ultimately to move from the current situation where it can take several weeks for a change of supplier to be completed to one that could allow customers to switch suppliers on a next day basis, subject to appropriate protections.

3.20. The practicality and implications of including (or not) particular data functions is complex and requires significant input from industry, given the necessity for consequential changes to their systems and processes. While adding functions to DCC's scope may deliver additional benefits, the costs associated with any such additions may be significant and will need to be carefully examined. As noted earlier, the need to operate smart and traditional metering in parallel during the period of the rollout raises further issues. We will establish an expert group to carry out further analysis to inform a final decision on the optimal initial scope of DCC's activities and the developments that would allow for efficient reform of the industry.

Question 9: Do you have any comments on the proposal that the scope of activities of the central data and communications function should be limited initially to those functions that are essential for the effective transfer of smart metering data, such as data access and scheduled data retrieval?
(Deadline for response: 28 October)

Establishment of the central data and communications function

3.21. Subject to responses to this consultation, our intention is to create a new licensed entity to deliver these central data and communications activities. DCC will be responsible for managing the procurement and contract management of data and communications services that will underpin the smart metering system. We have discussed our preferred approach and the alternatives with the communications regulator, Ofcom, and will continue to work closely with Ofcom as the programme moves forward.

3.22. Innovation based on smart metering capabilities, wider industry process reform and the advent of smart grids all present significant opportunities, but the exact requirements are uncertain. We believe a procurement and contract management entity will be well placed to adapt to developments in the industry and will allow requirements to evolve over time. DCC will provide an expert resource to contribute to the transformation of industry processes and to manage the resulting changes with data and communications service providers. We have considered the alternative of procuring a full service provider. However, we felt that this approach would provide a less flexible and less cost-efficient model.

3.23. We propose that DCC will be a new licensed entity, which is granted an exclusive licence. The advantage of setting DCC up in this way is that Ofgem will then be able to exert direct regulatory control over it, including to ensure that DCC applies its charging methodology in line with its licence obligations. Ofgem will have the ability to take enforcement action if the licence obligations are not met.

3.24. We do not believe that the alternative of placing obligations on existing licensees to establish such a body (the approach adopted for other roles in the energy sector) would be appropriate. In particular, there is no obvious category of licence holder on whom an obligation could be placed, covering both gas and electricity.

3.25. We propose to carry out a competitive licence application process for the grant of the DCC licence. This should ensure it is the best qualified to deliver these services and provides the best value for money. We propose that the licence may be granted for a fixed term of, say, ten years. The proposed timescales for the establishment of DCC are set out in Chapter 4.

Question 10: Do you have any comments on the proposal to establish DCC as a procurement and contract management entity that will procure communications and data services competitively? *(Deadline for response: 28 October)*

Governance of DCC

3.26. We propose that the governance framework for this new entity will be provided in two ways. Firstly, DCC's licence will set out the licence obligations. Secondly, DCC will be obliged to be a party to a new 'Smart Energy Code', spanning gas and electricity. This Code will detail the relationships between DCC and other industry parties around the new data and communications activities. The proposed new Code is discussed in more detail below.

3.27. DCC will be responsible for procuring services and technologies to satisfy the obligations placed on it by its licence and the Code. The licence and Code will not specify the technology or technologies to be used for WAN communications but rather will set out the functional, including security, requirements of the end-to-end communications system. Instead, technology choices will rest with DCC. We intend to seek further information in the next stage of work to help us understand in detail

service providers' data and communications capabilities and the cost implications of different requirements scenarios.

3.28. As a private company, DCC will have a Board that will be responsible for ensuring that DCC's obligations under its licence and the Smart Energy Code are delivered efficiently. Ofgem, as regulator, will be able to take action if DCC fails to meet its licence obligations.

3.29. DCC will be required to demonstrate to Ofgem that its competitive procurement processes have been structured so as to meet criteria set out in the licence. We expect that these criteria will recognise both short and longer-term factors (for example, geographically dispersed rollout in the short-term and maximum coverage at least cost in the long term). We also expect that contracts for services will be retendered on a regular basis to deliver value for money and to enable services and technologies to evolve as requirements develop (e.g. for smart grid purposes).

3.30. From the date on which DCC starts provision of services, suppliers will be required to use these services for all WAN communications with smart meters in the domestic sector. This includes all meters installed prior to that time which comply with the relevant technical specifications. We will consider the need for arrangements to facilitate this transition.

3.31. DCC will be in an exclusive position with respect to the provision of communications access to smart meters in the domestic sector. We therefore propose to put in place an effective incentive regime for DCC in order to promote cost efficiency and thereby provide an appropriate level of protection to users of the data and communications function. This would include requiring DCC to tender for services on a competitive basis and to retender contracts at appropriate times, and imposing regulatory incentives for DCC to manage its own costs efficiently. Ofgem will be responsible for regulation of this new licensed entity.

3.32. We propose that DCC's costs will be recovered through service charges to suppliers and other service users. Service charges will comprise a mix of standard and variable charges designed to reflect different types of service (e.g. routine reads per month, charges per prepayment top up). We propose that suppliers, as the primary users of DCC initially, will be required to provide financing for development of DCC in proportion to their market share. The general principles of the DCC charging methodology will be set out in its licence, while its table of charges will be set out in the Code. DCC is likely to charge higher rates to address the higher costs of provision of additional services requested by individual users or groups of users.

3.33. The way that the smart metering system will facilitate the development of smart grids is set out in the box on page 29. From the outset, DCC will support some smart grid-related functions required to provide better network data to inform planning and investment decisions. These are set out in the "Statement of Design Requirements" supporting document. Other smart grid functions will be capable of being added incrementally driven by demand for added services (for example, remote management of smart appliances).

HOW SMART METERING WILL FACILITATE DEVELOPMENT OF SMART GRIDS

Expected changes in electricity generation and demand - including take-up of microgeneration and electric vehicles - will drive the need for more intelligent control of electricity networks. Smart grids are a mechanism to achieve this. A smart grid can be defined as "an electricity network that can intelligently integrate the actions of all users connected to it - generators, consumers and those that do both - in order to efficiently deliver sustainable, economic and secure electricity supplies" (*A Smart Grid Vision*, Electricity Networks Strategy Group, November 2009).

Smart grids should allow improved network management capability, efficiency and responsiveness. This should lead to the delivery of benefits such as: savings in infrastructure investment; integration of renewable generation; improved consumer energy management; and flexible control of networks.

Smart metering is an important enabler for development of the networks. Network operators will have the potential to use information from smart meters to manage their operations. We have engaged with the industry to better understand potential network requirements. We believe that there is a business case for building in a certain amount of functionality into the smart metering system now. However, there is uncertainty over the business case for future requirements and therefore the likely extent of adoption of smart grids. Projects funded by Ofgem's Low Carbon Networks (LCN) Fund will help inform the development of the business case for smart grids.

We have therefore developed proposals for facilitating smart grid development that balance the risk of costly over-specification of the smart metering system against insufficiently addressing future needs, which could lead to the loss of significant opportunities. These proposals include:

➔ Setting smart meter functional requirements that support a wide range of potential smart grid requirements.
➔ Making it possible for the WAN communications module to be exchanged for improved communications technology without changing the meter.
➔ Designing the initial WAN communications specification to provide for a range of potential smart grid applications, at an appropriate cost to network operators.
➔ Allowing flexibility for different WAN communications technologies where specific projects are employed at a geographic level (e.g. LCN Fund projects).
➔ Allowing DCC to offer flexible service levels as well as requiring it to set out plans for enhancing communications services as network requirements evolve. This will allow the WAN communications specification to be upgraded at the point contracts are retendered, when future network requirements are more certain.
➔ Allowing network operators to have a direct relationship with DCC, thereby enabling them to negotiate appropriate service levels. DCC will be obliged to offer terms to network operators to gain access to relevant data, with charges based on cost-related parameters (e.g. frequency, size, timeliness).
➔ Considering arrangements to ensure suppliers to take account of requests from network operators to install smart meters in specific geographic areas (e.g. to support smart grid initiatives).

We welcome views on whether these proposals are appropriate to facilitate the development of smart grids.

3.34. More details on the proposed business model for the central data and communications function, and alternative models considered, are set out in the "Communications Business Model" supporting document.

3.35. We do not propose to oblige suppliers in the non-domestic sector to use the services of DCC for meters with smart functionality given that there is a competitive market already established for these services. Instead, we propose that suppliers may choose to use DCC if they wish to do so. We believe that this will potentially allow smaller non-domestic customers better access to the competitive market, lower costs and increase interoperability. In these circumstances, market participants would still be able to offer value-added services, including energy management services and energy efficiency advice. Given DCC's position in the market, we propose to limit its ability to offer energy management services.

3.36. The decision not to mandate use of DCC may be reviewed in the future if evidence emerges of serious interoperability issues or if smart grid requirements are not being met.

3.37. Arrangements for participants in the non-domestic sector are discussed in more detail in the "Non-Domestic Sector" supporting document.

Question 11: Do you have any comments on the proposed approach for establishing DCC (through a licence awarded through a competitive licence application process with DCC then subject also to the new Smart Energy Code)? *(Deadline for response: 28 October)*

Question 12: Does the proposal that suppliers of smaller non-domestic customers should not be obliged to use DCC services but may elect to use them cause any substantive problems? *(Deadline for response: 28 October)*

Smart metering regulatory regime

3.38. The introduction of smart metering will have far reaching implications for the energy industry. We propose to establish a new regulatory regime to provide arrangements for the introduction and ongoing operation of smart metering. These regulatory arrangements will be introduced using powers under the Energy Act 2008 to amend existing licences and codes and to create a new licensable activity.

3.39. We will introduce a new Smart Energy Code to govern the operation of the smart metering system. Drawing on new content and on material from existing industry codes, the Code will set standards and define specifications for the smart metering system and provide a binding framework to govern access to, and use of, smart meters. While the obligations on DCC will be set out in its licence, the Code will prescribe in detail the relationships between DCC and the users of its data and communications services. The Code will cover both gas and electricity and be the first industry code to span the two sectors.

3.40. We will introduce licence obligations on suppliers, network operators and DCC to comply with the Code. To ensure that the Code has contractual force, we envisage there being a multi-party framework agreement between DCC and users of its services. All of those subject to the Code would be signatories to the framework agreement.

3.41. The governance arrangements for the new Code will be informed by the findings and conclusions of Ofgem's recent Code Governance Review.[13] Ofgem and stakeholders will be involved in the governance of the new Code. We expect that the Code administrator will be an independent body that would be contracted to DCC to provide the administration and secretariat role. We welcome views on the most appropriate governance arrangements for the Code, including those for oversight of operation of the Code and responsibility for modifications to the Code.

3.42. The introduction of smart metering will enable significant improvements to a range of industry processes, including settlement arrangements. In addition to the proposed changes set out here, the industry may bring forward proposals under existing codes to take forward further elements of industry reform enabled by smart metering. Ofgem will monitor progress and, if necessary, will consider introducing changes where these are needed to realise the full benefits of smart metering.

3.43. More detail on our proposals for the smart metering regulatory regime, including the Smart Energy Code, are set out in the "Regulatory and Commercial Framework" supporting document.

Question 13: Do you agree with the proposal for a Smart Energy Code to govern the operation of smart metering? *(Deadline for response: 28 October)*

Question 14: Have we identified all the wider impacts of smart metering on the energy sector? *(Deadline for response: 28 October)*

System security

3.44. The security of the smart metering system will be fundamental to its successful operation. All aspects of the system must be secure to protect against unauthorised access, denial of service and other threats and to protect the integrity and privacy of customer data. This means that all access to data must be controlled across the end-to-end smart metering system. The end-to-end system covers all equipment, attached devices, communication links and connections from every customer through DCC to suppliers, network operators and third-party service providers.

3.45. We have consulted widely to identify, assess and determine key security issues and ways of mitigating specific security risks. This includes discussions with: the Office for Cyber Security; Centre for Protection for National Infrastructure; Government Technical Authority for Information Assurance; specialist smart meter

---

[13] *Code Governance Review - Final Proposals*, Ofgem, March 2010

and smart grid testing organisations; private sector specialists; suppliers; meter vendors and network operators.

3.46. We have used this input to undertake an initial risk assessment (Information Assurance Standard No. 1), based on the Government's Security Policy Framework and Information Assurance processes. This has identified potential threats, likelihoods, impacts and vulnerabilities for the end-to-end smart metering system.

3.47. We have determined measures to address the issues identified, including:

- Identifying requirements to ensure that smart meters are appropriately protected from physical and electronic tampering;
- Identifying requirements to ensure devices cannot be used as a 'back door' into the metering system, including the use of encryption to protect the WAN communications and meter interfaces;
- Requiring secure communications to prevent eavesdropping, interception and modification of data;
- Establishing a robust security framework and operating arrangements for DCC, including management of robust authentication and access controls; and
- Requiring stringent security assurance and testing.

3.48. The next stage of the programme will focus on developing the risk assessment in further detail and developing assurance and accreditation to establish an end-to-end security model in line with the Security Policy Framework and security standards such as ISO/IEC 27001. We will develop a set of requirements to feed into specifications for meter manufacturers, as well as licence conditions for suppliers, DCC and, if appropriate, other licensed entities.

3.49. We will consider these issues with stakeholders and through our Privacy and Security Advisory Group. We will consider expanding this group to include external stakeholders.

Question 15: Is there anything further we need to be doing in terms of our ensuring the security of the smart metering system? *(Deadline for response: 28 October)*

Rollout strategy

3.50. Energy suppliers will be responsible for the rollout of smart meters. To achieve the goal of rolling out smart meters, we propose to require suppliers to meet appropriate target profiles for the deployment of smart meters to their customers. We are looking to the industry to examine all the opportunities for realising more ambitious but achievable targets for the rate at which suppliers must install smart meters. Once established, suppliers will be required to report regularly on their progress against these rollout targets. We welcome views on whether there is a case for special arrangements for smaller suppliers or for the non-domestic sector.

3.51. We believe that, in the early stages of the rollout, suppliers should have broad flexibility over the pattern of their installations. This will be important in helping suppliers to commence rollout as quickly as possible. It will also enable suppliers to respond to consumer demand for smart meters and to develop their plans in the light of experience and feedback.

3.52. In parallel, the programme will continue to investigate and review whether further measures could be introduced for later stages of the rollout in order to increase its effectiveness. These could include measures to facilitate consumer engagement, promote co-operation at a local level including with trusted third parties, reach vulnerable customer groups, support energy efficiency initiatives and facilitate the development of smart grids or, ultimately, follow a common area-based plan. Drawing on this analysis and evidence from the early stages of the rollout, the programme may propose modifications to the rollout strategy where these would address issues identified or provide for enhanced benefits. To ensure it has the appropriate range of powers during the course of rollout, the Government may propose new provisions in the forthcoming Energy Security and Green Economy Bill.

3.53. There may be benefits in co-operation between suppliers to address challenges posed by specific types of buildings (e.g. blocks of flats) where communications may be more difficult. The programme will work with the industry to develop arrangements to tackle this and other operational issues requiring industry co-operation.

3.54. More broadly, the programme will monitor the progress of rollout activities, including the consumer experience of the process, and evaluate the evolving costs and benefits of the smart metering rollout. Progress will be reported on a regular basis.

3.55. More details on our proposals for rollout are set out in the "Rollout Strategy" supporting document.

Question 16: Do you have any comments on the proposals for requiring suppliers to deliver the rollout of smart meters (including the use of targets and potential future obligations on local co-ordination? *(Deadline for response: 28 September)*

4. Implementation and Next Steps

This chapter sets out our proposed plan for the implementation of the smart metering programme and the governance and management arrangements needed to deliver it. This comprises: an outline of the proposed implementation strategy and alternatives considered; a description of the critical activities and key milestones; an overview of our approach to stakeholder engagement; and governance principles for the programme going forward.

4.1. The Government wishes to accelerate significantly the roll out of smart meters compared to previously published targets. We are looking at the potential for shortening both the preparation period for mandated rollout to commence and the period over which suppliers are mandated to install smart meters. This is reflected in our proposed staged implementation approach, which is expected to advance the start of the formal mandate by at least a year compared to the alternative approach of waiting until the full smart metering regulatory regime and end-to-end smart metering system, including the DCC, has been established. This approach is discussed below. We will also look to the industry and other stakeholders during the period of consultation to examine all the opportunities for realising more ambitious but achievable targets.

Context and key drivers

4.2. The implementation of smart metering will be one of the largest and most complex changes undertaken by the energy industry. The rollout will touch every home and many businesses across Great Britain over several years. It is set against a backdrop of wider energy efficiency policy under the Green Deal, offering help to all households with the upfront costs of installing energy and carbon saving measures in their homes.

4.3. It is vital that the required activities to establish smart metering are brought together into a coherent programme. This will ensure that there is an overall strategy, a clear plan with activities and dependencies, appropriate stakeholder involvement, communication and rigorous management and mitigation of potential risks.

4.4. Successful delivery of the programme, and hence realisation of the benefits case, will be dependent on active engagement with smart metering by consumers and on the active participation and commitment of a diverse range of stakeholders, including consumer groups, energy suppliers, meter manufacturers, installation companies and central industry bodies.

4.5. Many of these stakeholders have important activities to undertake in order to deliver smart metering. For example, meter manufacturers will need to establish and ramp up production lines and suppliers will be responsible for driving the rollout. Suppliers will need to recruit and train, or procure, installation staff, procure meters and amend their systems and processes to support smart metering.

4.6. In order to progress these activities, stakeholders require certainty on core elements of the smart metering system, which provide the framework that underpins all other activities. Based on our discussions with stakeholders, we believe that these core elements are:

- Functional requirements and technical specifications: these provide certainty to suppliers and manufacturers. This allows manufacturers to establish production lines, suppliers to procure components and participants to understand interoperability and integration requirements.
- Licence and code changes: these are required to provide industry participants with certainty as to their responsibilities. Licences and industry codes will set out the obligations, interactions and commercial arrangements for the new regime.
- Rollout milestones: these provide certainty to energy suppliers, who will need to understand any targets that are set for rollout and finalise their installation plans accordingly.
- DCC licence and set up: DCC will in due course be at the heart of the new regime. Participants need to understand the DCC communications technology strategy, the mechanisms to interact with DCC and the commercial basis of the new entity.
- Interim arrangements: the overall regime will take time to establish. Participants need certainty on any interim arrangements.
- Consumer protection: understanding the potential impacts of smart metering on consumers, identifying the issues that may arise and establishing any additional protections, where necessary, to continue to safeguard consumer interests.

4.7. We have focused on addressing each of these elements in this Prospectus in order to provide the necessary certainty to industry participants at the earliest opportunity. These elements are complemented by the fuller range of activities essential to ensure the successful delivery of the programme, including overall programme management and governance arrangements, stakeholder engagement and benefits realisation.

Learning from international experience

4.8. As part of our work, we are also monitoring smart meter rollouts in other countries in order to inform our approach. While we recognise that direct comparisons cannot always be drawn due to the differing nature of energy markets and the varying policy and commercial drivers for smart meter rollouts, there are valuable lessons that can be learned from studying rollouts around the world.

4.9. The challenge of a technological change programme of this scale should not be underestimated and successful implementation requires robust programme management as well as close co-operation between government, the regulator, industry and wider stakeholders. Moreover, in addressing the many and varied technological challenges we must not forget that this programme involves a visit to every home in Great Britain and success will depend in large part on consumers using the information smart meters provide to save money on their bills and reduce carbon emissions. We will continue to monitor and learn from international experience as the programme moves forward.

Implementation Strategy

4.10. Smart metering is a major change programme, involving a wide range of participants. The regulatory regime and common services needed to implement smart metering will therefore take time to establish. Our current planning indicates that the full regime, including central data and communications services, will be established by the autumn of 2013. Meanwhile, there is a growing appetite among consumers and suppliers for smart metering. We believe that there is a benefit in supporting this enthusiasm and allowing early adoption of smart meters and hence early realisation of benefits. These competing perspectives need to be balanced to provide the optimal implementation strategy in the short to medium term.

4.11. We have accordingly considered alternative strategic approaches to implementation. These are outlined below.

Full establishment

4.12. Under this approach, the mandated rollout of smart meters would commence when the full smart metering regulatory regime and end-to-end smart metering system, including the DCC, has been established in autumn 2013. Supplier rollout targets would commence from this point forward.

4.13. The full regime is expected to comprise changes to licences and industry codes, a new licence for DCC, a new Smart Energy Code, procurement by DCC of its service providers, building and testing of appropriate communications and IT systems, assurance, security testing, piloting and acceptance.

4.14. The autumn 2013 date is determined by the critical activity, which is the establishment of DCC. Suppliers could elect to install smart meters prior to this date, but this would be entirely at their own commercial risk, with any meters that failed to meet required technical specifications needing to be replaced.

Staged implementation

4.15. Under this approach, the set up of DCC would be removed from the critical path, which would be as follows:

- confirmation of the meter technical specifications, which is expected to occur by winter 2011;
- licence modifications mandating rollout targets, which we currently expect to occur in early 2012.

4.16. Suppliers would therefore be able to commence rollout with certainty about the meter technical specifications and rollout targets by early 2012. However, to allow time for suppliers' planning and procurement activities, mandated rollout targets would only come into effect six months later, from summer 2012.

4.17. From autumn 2013 when DCC is expected to start providing services, it will be responsible for supporting communications with all meters compliant with the technical specifications. Between the point at which licence modifications mandating rollout targets are implemented and DCC service availability, suppliers would be responsible for procuring their own communications services. Communications contracts entered into by suppliers would need to be either of limited duration or capable of being novated to DCC once it commences provision of services. To provide certainty to suppliers and protect the interests of consumers, specific arrangements may need to be put in place to facilitate this process. For example, DCC could be required to take on communications contracts meeting certain pre-defined criteria. We are also considering earlier measures that may be necessary around interoperability in order to help ensure consumers will not face barriers in switching suppliers.

4.18. Suppliers could install, and are installing, smart meters prior to the meter technical specifications being published but, as set out above, this would be entirely at their own commercial risk.

Proposal

4.19. For the reasons described below, we propose to adopt the staged implementation. As noted earlier, the Government is determined to accelerate the rollout of smart meters ahead of previously published plans. The staged implementation approach is expected to advance the start of the mandated rollout by at least a year compared to the alternative approach while maintaining the business case for the programme. The approach also provides a basis to draw on early consumer enthusiasm. The two approaches were evaluated against the core evaluation criteria as discussed below:

- *Consumer impact*: There is anecdotal evidence of growing consumer interest in smart metering, fuelled by increasing supplier advertising and activity in the area of energy monitors and smart metering. Seizing on this enthusiasm at an earlier stage could help promote engagement by these consumers and harness the potential for achieving increased benefits.

- *Cost/benefit analysis*: There is no significant difference in the business case between the two approaches. While the approach generates nearly £1 billion in additional benefits through earlier realisation of energy efficiencies, it incurs a broadly comparable cost increase, for example by bringing forward the costs of installation. There is some risk of unnecessary work to supplier IT systems, but we understand that interim solutions are feasible and already being offered in the market.

- *Time*: The staged approach to implementation advances the start of the mandated rollout by at least a year compared to the alternative approach. This is a significant opportunity given the desire to accelerate the rollout of smart meters throughout Great Britain. This approach may also facilitate earlier realisation of other benefits not included in the current business case, for example those relating to smart grids.

▪ *Risk*: There are some different risks under the staged implementation approach, although some risks with the alternative model are lowered under this option. Each supplier will be able to make progress earlier to build up their systems and gain early experience. This means a more solid understanding of rollout issues will have been established prior to DCC commencing operation. There is some risk that some additional communications and installation costs may be incurred in the meantime, but suppliers will have an incentive and opportunity to mitigate this risk.

Key programme activities and milestones

4.20. As noted earlier, several core elements underpin smart metering activity. It is vital that there is a plan to address each in order to provide certainty to industry participants and to facilitate delivery of smart metering in Great Britain. The key milestone dates related to the core elements are summarised in Table 1. The approach presented is based on the proposals set out in Chapters 2 and 3. The activities and dates cited are therefore dependent on those proposals. These will be revised and updated in the light of responses to consultation and further engagement with stakeholders.

4.21. As the programme progresses, we will collaborate closely with a wide range of industry and other stakeholders, to understand their views and to ensure their expertise is utilised for the detailed design work being undertaken. This will include the introduction of two expert groups and a high-level stakeholder group and a range of ad hoc workshops. This approach is described in more detail below.

Table 1: Proposed key milestones

Date	Milestone
Spring 2011	Enhanced consumer protections introduced as required
Summer 2011	Functional requirements and technical specifications confirmed (subject, if required, to the outcome of any EU notification period)
Early 2012	Supply licence modifications mandating rollout implemented
Spring 2012	Regulatory framework relating to DCC implemented
	Competitive application process for DCC licence
Summer 2012	Mandated supplier rollout commences
Autumn 2012	DCC licence granted
Spring 2013	DCC service providers appointed
Autumn 2013	DCC trialling and testing complete
	Mandated use of DCC for domestic customers

4.22. *Response to consultation*: We are determined to make progress with implementation of the smart metering rollout quickly. We are therefore seeking responses on a number of key aspects of this consultation on a shorter timescale –

by 28 September – to facilitate earlier decisions where this is possible and appropriate. The deadline for responses to the remaining questions is 28 October 2010. We will then review all responses and publish our decisions. This will complete Phase 1 of the programme and provide the foundation for detailed design work in subsequent phases.

4.23. *Consumer protections*: Ofgem is reviewing the need for further protections and expects to consult on any further provisions. The intention is to introduce, if necessary, any such measures in spring 2011. Consideration will also be given to measures to achieve interoperability and hence ensure customers can continue to switch supplier during the interim period before DCC starts providing services.

4.24. *Technical specifications confirmed*: Industry holds the expertise in this area and will be fully involved in the development of the specifications. We will commence work with the industry on the development of the technical specifications as soon as possible. These specifications are considered important to provide for technical interoperability of metering equipment and to provide certainty to meter manufacturers who need to gear up production lines and to suppliers who need to procure equipment. The proposed timeline set out for agreement of the technical specifications is very dependent on industry expertise. We therefore welcome input from industry on whether these can be developed more quickly than the plan currently assumes. If EU notification is required, we envisage that the functional requirements and technical specifications would be notified to the EU and be confirmed by winter 2011.

4.25. *Rollout targets and milestones set*: Appropriate target profiles for rollout will be mandated by modifications to supply licences in early 2012 and become effective from summer 2012. These six months will allow suppliers to complete, for example, final procurement and installer training activities.

4.26. *DCC established*: our current assessment is that this is likely to involve the following key steps:

- Scope: we will work closely with the industry to conduct further analysis around the scope of DCC, in particular with regard to the inclusion of meter registration. The new DCC licence and Smart Energy Code will also be developed. These outputs are expected to be finalised by spring 2012;
- Regulations setting out a competitive licence application process for the grant of the DCC licence will also be developed. The regulations are expected to be made by spring 2012;
- Grant licence to DCC: a competitive licence application exercise will be undertaken for the DCC licence. The DCC licence is expected to be granted by autumn 2012.
- DCC to procure service providers and set up systems: DCC will procure service providers in spring 2013 and then establish its set of services and conduct testing and piloting. DCC is expected to commence provision of services by autumn 2013.

4.27. Throughout this period the programme will undertake the key cross-cutting activities described below:

- *Consumer engagement*: energy savings represent nearly half of the benefits of the smart metering programme. Positive engagement by consumers is hence the single greatest critical success factor for the programme. The programme will continue to work with the Consumer Advisory Group and will monitor the results and experiences from other jurisdictions and trials, including the Energy Demand Research Project (EDRP). The programme will define an approach to promoting consumer engagement, working with other government initiatives as appropriate and recognising the lead taken by suppliers in this area.

- *Industry change*: the industry will need to undertake significant changes to its processes and IT systems, in particular supplier systems, in order to support smart metering. The programme team will work with the industry as appropriate to support these activities, in particular with development of the Smart Energy Code which will encapsulate processes and interactions for the operation of the smart metering system.

- *Risk and issue management*: the programme will continue management of core programme risks and issues, identifying management and mitigation strategies as appropriate. The programme will be managed under best practice guidelines and subject to appropriate government major projects scrutiny and assessment.

- *Benefits realisation*: the programme will put in place a methodology and approach to benefits realisation, ensuring the programme achieves its business case. In addition, monitoring approaches will be developed to collect information on consumer experience and benefits to inform decisions including on rollout strategy.

Stakeholder engagement

4.28. The smart metering programme has a wide range of stakeholders, including from the industry, consumer groups and others. We are committed to continuing and extending our engagement with these stakeholders as the programme moves to its next stage of work. This section sets out our approach to this closer collaboration for the remainder of Phase 1.

4.29. In order to structure our engagement with stakeholders, we will establish two expert groups. The aim will be to draw on the experience of industry participants and other relevant stakeholders. The two groups are as follows:

- The first group, the Smart Metering Design Group, will cover broader smart metering requirements, in particular the equipment needed in customer premises.
- The second group, the Data and Communications Group, will cover the scope, set up and activities of DCC.

4.30. Where appropriate, these groups may be requested to consider issues raised here in parallel with this consultation in order to inform government decisions. These groups will have defined terms of reference and will be chaired by the programme team. We will invite attendance from relevant experts from industry and consumer groups. The expert groups will have the capability to set up sub-groups to look in more detail at specific issues across the domestic and smaller non-domestic sectors. Issues relating to the rollout and consumer protection will be taken forward through a number of workshops. This will enable wider representation reflecting the breadth of interest in these areas.

4.31. We will also establish a high-level stakeholder group, the Implementation Co-ordination Group, to provide a strategic view across the implementation issues involving key industry and other delivery partners in the programme.

4.32. We will continue working with existing groups who have already provided valuable input to the programme. These include the Consumer Advisory Group and Ofgem's Small and Medium Energy Users Group, which have been helping us understand the consumer perspective and to ensure that consumers' interests are at the heart of the programme. In addition, the Privacy and Security Advisory Group will continue to help identify and assess data privacy and security issues, and to inform our approach in this area.

4.33. We will develop a communications strategy for all stakeholders in order to keep them fully informed of programme progress and developments. This will include publication of key documentation and materials, as well as a commitment to ongoing public update events. We will ensure appropriate linkages with wider policy objectives, for instance the Government's proposed Green Deal. The Devolved Administrations also have an interest in the smart meter rollout and its planning. We have started a dialogue with them and this will continue throughout subsequent phases of the programme.

4.34. We will continue our engagement with key stakeholders outside the energy industry, in particular with Ofcom, who have provided valuable advice on the design of DCC.

Governance of later stages of the programme

4.35. This is a far-reaching change programme and to provide confidence of successful delivery it will continue to be managed according to established and rigorous programme management principles. Different levels of assurance throughout the programme are being provided by following principles and procedures of the Office of Government Commerce.

4.36. Work during Phase 1 of the programme has so far been jointly delivered within a governance framework appropriate to this policy development phase. This has been overseen by a Strategic Programme Board, with representatives from DECC, Ofgem and other public sector bodies, including Ofcom. The Board is chaired by the Senior Responsible Owner at DECC.

4.37. The remainder of Phase 1 will continue to be led by Ofgem E-Serve on behalf of DECC in accordance with existing arrangements. Later this year, the governance and management arrangements for subsequent phases of the programme will be decided upon.

4.38. As the programme progresses to subsequent phases, the governance structure will need to evolve to reflect the development of the programme, including:

- Ensuring appropriate alignment between the objectives of the programme and wider public policy objectives;
- Ensuring the overall policy objectives for smart meter deployment are achieved through a benefits realisation plan;
- Developing and implementing the regulatory framework, including setting the design of the smart metering system, under which industry and other organisations will undertake activities;
- Ensuring delivery of outputs by the central programme;
- Monitoring and promoting public and other stakeholder confidence in the programme;
- Monitoring and supporting the progress of external preparations and market readiness;
- Co-ordinating as appropriate the approach with and between key delivery organisations and developing a shared understanding of priorities and planning perspectives between the key delivery organisations; and
- Accessing practical and technical information relevant to decision making.

Question 17: Do you have any comments on our implementation strategy? In particular, do you have any comments on the staged approach, with rollout starting before DCC services are available? *(Deadline for response: 28 September)*

Question 18: Do you have any other suggestions on how the rollout could be brought forward? If so, do you have any evidence on how such measures would impact on the time, cost and risk associated with the programme? *(Deadline for response: 28 September)*

Question 19: **The proposed timeline set out for agreement of the technical specifications is very dependent on industry expertise. Do you think that the technical specifications can be agreed more quickly than the plan currently assumes and, if so, how?** *(Deadline for response: 28 September)*

Question 20: Do you have any comments on our proposed governance and management principles or on how they can best be delivered in the context of this programme? *(Deadline for response: 28 September)*

Smart Metering Implementation Programme: Prospectus   27 July 2010

Appendices

Index

Appendix 1 – Consultation Response and Questions

1.1. We would like to hear the views of interested parties in relation to any of the issues set out in this document. A summary of our key proposals is set out in Appendix 2. When responding please state whether you are responding as an individual or representing the views of an organisation. If responding on behalf of an organisation, please make it clear who the organisation represents and, where applicable, how the views of members were assembled.

1.2. We would especially welcome responses to the specific questions included in each chapter and that are replicated here. The supporting documents contain more detailed questions behind each of the high-level questions included here.

1.3. As set out in the introduction, we are determined to make progress with implementation of the smart metering rollout quickly. We have therefore set two different deadlines for responses. We are seeking responses on a number of key aspects of this consultation on a shorter timescale – **by 28 September 2010** – to facilitate earlier decisions where this is possible and appropriate. The deadline for responses on the remaining questions is **28 October 2010.**

1.4. Questions for response by **28 September 2010 cover** three key areas:

▪ The proposed functional requirements catalogue and the approach for developing technical specifications for smart metering equipment. We are also seeking early responses to the more detailed questions set out in our Statement of Design Requirements supporting document.

▪ Our proposed strategy for roll out including the consumer experience, proposals for a code of practice on installation, the use of installation targets and potential future obligations on local coordination. We are also seeking early responses to the more detailed questions set out in our RollOut Strategy supporting document.

▪ Our proposed implementation strategy, including our proposal for a staged approach to implementation, the timeline for agreement of the technical specifications and whether there are any other ways we can bring the rollout forward. We are also seeking early responses to the more detailed questions set out in our Implementation Strategy supporting document.

1.5. Questions for response by **28 October 2010** relate to:-

▪ Data privacy and security;
▪ Consumer protection;
▪ Energy displays and information provision;
▪ The approach to smaller non-domestic consumers;
▪ Responsibilities for customer premises equipment;
▪ Our proposal for a new Smart Energy Code; and

Smart Metering Implementation Programme: Prospectus   27 July 2010

- The establishment and scope of the central data and communications function

1.6. Appendix 1 of the Prospectus lists the full set of consultation questions in one place and sets out the questions for which the deadline for responses is 28 September 2010, and those for which the deadline is 28 October 2010.

1.7. Responses should be sent to:

- Margaret Coaster
- Smart Metering Team, Ofgem E-Serve
- 9 Millbank, London SW1P 3GE
- 020 7901 7000
- smartmetering@ofgem.gov.uk

1.8. Unless marked confidential, all responses will be published by placing them on the websites of Ofgem (www.ofgem.gov.uk) and DECC (www.decc.gov.uk). Respondents may request that their response is kept confidential.

1.9. Respondents who wish their responses to remain confidential should clearly mark the document(s) to that effect and include the reasons for confidentiality. Respondents are asked to put any confidential material in the appendices to their responses. It would be helpful if responses could be submitted both electronically and in hard copy.

1.10. Individual responses and information provided in response to this consultation, including personal information, may be subject to publication or disclosure in accordance with the access to information regimes (these are primarily the Freedom of Information Act 2000 (FOIA), the Data Protection Act 1998 (DPA) and the Environmental Information Regulations 2004).

1.11. In view of this, it would be helpful if you could explain to us why you regard the information you have provided as confidential. If we receive a request for disclosure of the information we will take full account of your explanation, but we cannot give an assurance that confidentiality can be maintained in all circumstances. An automatic confidentiality disclaimer generated by your IT system will not, of itself, be regarded as binding on the Department of Energy and Climate Change or Ofgem. We will process your personal data in accordance with the DPA. In the majority of circumstances, this will mean that your personal data will not be disclosed to third parties.

1.12. Any questions on this document should, in the first instance, be directed to:

- Margaret Coaster
- Smart Metering Team, Ofgem E-Serve
- 9 Millbank, London SW1P 3GE
- 020 7901 7000
- smartmetering@ofgem.gov.uk

Smart Metering Implementation Programme: Prospectus   27 July 2010

1.13. You may make copies of this document without seeking permission. Further printed copies of the consultation document can be obtained from the contact above. An electronic version can be found on the Ofgem website at: www.ofgem.gov.uk. Other versions of the document in Braille, other languages or audio-cassette are available on request.

CHAPTER 2 (responses requested by 28 October except for asterisked questions, where responses are requested by 28 September)

Question 1: Do you have any comments on the proposed minimum functional requirements and arrangements for provision of the in-home display device?

Question 2: Do you have any comments on our overall approach to data privacy?

Question 3*: Do you have any comments on the proposed approach to ensuring customers have a positive experience of the smart meter rollout (including the required code of practice on installation and preventing unwelcome sales activity and upfront charging)?

Question 4: Have we identified the full range of consumer protection issues related to remote disconnection and switching to prepayment?

Question 5: Do you have any comments on the proposed approach to smaller non-domestic consumers (in particular on exceptions and access to data)?

CHAPTER 3 (responses requested by 28 October except for asterisked questions, where responses are requested by 28 September)

Question 6*: Do you have any comments on the functional requirements for the smart metering system we have set out in the Functional Requirements Catalogue?

Question 7*: Do you see any issues with the proposed approach to developing technical specifications for the smart metering system?

Question 8: Do you have any comments on the proposals that energy suppliers should be responsible for purchasing, installing and, where appropriate, maintaining all customer premises equipment?

Question 9: Do you have any comments on the proposal that the scope of activities of the central data and communications function should be limited initially to those functions that are essential for the effective transfer of smart metering data, such as data access and scheduled data retrieval?

Question 10: Do you have any comments on the proposal to establish DCC as a procurement and contract management entity that will procure communications and data services competitively?

Question 11: Do you have any comments on the proposed approach for establishing DCC (through a licence awarded through a competitive licence application process with DCC then subject also to the new Smart Energy Code)?

Question 12: Does the proposal that suppliers of smaller non-domestic customers should not be obliged to use DCC services but may elect to use them cause any substantive problems?

Question 13: Do you agree with the proposal for a Smart Energy Code to govern the operation of smart metering?

Question 14: Have we identified all the wider impacts of smart metering on the energy sector?

Question 15: Is there anything further we need to be doing in terms of our ensuring the security of the smart metering system?

Question 16*: Do you have any comments on the proposals for requiring suppliers to deliver the rollout of smart meters (including the use of targets and potential future obligations on local coordination)?

CHAPTER 4 (responses requested by 28 September)

Question 17*: Do you have any comments on our implementation strategy? In particular, do you have any comments on the staged approach, with rollout starting before DCC services are available?

Question 18*: Do you have any other suggestions on how the rollout could be brought forward? If so, do you have any evidence on how such measures would impact on the time, cost and risk associated with the programme?

Question 19*: The proposed timeline set out for agreement of the technical specifications is very dependent on industry expertise. Do you think that the technical specifications can be agreed more quickly than the plan currently assumes and, if so, how?

Question 20*: Do you have any comments on our proposed governance and management principles or on how they can best be delivered in the context of this programme?

Smart Metering Implementation Programme: Prospectus   27 July 2010

Appendix 2 – Summary of Key Proposals

Design requirements

Approach: The functional requirements will be at a level of detail that will allow technical specifications to be developed by an expert group and, we envisage, notified to the European Commission. Suppliers will then be required by licence to comply with these specifications.

Meter functionality: A set of functional requirements have been proposed that is consistent with the high-level list of requirements previously identified and evolving industry specifications. The functional requirements will be at a level of detail that will allow technical specifications to be developed by an expert group.

Gas valve: The Government's view is that, subject to the consultation, the valve should form part of the minimum requirements for all smart gas meters in the domestic sector. A requirement for a valve is therefore included in the smart metering system functional requirements as set out in the Functional Requirements.

IHD functionality: A minimum set of requirements is proposed, including the need to show current usage (in financial terms and kWh) and historic usage as well as account and tariff information. The IHD should be capable of showing the minimum information set for both fuels. IHDs should also provide some visual, non-numerical way of distinguishing low and high current usage. Electricity usage will be updated every five seconds, gas usage every 15 minutes. Views are sought on whether carbon emissions should also be displayed and on whether a specific obligation is required for suppliers to meet the needs of disabled customers.

WAN communications module: The WAN communications module should be upgradable without the need for the meter to be exchanged.

HAN: Technical specifications for the HAN will be developed by an expert group to provide for interoperability.

Communications Business Model

Scope of DCC: Subject to further refinement and testing with industry we propose that:

- DCC's initial scope will cover secure two-way communications and access control, translation services and scheduled data retrieval (remote reading).
- Meter registration should be brought within DCC's scope but whether it should be part of the initial scope needs further testing.
- Data aggregation/data processing could be included later.
- Supplier Volume Allocation (part of settlement) is not envisaged to be included.

Establishment of DCC: Data and communication services will be included in a single entity on a national basis. DCC will be a licensed entity responsible for the procurement, contract management and delivery of services. DCC's licence will be granted by GEMA following a competitive licence application process.

Governance of DCC: DCC will be regulated through its licence, with details of the interfaces with industry set out in a new Smart Energy Code.

Rollout strategy

Targets: Suppliers will be required to take all reasonable steps to complete the rollout within the target timescale. They will be set appropriate target profiles for rollout. We will work closely with industry to establish more ambitious but achievable targets for the rate at which suppliers must install smart meters.

Local co-ordination: The rollout will be supplier led. It is anticipated that early stages will be driven by customer demand. The programme will continue to investigate and review whether further measures could be introduced for later stages of the rollout in order to increase its effectiveness. To ensure it has the appropriate range of powers during the course of rollout, the Government may propose new provisions in the forthcoming Energy Security and Green Economy Bill.

Consumer experience: Suppliers will be required to develop a code of practice on installation covering practical aspects of the consumer experience. This will cover any additional requirements relating to vulnerable customers. We welcome views on whether there is a role for a dedicated help scheme for vulnerable customers and, if so, how it could be delivered.

Consumer Protection

Remote disconnection/prepayment: Views are sought on a number of proposed areas where additional protection may be needed (e.g. on notification).

Sales on installation: Suppliers should not be able to use the installation visit for unwelcome sales activities.

Access to data: Consumers should be able to access their historical consumption data free of charge in a suitable format.

Cost recovery: Suppliers will not be allowed to impose upfront charges on customers for the smart meters and IHDs that only meet minimum regulatory standards. Suppliers will still be able to offer their customers value-added products and services, such as an enhanced IHD, for an upfront charge or as part of a new tariff package.

Data Privacy and Security

Data privacy: The principle is that "the customer shall choose in which way consumption data shall be used and by whom, with the exception of data required to fulfil regulatory duties". This reflects our view that data control rests with the consumer, while recognising that there are a range of instances when third parties will have a legitimate need to access that data, for example for suppliers to bill customers. In other areas, access to the data should be subject to the customer giving consent.

Embedding privacy and security: A full Privacy Impact Assessment will be developed. The Privacy and Security Advisory Group will provide expert advice and ensure privacy and security issues are appropriately addressed. An initial risk assessment has been carried out and security requirements have been included in the "Statement of Design Requirements" supporting document. The next stage of the programme will focus on developing the risk assessment in further detail and developing assurance and accreditation to establish an end-to-end security model in line with existing security policies and standards. We will develop a set of requirements to feed into specifications for meter manufacturers, as well as licence conditions for suppliers, DCC and, if appropriate, other licensed entities.

Non-Domestic Consumers

Use of DCC: Suppliers or metering service agents would not be required to use DCC for non-domestic meters but could do so if they wished.

Exceptions: No new exceptions are proposed at this stage (beyond those previously identified for "advanced metering" around 2014). Suppliers would be required to take all reasonable steps to complete the rollout. We will consider whether there needs to be any further flexibility for installations of advanced and smart meters.

Regulatory and Commercial Framework

Approach: A new regulatory regime will be established to provide arrangements for the introduction and ongoing operation of smart metering. These regulatory arrangements will be introduced using powers under the Energy Act 2008 to amend existing licences and codes and to create a new licensable activity.

Smart Energy Code: The relationship between DCC and the users of its services will be subject to a new industry Code to be known as the Smart Energy Code. The Code will also be the core of a multiparty agreement giving contractual force to the rights and obligations of the different parties.

Responsibility for WAN module: Suppliers will have responsibility for procuring and installing the WAN module on the basis of a specification defined by DCC.

Responsibilities for maintenance of equipment in customer premises: In the case of customers with separate suppliers for gas and electricity, the supplier that is

the first to install a smart meter (the lead supplier) will have an obligation to share use of the WAN and the HAN with the second supplier and the lead supplier will retain responsibility for maintenance. The sharing arrangement will be reflected in the charges made by DCC to each supplier.

IHDs: The lead supplier will have an obligation to provide an IHD but consumers will be able to opt out if they wish to do so. A second supplier would not need to provide a further IHD if they were satisfied that the information related to their fuel could be displayed successfully on the existing IHD.

Commercial interoperability: The importance of this issue to energy suppliers in the context of expenditure on smart metering systems is fully recognised. We will work with stakeholders to consider whether any additional obligations are needed to support commercial interoperability and what form these might take.

Wider industry reform: We will look to industry to drive forward the changes to wider industry processes (e.g. change of supplier, settlement) enabled by smart metering. We will monitor progress and retain the option for Ofgem as part of its ongoing regulation of the sector, to play a more active role if necessary.

Implementation

Staged approach: We propose a staged approach to implementation, with suppliers having an obligation to install meters ahead of DCC services being available.

Stakeholder engagement: We will establish two expert groups, made up of industry and other experts to consider issues raised in the Prospectus in parallel with this consultation in order to inform decisions. We will establish a new Implementation Co-ordination Group to provide a strategic view across the implementation issues involving key industry and other delivery partners in the programme. We will also continue to engage the full range of stakeholders to keep them fully informed of programme progress and developments.

Timescales: Technical specifications will be confirmed by winter 2011. Mandated supplier rollout will commence in summer 2012. Mandated use of DCC for the domestic sector will commence by autumn 2013.

Appendix 3 – Glossary

A

Access control

The method used to ensure that access to meter data is only available to properly authorised parties.

C

Catalogue

The functional requirements of the smart metering system are brought together in our proposed Smart Metering System Functional Requirements Catalogue (the "Catalogue"). This covers the smart metering system for both domestic and smaller non-domestic sectors.

Code Governance Review

Review of the governance of industry codes carried out by Ofgem. Final proposals and consultation on the proposed licence drafting to implement those proposals were published on 31 March 2010.

Codes

Industry codes establish detailed rules that govern market operation, the terms for connection and access to energy networks. The supply and network licences require the establishment of a number of industry codes that underpin the gas and electricity markets. The electricity codes are: Balancing and Settlement Code (BSC), Connection and Use of System Code (CUSC), Distribution Code, Grid Code, Master Registration Agreement (MRA), System Operator-Transmission Owner Code (STC), Distribution Connection and Use of System Agreement (DCUSA). The gas codes are the Uniform Network Code (UNC), Independent Gas Transporter (IGT) Network Codes, Supply Point Administration Agreement (SPAA).

Commercial interoperability

The terms on which a new supplier can use the meter and related equipment when a customer changes supplier. Achieving commercial interoperability (e.g. the contractual arrangements for use of metering assets on change of supplier) is important in terms of ensuring there are no adverse impacts on supply competition.

Communications service providers

Providers of the communications infrastructure that will carry data to and from smart meters in the domestic sector.

Smart Metering Implementation Programme: Prospectus   27 July 2010

Consumer

Person or organisation using electricity or gas at a meter point.

Consumer Advisory Group (CAG)

The Consumer Advisory Group consists of members from groups representing a broad range of domestic consumers. It was set up to help inform the programme and to promote understanding of key consumer issues, particularly more complex issues that cannot be fully explored through primary consumer research.

Credit mode

Smart meters will be capable of switching between prepayment and credit mode. When operating in credit mode, customers will be billed for their energy after using it.

Customer

Any person supplied or entitled to be supplied with electricity or gas by a supplier.

Customer premises equipment

All smart metering equipment in a customer's home or business.

D

Data aggregation

Involves the aggregation of data from individual meters, and submission to ELEXON for settlement.

DataCommsCo (DCC)

New proposed entity which would be created and licensed to deliver central data and communications activities. DCC would be responsible for managing the procurement and contract management of data and communications services that will underpin the smart metering system.

Data processing

Involves the validation of meter reading data, and the transfer of the relevant information to interested parties.

Data Protection Act 1998

The Data Protection Act defines UK law on the processing of data on identifiable living people. It is the main piece of legislation that governs the protection of personal data in the UK.

Data retrieval

Obtaining a reading (either manually or remotely) from a meter.

Data service providers

Providers of any data service, including data retrieval, aggregation, processing and storage.

Demand-side management

Demand-side management (also known as load management) involves energy consumers managing demand in response to changes in the balance between supply and demand, usually in response to a price signal.

Department of Energy and Climate Change (DECC)

The Department of Energy and Climate Change (DECC) was created in October 2008, to bring together: energy policy and climate change mitigation policy.

Disability Advisory Forum

A group hosted by Ofgem that is attended by a range of organisations representing the interests of people with disabilities.

E

Emergency credit

Credit applied by a supplier when a prepayment meter is out of credit to help the customer avoid interruption.

Estimated bills

Where a supplier is unable to obtain a meter reading, a customer's bill will be estimated based on past usage.

F

Friendly credit

The facility on a prepayment meter to prevent disconnection if credit runs out during defined time periods such as overnight.

Functional requirements

The minimum functions that must be supported by the different elements of the smart metering system to ensure the delivery of the benefits of smart metering. Describes what the smart metering system must do (not how it must do so).

Smart Metering Implementation Programme: Prospectus   27 July 2010

G

Gas and Electricity Markets Authority (GEMA)

The Authority is Ofgem's governing body. It consists of non-executive and executive members and a non-executive chair. The Authority determines strategy, sets policy priorities and takes decisions on a range of matters, including price controls and enforcement. The Authority's principal objective is to protect the interests of existing and future consumers in relation to gas conveyed through pipes and electricity conveyed by distribution or transmission systems. The interests of such consumers are their interests taken as a whole, including their interests in the reduction of greenhouse gases and in the security of the supply of gas and electricity to them. The Authority's powers are provided for under the Gas Act 1986, the Electricity Act 1989, the Utilities Act 2000, the Competition Act 1998 and the Enterprise Act 2002.

Gas valve

A gas valve may be incorporated into a gas meter to regulate the flow of gas into consumer premises. It is distinct from the isolation valve.

H

Home area network (HAN)

The smart metering HAN will be used for communication between smart meters, IHDs and other devices in consumers' premises.

I

In-home display (IHD)

An in-home display is an electronic device, linked to a smart meter, which provides information on a customer's energy consumption.

Interoperability

The ability of diverse systems, devices or organisations to work together (interoperate). See also commercial interoperability and technical interoperability.

K

kWh

Kilowatt-hour is a unit used to measure energy consumption in both electricity and gas. The kilowatt-hour is a unit of energy equal to 1000 watt hours or 3.6 megajoules. Energy in watt hours is the multiplication of power in watts, and time in hours. A 100W light bulb left on for one day will consume 2.4 kWh (0.1*24).

Smart Metering Implementation Programme: Prospectus   27 July 2010

L

Licence

Transporting, shipping and supplying gas; and generating, transmitting, distributing and supplying electricity are all licensable activities. Ofgem grants licences that permit parties to carry out these activities in the GB market. The licences require the establishment of a number of multilateral industry codes that underpin the gas and electricity markets. Licensees need to be signed up as parties to codes in order to operate in the gas and electricity markets (see codes).

Low Carbon Networks (LCN) Fund

As part of the new price control arrangements that run from 1 April 2010 to 31 March 2015, Ofgem has set up a Low Carbon Networks Fund. The Fund will allow up to £500 million of support to projects sponsored by the distribution network operators (DNOs) to try out new technology, operating and commercial arrangements.

M

Microgeneration

Microgeneration is the on-site generation of lower carbon heat and power by individuals, small businesses and communities at a small scale.

N

Network operators

The companies that are licensed by Ofgem to maintain and manage the electricity and gas networks in GB.

Non-domestic sector

For the purposes of this document, we define smaller non-domestic electricity and gas sites as those sites in electricity profile classes 3 and 4 and those non-domestic gas sites with consumption of less than 732 MWh per annum.

O

Ofcom

The independent regulator and competition authority for the UK communications industries.

Smart Metering Implementation Programme: Prospectus   27 July 2010

Ofgem

The Office of the Gas and Electricity Markets (Ofgem) is responsible for protecting gas and electricity consumers in Great Britain. We do this by promoting competition, wherever appropriate, and regulating the monopoly companies that run the gas and electricity networks.

Ofgem E-Serve

Ofgem E-Serve is responsible for Ofgem's support and delivery functions. It focuses on administering environmental programmes and the delivery of sustainability projects such as the Smart Metering Implementation Programme.

Open standards

The European Union definition of an open standard (taken from "European Interoperability Framework for pan-European eGovernment Services") is:

- The standard is adopted and will be maintained by a not-for-profit organisation, and its ongoing development occurs on the basis of an open decision-making procedure available to all interested parties (consensus or majority decision etc.).
- The standard has been published and the standard specification document is available either freely or at a nominal charge. It must be permissible to all to copy, distribute and use it for no fee or at a nominal fee.
- The intellectual property - i.e. patents possibly present - of (parts of) the standard is made irrevocably available on a royalty-free basis.
- There are no constraints on the re-use of the standard.

P

Prepayment mode

Smart meters will be capable of switching between prepayment and credit mode. When operating in prepayment mode customers have to pay for their energy before using it.

Privacy by design

A system that has been designed with privacy in mind from the outset.

Programme

The Smart Metering Implementation Programme.

Smart Metering Implementation Programme: Prospectus   27 July 2010

R

Remote meter functionality

Functions of the meter which can be updated/switched between remotely without the need for direct interaction with the meter.

S

Security by design

Security by design is defined as ensuring that the security of a system is designed from the ground up to be secure. It is an established concept where security risks and issues are identified early in the system's development lifecycle.

Senior Responsible Owner (SRO)

The individual responsible for ensuring that a project or programme of change meets its objectives and delivers the projected benefits.

Small and Medium Users' Group (SMUG)

A forum established by Ofgem for engaging with business customer representatives. SMUG is open to small and medium sized users of energy, for example consumer groups such as the Federation of Small Businesses or the British Chambers of Commerce.

Smart appliances

An appliance that can alter the way in which it uses energy (consumption level or time of use) in response to changes in the balance between supply and demand, usually in response to a price signal.

Smart Energy Code

The proposed new industry code that will cover both gas and electricity and will contain the detailed regulatory, commercial and technical arrangements applicable to smart metering during rollout and on an enduring basis.

Smart grids

Smart grids, as part of an electricity power system, can intelligently integrate the actions of all users connected to it - generators, consumers and those that do both - in order to efficiently deliver sustainable, economic and secure electricity supplies.

Smart meter

In addition to traditional metering functionality (measuring and registering the amount of energy which passes through it), smart meters are capable of two-way communication allowing them to transmit meter reads and receive data remotely.

The proposed minimum functionality of smart meters is set out in the "Statement of Design Requirements" supporting document.

Smart metering regulatory regime

The regime which will provide the arrangements for the introduction and ongoing operation of smart metering. These regulatory arrangements will be introduced using powers under the Energy Act 2008 to amend existing licences and codes, and to create a new licensable activity and a new licence.

T

Tamper alarm

A tamper alarm senses and reports any tampering with the metering system such as removal of the metering case or reversal of current.

Technical interoperability

The capability of systems or devices to provide and receive services and information between each other, and to use these services and information exchange to operate effectively together in predictable ways without significant user intervention. Within the context of the smart metering system, this means the seamless, end-to-end connectivity of hardware and software from customer premises equipment through to DCC, suppliers, network operators and other authorised parties.

Technical specifications

The technical specifications for the smart metering system will be an explicit set of solutions and guidelines as to how the smart metering system will fulfil the functional requirements

Time-of-use tariff

Under a time-of-use tariff, a supplier varies its charges based on when energy is used (e.g. day/night; peak/off-peak; or by season). Such tariffs can be dynamic (changes in real time) or static (changes at predictable times).

Trickle disconnection

Restriction of the flow of energy to a home, allowing the consumer to use limited levels of electricity to cover basic needs such as lighting and the fridge/freezer. It could be used by suppliers as an alternative to full disconnection in cases of non payment by electricity or gas customers.

Smart Metering Implementation Programme: Prospectus   27 July 2010

V

Value-added services

Services beyond the 'core services' necessary for the functioning of the smart metering system, which will be enabled by the smart metering infrastructure.

W

Wide-area network (WAN)

The smart metering WAN will be used for two-way communication between smart meters and DCC (via the WAN communications module in the customer's premises).

X

Xoserve

Xoserve delivers transportation transactional services on behalf of all the major gas network transportation companies, and provides a consistent service point for the gas shipper companies.

Smart Metering Implementation Programme: Prospectus   27 July 2010

Appendix 4 – Feedback Questionnaire

1.1. We consider that consultation is at the heart of good policy development. We are keen to consider any comments or complaints about the manner in which this consultation has been conducted. In any case we would be keen to get your answers to the following questions:

1. Do you have any comments about the overall process, which was adopted for this consultation?
2. Do you have any comments about the overall tone and content of the report?
3. Was the report easy to read and understand, could it have been better written?
4. To what extent did the report's conclusions provide a balanced view?
5. To what extent did the report make reasoned recommendations for improvement?
6. Do you have any further comments?

1.2. Please send your comments on our consultation process to:

Andrew MacFaul
Consultation Co-ordinator
Ofgem
9 Millbank
London
SW1P 3GE
andrew.macfaul@ofgem.gov.uk

URN 10D/732