

Smart Metering Implementation Programme: Regulatory and Commercial Framework

Document type: Supporting Document

Ref: 94h/10

Date of publication: 27 July 2010

Deadline for response: 28 October 2010

Target audience: Energy suppliers and network operators, consumers, consumer organisations and representatives, environmental bodies, meter asset providers, meter asset managers, meter operators and metering and communication equipment manufacturers, academics and other interested parties.

Overview:

This document is one of a number of supporting documents published alongside the Smart Metering Implementation Programme Prospectus.

Implementation of the policy to roll out smart meters to all domestic and smaller non-domestic consumers requires a regulatory and commercial framework. This document sets out the main components of the regulatory and commercial framework proposed. In particular, it sets out more detail on our proposal for a Smart Energy Code to govern smart metering arrangements. It complements the discussion of regulatory and commercial issues that are specific to the rollout strategy, the communications business model and to other topics that are addressed in more detail in the respective supporting documents.

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Context

The Government is committed to the rollout of electricity and gas smart meters to all homes in Great Britain and to the broad delivery framework underpinning the development of policy to date.

On behalf of the Department of Energy and Climate Change (DECC), Ofgem E-Serve has been managing the first phase of a central programme to design and implement new cross-industry arrangements for the delivery of smart metering. Ofgem E-Serve's smart metering work has been undertaken in conjunction with Ofgem's Sustainable Development Division.

The Prospectus represents the joint views of DECC and the Gas and Electricity Markets Authority (GEMA) based on the work conducted so far during the initial phase of the Smart Metering Implementation Programme ('the programme'). It sets out detailed proposals for consultation on the design and delivery of the smart metering system. Alongside the Prospectus, Ofgem is publishing a number of supporting documents which set out in more detail the alternative options considered.

Reflecting the approach adopted to date, the remaining work to scope the regulatory framework will be led by Ofgem E-Serve on behalf of DECC. Later this year, the governance and management arrangements for subsequent phases of the programme will be decided upon.

Associated Documents

DECC and Ofgem have jointly published the Smart Metering Implementation Programme Prospectus. This document is one of a number of Ofgem supporting documents published alongside the Prospectus.

DECC has also published updated impact assessments for the domestic and non-domestic sectors and a paper on disablement/enablement functionality for smart gas meters.

To help inform the programme, Ofgem also commissioned specific research (carried out by FDS) into consumer awareness of, and attitudes towards, smart metering. All documents are available on the Ofgem website at the following location:

<http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=40&refer=e-serve/sm/Documentation>

Table of Contents

Summary	1
Smart metering regulatory regime	1
Smart Energy Code	1
Roles and responsibilities for customer premises equipment	2
Other regulatory and commercial issues	3
Impact on wider industry processes	3
1. Introduction	5
Industry structure and existing regulatory framework for energy metering	6
Structure of this document	8
2. Smart Metering Regulatory Regime	9
Context	9
Purpose	10
Components of the Smart Metering Regulatory Regime	11
Key regulatory and commercial proposals in other supporting documents	13
Impact of smart metering on the existing regulatory framework	15
Transitional arrangements	15
3. Smart Energy Code	16
Proposal for a new Smart Energy Code	16
Development of the Smart Energy Code	18
4. Roles and responsibilities at customer premises	20
Context	20
Roles and obligations in relation to the WAN communications module	21
Responsibilities and obligations in relation to the IHD and information provision via the HAN	22
Responsibilities for installation and maintenance	24
Meter provider of last resort arrangements	27
5. Other regulatory and commercial issues	28
Early movers	28
Commercial interoperability	30
Impact of smart metering on safety inspections	31
In-service performance monitoring of the smart metering system	32
6. Impact on wider industry processes	33
Change of supplier for credit and prepayment customers	33
Time-of-use tariffs	35
Settlement	37
Other industry processes	39
7. Conclusions and next steps	41
Summary of key proposals	41
Next steps	41
Appendices	44
Appendix 1 – Consultation Response and Questions	45
Appendix 2 – Current Industry Code Arrangements	48
Appendix 3 – Indicative Smart Energy Code Contents	50
Appendix 4 – Responsibility for WAN Communications Module and Related Arrangements	53
Appendix 5 – Glossary	56

Appendix 6 – The Authority’s Power and Duties 66

Summary

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

Smart metering regulatory regime

The Energy Act 2008 gave the Secretary of State powers to amend existing licences and codes, and to create new licensable activities to deliver the rollout of smart meters. Many of the detailed arrangements between different parties in the energy sector are currently set out in licences and industry codes. A large part of the work of the programme in the next stages will be to develop the detailed amendments to existing codes and licences that will be needed, while recognising that existing arrangements will need to continue to apply to traditional meters throughout the transition period.

To ensure it has the appropriate range of powers during the course of rollout, the Government may propose new powers in the forthcoming Energy Security and Green Economy Bill.

We also recognise that there will be some differences in the regime for the domestic sector and the smaller non-domestic sector. These are outlined in the “Non-Domestic Sector” supporting document.

As set out in the “Communications Business Model” supporting document, we propose the creation of a new licensable activity related to procurement and contract management functions needed to deliver the central data and communications services. We envisage the granting of a licence to undertake this activity to a company that would act as a data and communications management entity (referred to as DataCommsCo or DCC).

Smart Energy Code

We propose to introduce a new Smart Energy Code to govern the operation of the smart metering system. The new Code would cover both gas and electricity and be the first industry code to span the two sectors. It would contain the detailed regulatory, commercial and technical arrangements applicable to smart meters during rollout and on an enduring basis. The Code would set standards and define specifications for the smart metering system and provide a binding framework to govern the installation, access to, and use of, smart meters. Suppliers, network companies and DCC by licence conditions would be required to comply with the Code, and also to sign a framework agreement to give contractual effect to the Code’s provisions.

While the obligations on DCC would be set out in its licence, the Code would prescribe in detail the relationships between DCC and the users of its data and communications services. The Code would also define the communication and data services that DCC would provide, including services that will enable network operators to develop smart grids.

Creating a new Code should offer significant advantages in comparison to modifying existing industry codes. In particular, given that the smart metering arrangements will cover both the electricity and gas sectors we believe that a common code would make it easier to align processes across the two sectors, and realise the benefits of the smart metering programme in relation to change of supplier for example.

The programme team's proposals for the design of the governance regime of the new Code will be informed by the findings and conclusions of Ofgem's recent review of code governance arrangements.¹ We would expect Ofgem and a range of stakeholders to be involved in the governance of the code. 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.

Roles and responsibilities for customer premises equipment

Through its procurement activities, DCC will provide a wide area network (WAN) that reaches all domestic customer premises. We propose that suppliers will be responsible for the WAN communications module at the customer premises, which will be needed to access the communications network. Suppliers will also have an obligation to provide a home area network (HAN) that enables communications with other smart meters within the premises, an in-home display (IHD) and potentially other devices. We propose that consumers may opt not to have an IHD at the time of the installation but will have the right to change their minds for a period of 12 months.

Our proposal is that the communications equipment (HAN and WAN module) will be common to both meters. Where a customer takes gas and electricity from separate suppliers, the second supplier to install a smart meter at a particular property would have the right to use this common equipment installed by the first supplier. The shared arrangement for the WAN communications module will be taken into account through the payments made by both suppliers to DCC for data and communications services. Dual fuel suppliers will install smart gas and electricity meters and all associated equipment, but there would still be a need to provide for arrangements that allow for sharing in the future to ensure that consumers remain able to select different suppliers for each fuel type.

For the IHD we are proposing that the device should be capable of supporting both fuels. Where a household has two energy suppliers, we propose that the second supplier will be required to provide an IHD, except in cases where they can satisfy themselves that the minimum information set for their fuel is already accessible to the consumer on the existing dual fuel display.

¹ *Code Governance Review - Final Proposals*, Ofgem, March 2010.

Other regulatory and commercial issues

A number of other regulatory and commercial issues also arise from the implementation of the smart metering programme. These include:

- It is important that where suppliers install smart meters before the smart metering rollout mandate is implemented they do so in a way that protects consumer interests, and promotes consumer choice and benefits. Actions which, for example, inhibit customers switching between suppliers may put relevant suppliers in breach of their licence obligations.
- Further, under the staged approach to implementation we propose to require suppliers to start rollout ahead of DCC being established. The programme has proposed measures to reduce the associated risks and to ensure that consumer interests are protected.
- Interoperability (i.e. the terms on which a new supplier can use the meter and related equipment when a customer changes supplier) will become more important as smart meters will have a higher value than traditional meters. We are examining whether additional obligations are required in order to ensure interoperability in the period before DCC starts provision of data and communications services.
- Remote reporting by smart meters may provide evidence that would justify the two year meter safety inspections to become less frequent. Such evidence may trigger requests from suppliers to amend or exempt them from this licence obligation.

Impact on wider industry processes

The introduction of smart metering will impact on a number of existing industry processes:

- The central management of data communication to and from smart meters in the domestic sector will ensure benefits of efficiency and interoperability. It will also provide a basis to simplify and improve industry processes, including the change of supplier process.
- Our ambition is to move ultimately from the current situation, where it can take several weeks for transfers to be completed, to one that could allow customers to switch suppliers on a next day basis subject to appropriate protections.
- Widespread use of certain types of innovative time-of-use (TOU) tariff in the electricity sector will require some changes to the Balancing and Settlement Code (BSC).

- In settlement, there will be scope in gas and electricity to improve profiles, settle more consumers on the basis of metered data (without profiles) and reduce settlement timeframes.

The programme team will look to industry to drive forward changes to wider industry processes enabled by smart metering. As part of its ongoing regulation of the sector Ofgem will monitor progress and take action if required and at the appropriate time.

1. Introduction

1.1. This document outlines the proposed regulatory and commercial framework for the introduction and ongoing operation of the smart metering system. Further details on specific aspects are contained in the relevant supporting documents but are summarised in the body of this document for ease of reference.

1.2. The rollout of smart meters is a complex programme requiring input from across the gas and electricity industry. Although the rollout is to be supplier-led, other parties will also play a role, including a new central data and communications provider (DataCommsCo or DCC), network operators, meter providers and meter operators. The rationale for mandating rollout of smart meters to consumers under the central communications model includes promoting interoperability and supporting competition in supply. The proposed approach will also facilitate the development of smart grids.

1.3. The current regulatory and commercial regime for metering, summarised in the next section, will need to adapt and change in order to ensure that the roles and responsibilities of industry parties are clear, and that each party has the right incentives to help deliver the aims of the smart metering implementation programme. The regime also needs to adapt in a way that allows traditional metering systems to run in parallel with those for smart metering, until such a time as the rollout is complete.

1.4. These considerations have underpinned the development of the regulatory regime across the programme. The nature and form of regulation is integral to the development of our proposed approach in particular areas. For that reason, we have not produced a stand-alone document that describes all the potential changes to regulatory and commercial arrangements. Instead, we describe some of the key elements of the proposed changes to the existing regulatory regime in other supporting documents, including questions for consultation. The key supporting documents are:

- The “Communications Business Model” supporting document describes the proposed approach to establishing DCC. This includes discussion of the alternative regulatory approaches for establishing DCC by granting a licence for a full requirements provider or via a procurement and contract management entity for data and communications, as well as the governance and incentive mechanisms required.
- The “Rollout Strategy” supporting document describes the proposed approach to the smart meter rollout. This includes discussion of the appropriate regulatory arrangements for the requirement to install meters by the target date, potential mechanisms to facilitate local coordination and consumer engagement.
- The “Consumer Protection” supporting document addresses consumer issues around prepayment, disconnection, marketing, and sets out our proposed approach for ensuring protections are fit for purpose.

- The “Data Privacy and Security” supporting document describes the proposed approach to data privacy and security issues.
- The “Non-Domestic Sector” supporting document addresses issues specific to smaller non-domestic consumers² including the role of DCC in this market.
- The “Statement of Design Requirements” supporting document describes the proposed minimum functional requirements for smart metering and associated equipment.
- The “In-Home Display” supporting document sets out the proposed regulatory arrangements and minimum functional requirements for the IHD.

Industry structure and existing regulatory framework for energy metering

1.5. The current energy regulatory framework is structured under two separate legislative frameworks, the Electricity Act 1989 and the Gas Act 1986. The Acts regulate the delivery and supply of gas and electricity to consumers.

1.6. The role of suppliers is to supply gas and electricity to final consumers. Electricity transmission and distribution network operators and gas transporters and shippers deliver energy to the point of supply.

1.7. Both Acts oblige consumers to take their energy through an appropriate meter, which may be provided by the consumer themselves, the gas transporter, the electricity distribution network operator, the energy supplier or other metering service providers.

1.8. The transmission, distribution and supply of electricity, and the transportation, shipping and supply of gas, are activities that can only be undertaken under a licence granted by the Authority, using powers given to it under both Acts. These licences set out obligations that licensees must comply with in undertaking their respective functions.

1.9. In addition to the Acts and licence obligations, there are also a number of mandatory industry codes and agreements to which the licensees must adhere. These codes, for example, set out the commercial and technical arrangements between the network operators and the users of their networks. A list of the current industry code arrangements and related licence obligations is set out in Appendix 2.

1.10. Historically, meter provision was a monopoly activity of the network operators. However, from 2003 for electricity and 2004 for gas, arrangements were put in place

² 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.

to support competition in the provision of meters and metering services. Suppliers, not network operators, were made responsible for providing metering services, supporting the so-called "supplier hub principle". Metering services include meter installation and maintenance (meter operation) as well as the retrieval and processing of data from the meter.

1.11. Suppliers have commercial incentives to ensure that the aggregate amount of energy they supply is matched by the amount of energy which they have arranged to be put on the system. If there is an imbalance, they are paid for any excess and must pay for any deficit at prices linked to the costs incurred by National Grid, as system operator, to keep the electricity and gas systems in balance. That balance is measured on a half-hourly basis for electricity and on a daily basis for gas. The measurement of imbalances and the consequential settlement arrangements are carried out by ELEXON in the electricity sector and by xoserve in the gas sector.

1.12. The Acts require suppliers to supply energy through appropriate meters and to collect and process the meter data for use in settlement. The meter data is also used for consumer billing. The settlement processes are set out in the Balancing and Settlement Code for electricity and the respective Uniform Network Codes (UNC) for the gas transporters³.

1.13. To support the transition to competition in metering services, gas and electricity network operators continue to have an obligation to provide a meter at the premises of domestic consumers if requested to do so. In the gas sector, National Grid Metering continues to own the majority of gas meters and its metering services are subject to price controls.

1.14. In the electricity sector, the Distribution Network Operators (DNOs) are still the most important meter operator in the non half-hourly market. However, following a review of the price controls on DNOs for metering services, the controls on new and replacement meters were allowed to lapse from April 2007 and any such meter provision is currently on commercial terms. Since then there has been the emergence of commercial meter operators.

1.15. Although suppliers are now responsible for metering services, they have obligations to provide metering data to network operators for calculation of network use of system charges and planning purposes.

1.16. As a first step in the introduction of new metering technology, supplier licences have already been modified to require the rollout of advanced meters⁴ by 2014 for larger non-domestic consumers⁵.

³ There are two Uniform Network Codes, one for the independent gas transporters (iGTs) and one for the National Transmission System (NTS) and Gas Distribution Networks (GDNs).

⁴ Advanced meters are defined as meters that can provide measured energy consumption data for multiple time periods (half-hourly for electricity and hourly for gas) and are able to provide the supplier with remote access to such data.

⁵ Electricity customers on profile classes 5 to 8 and gas customers with consumption of 732

Structure of this document

1.17. Chapter 2 covers the need for an updated smart metering regulatory regime and its main components and provides an assessment of the impact of the proposals for smart metering on the current industry regulatory framework. Chapter 3 covers the proposed scope and content of a Smart Energy Code that would govern many of the relationships and interfaces between different industry parties. Chapter 4 discusses the roles and responsibilities for installing and operating equipment to be located on the customer premises.

1.18. Chapter 5 discusses other specific regulatory issues and questions, including:

- Treatment of smart meter installation by suppliers in advance of the national programme (early movers);
- Commercial interoperability of smart meters;
- The implications of smart metering for safety inspections; and
- The impact of smart metering on wider industry processes, including change of supplier, TOU tariffs and settlement issues.

1.19. Conclusions and next steps are set out in the final chapter.

MWh to 58,600 MWh per year.

2. Smart Metering Regulatory Regime

This chapter provides an overview of the proposed regulatory regime for smart metering and a preliminary assessment of the impact of the introduction of smart metering on existing licences and codes.

Question 1: Have we identified all of the key elements that you would expect to see as part of the Smart Metering Regulatory Regime?

Context

2.1. The existing regulatory framework for gas and electricity derives from the privatisation of the industries under regimes created by the Gas Act 1986 and the Electricity Act 1989. The regimes are significantly different in approach in many areas, and licences, codes and industry bodies are all specific to each industry.

2.2. The growth in the dual fuel market has required substantial alignment of the supply licences for gas and electricity but the supporting infrastructure remains very different. For example, in the electricity sector there are 19 separate meter point registration systems, while in the gas sector there is a central system operated by xoserve for the gas distribution networks. The independent gas transporters (iGTs) have their own systems.

2.3. Each industry has its own set of business processes, its own set of data flows and its own communications network. One consequence of this is that when a consumer decides to change supplier, the supplier switching date will be different for gas and electricity, even if the supply remains on a dual fuel basis.

2.4. The current framework offers significant scope for improvement:

- Costs could be reduced by streamlining and harmonising processes across both sectors;
- Timeframes for change of supplier and other processes could be shortened and the customer experience enhanced;
- Infrastructure could be rationalised to eliminate duplication and save money;
- Data quality could be improved, lowering risk and reducing the number of exceptions (which are significant drivers of cost); and
- Improvements in industry processes will also enable savings in the internal business operations of industry participants.

2.5. As explained further below, the smart metering programme cannot address all of these legacy issues but it could be a significant enabler for reform. The delivery of broader industry reforms are outside of the scope of the Smart Metering Implementation Programme and can be addressed through normal industry processes. However, we recognise the key role smart metering could play in energy industry transformation.

Purpose

2.6. A new regulatory regime for smart metering is needed to provide robust regulatory arrangements so that the Government mandate to roll out smart metering to domestic and smaller non-domestic customers can be implemented. Implementation will involve existing licensees, such as suppliers and network operators, and the new DCC, all working together to achieve a common set of objectives. The regime will comprise amendments to existing licences and codes as well as a new licence and code to provide a consistent framework for change.

2.7. More specifically, the new regulatory regime is required in order to:

- Require suppliers to rollout smart metering that meets agreed functional requirements and technical specifications;
- Facilitate the introduction of a new central communications provider (DCC);
- Enable industry change by the introduction of a new code which, for the first time, will be common to the gas and electricity industries;
- Provide a basis for development of smart grids, as well as growth in energy management services, by the establishment of two-way communication links between smart meters and authorised parties; and
- Facilitate delivery of an optimised set of benefits in line with the updated impact assessments.

2.8. The new regime will need to contribute to the programme objectives in the following ways:

- Customers will have access to more detailed data about their consumption of both gas and electricity, empowering them to better manage use of these fuels and thus reduce carbon emissions;
- DCC will offer a platform to enable rationalisation of some of the existing industry infrastructure, avoiding duplication and reducing costs;
- Customers will benefit from streamlining the change of supplier process in terms of enhanced competition and improved experience;
- Data privacy and security will be protected.

2.9. The regulatory regime needs to comply with the following principles of good governance:

- Promote inclusive, accessible and effective consultation;
- Be governed by processes that are transparent and easily understood;
- Be administered in an independent and objective manner;
- Provide rigorous, high-quality analysis of any case for change;
- Be cost effective;
- Contain rules and processes that are sufficiently flexible to allow for efficient change management; and
- Be delivered in a manner that results in a proportionate regulatory burden.

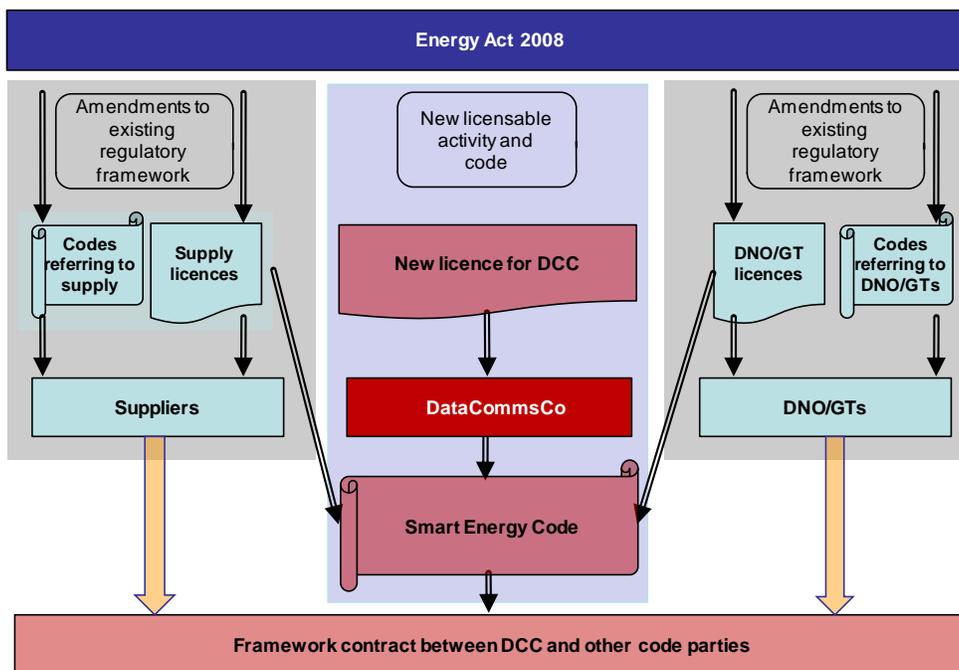
2.10. The Energy Act 2008 introduced new powers that enable the Secretary of State to amend existing licences and industry codes and agreements to facilitate the rollout of smart meters. In addition, the Secretary of State also has powers to introduce a new smart metering licensable activity that will allow for the introduction of a new central communications provider.

2.11. The regulatory regime for smart metering would be established using the following:

- Licence obligations, compliance with which is monitored and enforced by the Authority;
- Industry codes, to which all relevant licensees are obliged to comply under their licence; and
- Compulsory or voluntary codes of practice, to set minimum standards for certain activities of particular parties.

Components of the Smart Metering Regulatory Regime

Figure 1 - Overview of Smart Metering Regulatory Regime



The diagram is not comprehensive and does not show all industry parties. References to codes in the above diagram also include Code bodies.

2.12. Figure 1 provides an overview of the changes to regulatory arrangements that are proposed to be implemented using powers granted to the Secretary of State by the Energy Act 2008:

- Areas with a grey background represent the existing regulatory framework where amendments would be made to enable rollout and use of smart metering systems and to define their functionality;
- The area with a mauve background represents proposed new regulatory instruments (the new DCC licence and Smart Energy Code) and also shows the DCC as the central communications provider;
- The way in which the provisions of the Smart Energy Code will be given contractual force through a framework agreement signed by DCC, the suppliers, the network companies and other users of DCC services;
- Black arrows indicate changes flowing from amendments made using the powers in the Energy Act 2008, which will be binding on suppliers and network companies; and
- Orange arrows indicate contractual arrangements; there should also be an orange arrow between the DCC and the Framework contract but this has been omitted to keep the diagram clear.

2.13. We are proposing that the regulatory regime for smart metering will comprise amendments to the existing regime and new elements as follows:

- New licensable activity: this will require amendments to both the Gas Act 1986 and Electricity Act 1989 using powers provided to the Secretary of State under the Energy Act 2008;
- Licence application regulations: will have to be made to allow for the granting of the new licence to DCC through a competitive process;
- DCC licence: this will set out the obligations with which the DCC will have to comply when delivering its services;
- A number of consequential changes to existing licences and codes arising from the introduction of DCC;
- The regulatory arrangements governing the rollout of smart metering are described in the various supporting documents. These will comprise modifications to supply licences to mandate the rollout, for example, as well as provisions in a new Smart Energy Code, described in this supporting document, and amendments to existing industry codes; and
- Codes of practice, for example, to deal with certain issues during rollout.

Question 1: Have we identified all of the key elements that you would expect to see as part of the Smart Metering Regulatory Regime?

2.14. There will be differences in the regime for domestic customers and for smaller non-domestic customers, as explained in paragraph 2.21 below.

2.15. It is important to recognise that the smart meter rollout will take some time to complete and therefore there will be a number of years when traditional and smart meters co-exist. The new arrangements for smart meters will need to operate in parallel with the existing regulatory arrangement and industry processes during this period. In the non-domestic sector, larger consumers will have advanced meters and smaller ones either advanced or smart meters. Even by the end of the rollout there may still be some arrangements that are specific to advanced meters.

Key regulatory and commercial proposals in other supporting documents

2.16. This section provides a brief summary of the proposed regulatory and commercial changes that will support the smart metering programme. Full details are included in each of the relevant supporting documents.

Rollout strategy

2.17. The smart metering rollout will be led by suppliers. This means that suppliers will be responsible for making all the necessary commercial arrangements on behalf of their customers to ensure that they are supplied with gas and electricity via smart meters. The necessary arrangements include:

- Procuring meters, IHDs and communications equipment to be located in customer premises, and appointing meter installers and meter operators (either in-house or outsourced to third parties) to install and maintain these;
- Supporting the rollout by adapting suppliers' business as usual customer contact arrangements, such as confirming installation times for smart meters; and
- Making the necessary arrangements with DCC to activate communications with the smart meters for domestic consumers (alternative arrangements will be needed ahead of DCC), and with DCC or another communications provider for non-domestic consumers.

2.18. The main regulatory conditions that are proposed with respect to rollout are:

- A licence condition on suppliers to take all reasonable steps to install smart meters to all domestic customers by the target date, with annual interim targets;
- Public reporting on the number of compliant meters installed each year;
- Potential restrictions on unwelcome sales activity (for energy and value-added services) on the day of meter installation visits;
- A requirement for a code of practice setting out service standards during meter installations;
- Reporting on suppliers' aggregate programme costs. The format of this reporting will be developed in the next phase to ensure consistency; and
- Potential requirements to provide customer information and advice.

2.19. To ensure it has the appropriate range of powers during the course of rollout, the Government may propose new powers in the forthcoming Energy Security and Green Economy Bill.

Communications business model

2.20. Suppliers will ultimately be required to use DCC for communications with smart meters installed at domestic premises. As proposed in the "Communication Business Model" supporting document, the initial scope of DCC will include the provision of two-way smart meter communications with secure access control arrangements, and

central provision of translation services and scheduled data retrieval. We consider that there is a case for adding meter registration to this scope but the right timing for DCC to take on this responsibility needs further analysis. The main regulatory and commercial proposals for the establishment of the communications business model are:

- A new licensable activity for the procurement and contract management of smart metering communications and data services;
- A licence to undertake this activity will be granted Following a competitive licence application process set out in Licence Application Regulations. Once the licence is granted, DCC would procure the required communications and data management services;
- DCC will be authorised under its licence to procure and manage a number of service providers being contracted to it to provide the required services;
- DCC will be a single entity with responsibility for national coverage;
- DCC would need to be independent of service providers;
- DCC will be governed by its licence and under the new Smart Energy Code;
- DCC would be allowed to recover the costs related to its contracts with service providers as well as its own costs, plus a profit margin on those costs. DCC's allowed profit margin will depend on its performance;
- DCC will recover its permitted revenues from charges to suppliers, network companies and other users of its services. Its charging methodology will be set out in its licence and the specific charges will be in the Smart Energy Code; and
- The relationship between DCC and its users will be governed by the new Smart Energy Code, described later in this document, to which parties will be bound by licence conditions and by a framework contract.

Non-domestic customers

2.21. The regulatory and commercial framework for smaller non-domestic customers is largely identical to that for domestic customers with the exception that:

- Any sales and marketing protections that may be applied in the domestic sector will not apply, in line with existing licence conditions;
- Different forms of information, advice and support may be needed for non-domestic customers;
- The meter specification will be the same, except there will be no requirement to provide an IHD or a gas valve to non-domestic customers;
- There will be exceptions to the mandate to install smart meters for customers where advanced meters have been installed prior to 2014 or after 2014 under pre-existing contractual arrangements (where the customer wishes to retain these meters), and other exceptions may be made if evidence justifying these is provided;
- Use of DCC for communications will not be mandated initially for non-domestic customers, although the programme will keep this under review in the light of developments in smart grids and the impact on the operation of the market.

Consumer protection

2.22. As smart meters are rolled out across Great Britain, we are committed to ensuring protections are in place which are fit-for-purpose. As part of the "Consumer Protection" supporting document, we are consulting on whether current supply licence obligations relating to disconnection and prepayment are sufficient and appropriate. Subject to the outcome of the consultation, Ofgem intends to introduce any necessary licence amendments in spring 2011. Ofgem will also monitor compliance with, and the suitability of, existing obligations and standards of conduct relating to marketing, and the quality and accessibility of information provided to consumers, particularly as new tariffs and new services are developed.

2.23. In addition, we are considering further steps, including:

- Regulating to ensure that the installation visit is not used for unwelcome sales activities;
- Prohibiting suppliers from imposing upfront charges on customers for the smart meters and related equipment, including IHDs, that they are required to provide;
- The development of a code of practice for meter installation, as described earlier, which would include additional protections for vulnerable consumers;
- Options for providing advice and support to vulnerable consumers, including the scope for establishing a dedicated help scheme to support vulnerable consumers during the rollout; and
- With respect to data privacy, establishing a 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.

Impact of smart metering on the existing regulatory framework

2.24. The proposals for rollout and use of smart meters will have a number of implications for the existing regulatory framework. As proposals for the introduction of smart metering and the role of DCC are firmed up, we will work closely with stakeholders to assess the impact on the existing regulatory framework. We envisage a collaborative approach with stakeholders to assist the programme to develop detailed change proposals for existing licences, codes and agreements.

Transitional arrangements

2.25. As noted earlier, there will be a transition period in which traditional meters will co-exist with smart meters. Regulatory arrangements and industry processes relating to both types of meters will need to be able to operate in parallel for several years. The position of non-domestic consumers with advanced meters and those with smart meters that are not using DCC for communications will also need to be considered.

3. Smart Energy Code

This chapter considers the rationale for the introduction of a new Smart Energy Code to govern the rollout and operation of the smart metering system. It also considers the content of the Code.

Question 2: Do you agree with the proposal to establish a Smart Energy Code?

Question 3: Do you have any comments on the indicative table of contents for the Smart Energy Code as set out in Appendix 3?

Question 4: Do you have any comments on the most appropriate governance arrangements for the Smart Energy Code?

Proposal for a new Smart Energy Code

3.1. We need to implement a regulatory framework to govern access to, and use of, smart electricity and gas meters. The commercial relationships between DCC and users of its communication and data services also need to be defined. The preferred approach to meeting these requirements is to develop a new Smart Energy Code. The Code would be common to gas and electricity, the first code to span the two industries. An alternative approach, by which existing codes were modified to incorporate smart requirements was considered and rejected for the reasons explained below.

3.2. Licensed suppliers and network companies would be required by licence condition to be party to, and comply with, the Code. To ensure the Code has contractual force, there would also be a multiparty framework agreement between DCC and all users of its services, an arrangement common to other industry codes. The agreement would simply bind the parties to comply with the Code and would provide for the accession of new parties. All licensees obliged to comply with the Code would be signatories to the agreement. Contractual mechanisms that may require unlicensed parties to accede to the Code (or comply with the Code) would also be required. This would mirror the arrangements currently in place in respect of the various codes.

3.3. The alternative approach would be to ensure that the objectives of the programme are satisfied by amending existing codes, notably the BSC for the electricity sector and the UNC for the gas sector. It could be argued that this might both be quicker and more cost effective than development of a completely new code. That is, amendment of existing codes might be more practical, and save time and resources.

3.4. However, in reviewing the options we identified a number of significant issues with the option of adapting existing codes. The key considerations were:

- **Contract arrangements supporting the code:** There will need to be contractual arrangements in place to govern the relationships between DCC and the users of its services. Following the models of existing codes, all those bound by a code are also signatories of a framework agreement that gives the code contractual force. If implemented as amendments to existing codes, there would be a number of different framework agreements. DCC would need to sign all agreements related to existing codes which incorporate the relevant requirements and there would be no single point of reference governing relationships between DCC and users of its communications and data services.
- **Governance:** All of the existing codes have governing arrangements that represent the parties who are signatories to the code and other important stakeholders. For example, governance of the UNC involves gas transporters and shippers but not suppliers, while the BSC involves generators and suppliers as trading parties but not network companies. There would therefore need to be separate panels with the right parties having voting rights on matters concerned with smart meters and DCC. This would lead to fragmented governance and add to the challenge of keeping the arrangements aligned across the gas and electricity sector, once the powers of the Secretary of State to modify codes in relation to smart metering have expired.
- **Cost recovery:** Each existing code has its own arrangements for cost recovery. For example, in the case of the UNC, cost recovery is through charges for gas transportation. These existing cost recovery arrangements are not necessarily suited to the cost recovery related to the DCC services and new provisions on cost recovery would need to be inserted in each code.
- **Electricity: Synchronisation and issues arising from separation of electricity and gas:** The smart metering programme is pan-fuel, covering electricity and gas, and, for the most part, the code would be common. If these matters are dealt with in separate codes, under their own governance, synchronisation would be a major challenge. Separation would also be a significant problem in provisions relating to how single fuel suppliers, sharing a single WAN connection, are treated.

3.5. The evaluation of the two broad options is presented below.

- **Consumer impact:** A single Smart Energy Code would ensure that the consumer-related elements are managed in a consistent and holistic manner, whereas modification to the wholesale codes will have less focus on retail matters and therefore the consumer.
- **Cost:** It is difficult to be certain which approach would be a more cost-effective means to set up the initial code. However, it is likely that for future modifications, the endeavour to keep a number of codes synchronised would require more effort and thus cost more than amending one document within a single governance structure. A Smart Energy Code could also provide a basis for rationalisation of some existing code provisions and, potentially, the incorporation of the Master Registration Agreement (MRA) and Supply Point Administration Agreement (SPAA), reducing the overall number of codes.

- **Time:** There is no evidence that modification of existing instruments would be quicker. In both cases, existing codes will need to be modified to a greater or lesser degree. New and/or revised obligations and rules will need to be established. Modification of an existing document could be more complex than preparing a new one.
- **Risk:** The existing codes modification option entails risk in terms of sector (gas/ electricity) divergence and potential for confusion in terms of rights and obligations within the context of the different codes. There are also risks arising from the code modification route if DCC has to become a signatory of several existing codes, in comparison with DCC and all its users being bound by a single agreement.
- **Benefits delivered:** A Smart Energy Code will make it easier to align common processes across gas and electricity and realise the benefits of the smart metering programme in relation, for example, to change of supplier. A new code will provide a more stable foundation for future development with respect to the governance of DCC and the use of smart meters. If the smart metering regulatory regime needs to be updated, having the rules in a single document will make it easier to achieve. A new Code is expected to provide a clear platform for future developments.

3.6. Having carefully analysed the practicality and costs and benefits of the two options, our conclusion is that any savings in time and cost reliant on existing code modifications alone are uncertain, while there are clear benefits in the establishment of a new Smart Energy Code. We are therefore proposing the establishment of a Smart Energy Code.

Question 2: Do you agree with the proposal to establish a Smart Energy Code?

Development of the Smart Energy Code

3.7. The programme will develop proposals for the Smart Energy Code with the assistance of stakeholders. Our proposals for indicative contents of the Smart Energy Code are set out in Appendix 3. The Code may cover, among other things:

- The arrangements governing changes to the Code, including how stakeholder interests will be represented in these arrangements;
- Technical and commercial inter-operability requirements to ensure that smart metering systems provide a robust platform for energy supply competition;
- Details of the communication and data services to be provided by DCC to suppliers, network operators and providers of energy and metering services;
- Arrangements to ensure data protection and security; and
- The implementation of the arrangements for cost recovery, charging methodology, billing and payment.

3.8. It is proposed that development of the Smart Energy Code is taken forward in close collaboration with stakeholders. Relevant experts will be asked to help develop the Code provisions. The resulting draft would then be subject to consultation.

3.9. The Code would be implemented via licence conditions on DCC to adopt, comply with and administer the Code, and obligations on other licensees to become parties and comply with the Smart Energy Code.

3.10. Once in place, the Smart Energy Code will have its own governance arrangements although until November 2013 the Secretary of State retains the ability to make further changes as necessary. The design of the new Code's governance will be informed by the findings and conclusions of Ofgem's recent Code Governance Review.⁶ We expect that DCC will contract with an independent service provider to deliver the administration and secretariat support necessary for the governance of the Code.

3.11. The Code will need to be responsive to developments in the energy industry, and energy markets, and will need robust and efficient mechanisms for modification to address such developments. The governance of the code will need to include modification criteria that reflect key objectives and principles, in order that the Code remains consistent with such principles as it evolves. Consistent with the arrangements for other industry codes, we would expect the governance for the Smart Energy Code to include consumer representation.

3.12. The detailed governance arrangements and principles will be developed by the programme team and industry in the next stage of the programme. 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.

Question 3: Do you have any comments on the indicative table of contents for the Smart Energy Code as set out in Appendix 3?

Question 4: Do you have any comments on the most appropriate governance arrangements for the Smart Energy Code?

⁶ *Code Governance Review - Final Proposals*, Ofgem, March 2010.

4. Roles and responsibilities at customer premises

This chapter discusses a number of issues related to the responsibilities for installation and maintenance of smart meters and related equipment in customer premises.

Question 5: Do you agree with the proposals concerning the roles and obligations of suppliers in relation to the WAN communications module?

Question 6: We welcome views as to which other additional data items should be included in the mandated HAN data set beyond the list for the IHD.

Question 7: Do you agree with the proposal that the WAN and the HAN in customer premises should be shared infrastructure, with the installing supplier retaining responsibility for ongoing maintenance? If not, would you prefer to have an arrangement by which if the gas supplier is the first to install, responsibilities for the common equipment is transferred to the electricity supplier when the electricity smart meter is installed?

Context

4.1. DECC's updated impact assessment identifies that just under half of the benefits of the smart metering programme are expected to come from consumers using the information they will gain from smart meters to take action to reduce their energy consumption.⁷ It will be critical, therefore, that the process of installation and on-going maintenance of smart meters and related equipment in customer premises is a positive experience. The roles and responsibilities for different aspects of the rollout and on-going maintenance of smart meters need to be clear, and designed to provide a smooth and efficient service.

4.2. The installation of smart metering for both the gas and electricity market will require the installation of up to six pieces of infrastructure in customer premises:

- A smart electricity meter;
- A smart gas meter;
- At least one IHD unit;
- A WAN communications module i.e. equipment linking the customer premises to the WAN, allowing remote access to the meter and data within the meter by authorised parties via the communications provider; and
- A HAN –i.e. a local communications system within the customer premises that communicates data from the electricity and gas meters to the IHD and to the WAN communications module. The HAN would also be capable of linking to other devices outside of the scope of the smart metering programme, such as:
 - Generation meters for customers who have a micro-generation capability;

⁷ *Impact Assessment of a GB-wide smart meter rollout for the domestic sector*, DECC, July 2010.

- More advanced forms of IHD or gateways to allow data to be displayed on a personal computer;
- Customer devices for remote management (for example, for load reduction); and
- Other measurement devices such as smart water meters.

4.3. On cost grounds, it would be preferable to have only one WAN communications module per household, transmitting information from both the gas and electricity meters to the DCC. Similar considerations apply to the IHD and the HAN. In contrast to the arrangements for traditional metering, under which electricity and gas meters are independent from one another, elements of the smart metering system could represent shared infrastructure. From a cost perspective, there would be advantages from shared infrastructure but it would pose new challenges where there are, currently or potentially, separate suppliers for each fuel and for cost allocation generally.

4.4. The WAN communications module could either be part of a separate communications box or a detachable module securely coupled with the electricity meter, as discussed in the "Statement of Design Requirements" supporting document. An advantage of the latter approach is that the power source for the WAN communications module comes directly from the current passing through the meter. In situations where a smart gas meter is installed in the customer premises prior to the smart electricity meter, there would be a requirement for a power source for the WAN communications module that is independent of the customer i.e. connected to the mains on the network side of the electricity meter (not the customer side)⁸.

4.5. This chapter now considers:

- Roles and obligations in relation to the WAN communications module;
- Roles and obligations in relation to the IHD;
- Where responsibility for installation and maintenance of the different components of the smart metering system in consumer premises should lie, including the WAN communications module and IHD; and
- Meter provider of last resort arrangements.

Roles and obligations in relation to the WAN communications module

4.6. As noted earlier, we propose that the WAN communications module should be an exchangeable module within the meter casing or be located in a separate box. Both arrangements would allow for the module to be installed and replaced straightforwardly should there be a need in future.

⁸ This assumes that a battery powered WAN communications module attached to the gas meter would not offer sufficient years of service before needing replacement.

4.7. The roles and responsibilities of energy suppliers and DCC's communications service providers with respect to the WAN communications module need to be clearly defined.

4.8. DCC will provide the specification for the WAN communications module as it must communicate with DCC's network. Meters will be installed by energy suppliers and it is they who have the relationship with the customer. Suppliers will therefore be responsible for installation of the WAN communication modules and their replacement if they develop faults. However, responsibility for procurement of the WAN communications module could lie with either the communications service providers or the energy suppliers⁹.

4.9. Appendix 4 examines the issue of procurement and ownership of the WAN communications module in detail. While there are arguments in favour of either one of the candidates having responsibility for the WAN communications modules, the proposal is that, on balance, procurement should be the responsibility of energy suppliers. The principal reasons are:

- Energy suppliers operate in a competitive market, so giving them responsibility will expose the costs of the WAN module to competition; and
- Energy suppliers would in any case be in charge of installation and giving them responsibility for the WAN module means that procurement, unit supply and installation risk are all with the same party.

4.10. There will also need to be clear arrangements for establishing responsibility for faults. This will require arrangements for identifying whether the fault is related to the communications network (and hence a DCC responsibility) or the WAN communications module (and hence a supplier responsibility).

Question 5: Do you agree with the proposals concerning the roles and obligations of suppliers in relation to the WAN communications module?

Responsibilities and obligations in relation to the IHD and information provision via the HAN

4.11. The most visible part of the smart metering system for consumers will be the standalone IHD which will provide near real-time information on their energy consumption in a readily accessible form. This feedback will help consumers take greater control over their energy use, to reduce both their bills and carbon emissions. The Government has decided that all domestic customers should be provided with a display.

⁹ In practice, the responsible party could choose to have an asset provider finance and own the module, as occurs at present in the competitive metering market.

4.12. The proposed roles and obligations with respect to the IHD are discussed in detail in the “In-Home Display” supporting document. In summary, we are proposing that:

- Suppliers should take all reasonable steps at the installation visit to provide their customers with an IHD meeting specified minimum requirements;
- Suppliers should have responsibility to maintain and replace IHDs for at least one year after installation of the smart metering system;
- Where a household has two energy suppliers, the second supplier will also be required to provide an IHD except in cases where they can satisfy themselves that the minimum information set for their fuel is accessible to the consumer on an existing display;
- Where a consumer declines the IHD, there will be a requirement on suppliers to provide the consumer, on request, with an IHD for a year after the initial opt out; and
- For those consumers who had received a smart meter prior to the mandated start of rollout, we propose that suppliers would subsequently be required to provide the consumer with an IHD on request for no upfront charge.

4.13. The “In-Home Display” supporting document discusses the minimum set of information that the IHD would have to display. In summary this is:

- Presentation of information on current electricity and gas consumption;
- Presentation of information on historical consumption so 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. 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); and
- Capability to display information on both gas and electricity consumption.

4.14. As discussed in the “Consumer Protection” supporting document, consumers will be able to access the information on the HAN using a computer (subject to appropriate security arrangements), in addition to using the IHD. It is important that consumers have access to data stored on their meter, 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.

4.15. To support this, we propose that suppliers will have an enduring obligation to ensure that the data set can be accessed by the consumer via the HAN. The IHD data set shown above is a subset of this mandatory HAN data set. Additional data

items may include historical half hourly data stored in the meter, MPAN number, as well as a list of devices connected to the HAN.

Question 6: We welcome views as to which other additional data items should be included in the mandated HAN data set beyond the list for the IHD.

4.16. Our proposals will ensure that all consumers can have an IHD that meets a range of minimum requirements in terms of the information it will provide. We believe that the IHD is an important first step to improving consumers' understanding of their energy usage. We fully expect suppliers and other service providers to innovate around these minimum requirements, for example by providing a wider range of information on usage or additional functions, where this meets consumer demand. As such, these proposals seek to provide sufficient flexibility for suppliers and others to innovate.

Responsibilities for installation and maintenance

4.17. We have not proposed changes to the 'supplier hub' principle where suppliers have responsibility for installation and maintenance of smart meters. This means that the supplier will be responsible for metering and metering services, although it might discharge these responsibilities through an agent.

4.18. If a supplier provides both electricity and gas to a given customer then the responsibility for installation of both the gas and the electricity smart meters is straightforward: the supplier will be responsible for the installation of both meters and associated equipment, namely the WAN communications module, the HAN and the IHD. Normal commercial and market pressures should ensure that these activities are undertaken as efficiently as possible.

4.19. The situation is more complicated when a customer is served by different gas and electricity suppliers. In these cases, the electricity smart meter will be installed and maintained by the electricity supplier and the gas smart meter will be installed and maintained by the gas supplier. This raises the question of which supplier should be responsible for installation and maintenance of potentially shared infrastructure equipment. We have considered three potential options:

- Option 1. Separate smart metering systems are installed for each fuel. This would mean that the opportunity for shared infrastructure could not be taken.
- Option 2. Arrangements are put in place that facilitate the sharing of assets installed by one supplier with the customer's other supplier. Although variants are possible, the key features of this approach might be, for example:
 - The lead supplier, i.e. the supplier that installs its smart metering system first, would be responsible for installation of the shared assets and also the ongoing maintenance of the assets;
 - On installation of the second meter, the second supplier would use the assets of the lead supplier;

- Costs of the lead supplier's WAN communications module would be shared through charges applied by DCC to each supplier. The lead supplier would bear the full cost of the HAN, as it would be administratively complex to share these costs, which are relatively modest in size;
 - The delineation of responsibilities between gas and electricity suppliers remains unchanged if the customer changes one (or both) of its suppliers. That is, if the gas supplier was the lead supplier and the customer subsequently changes its gas supplier, responsibility for provision and ongoing maintenance of the shared WAN and HAN passes to the customer's new gas supplier;
 - The DCC would maintain a database of which fuel supplier would be responsible for the ongoing maintenance of the shared assets. Suppliers, that are not responsible at a particular premises, would have an obligation to notify DCC of any customer reports of faults so that the appropriate supplier could be notified; and
 - If a customer that was previously supplied by a dual fuel provider switches to separate suppliers, then the default position would be that the electricity supplier would be responsible for the ongoing maintenance of the shared assets.
- Option 3. The electricity supplier will be required to install its smart meter and supporting systems in the customer premises ahead of the gas supplier. Under this approach, the electricity supplier would always be responsible for provision and ongoing maintenance of the shared assets.

4.20. Although it would provide for a very clear delineation of responsibilities, a significant issue with Option 1 is that, even if duplicate assets were limited to that part of the market which presently has single fuel suppliers, it would add around £600 million to the costs of the programme. Moreover, there is an argument that it would be necessary to mandate the same approach for all properties to ensure interoperability and no barriers to switching. This would add an estimated £2.1 billion in costs, together with the potential for additional customer disruption, significantly eroding the programme's benefits case¹⁰.

4.21. Option 2 has the benefit of reducing duplication of the smart metering systems within the customer premises and thus reducing costs. It does, however, have the drawback of complicating where the responsibility for installation and maintenance of the meters and supporting systems within the customer premises lies. Furthermore, the responsibility for ongoing maintenance could need to be recorded by DCC in a central database, implying some additional cost.

4.22. Under this option, were a HAN or WAN communication module to malfunction, the lead supplier would be responsible for restoration of the service. However, responsibility for repairs to smart meters that malfunction would lie with the individual supplier.

¹⁰ Estimates derived on the assumption that there would need to be two WAN communications modules, two HANs and two IHDs on all premises that have both electricity and gas supplies.

4.23. As the WAN communications module requires a power source that is independent of the customer, the gas supplier that installs its smart meter before the electricity supplier would also need to install a power supply for the WAN communications module. This has three implications:

- Relative to a scenario in which the electricity supplier installs its smart meter first, there would be some additional cost incurred by the gas supplier;
- Installers of gas meters will also need to be qualified to do any required electrical work; and
- A power supply to a device that is outside the meter is arguably more vulnerable to potential tampering.

4.24. A possible variant of Option 2 is to have an arrangement where if the gas supplier is the first to install, the common equipment is transferred to the electricity supplier later when the electricity smart meter is installed. This would need to happen on standard terms.

4.25. Option 3 has the advantage of avoiding certain additional costs as it would prevent gas suppliers rolling out smart meters ahead of the customer's electricity supplier. A material disadvantage, however, is that this would deny the gas supplier the opportunity to roll out smart meters first or optimise gas smart meter rollout plans and could thus have implications for retail competition and for the delivery of the programme.

4.26. Our evaluation of the options is as follows:

- Customer impact: Option 1 would provide the clearest delineation of responsibilities for installation and ongoing maintenance of the smart metering infrastructure in the customer premises. It would minimise the likelihood of uncertainties over supplier responsibilities impairing the customer experience. However it could lead to customer irritation about the volume of equipment that needs to be installed in the premises. Option 2 would lead to a sharing of assets and allocation of responsibilities for installation and maintenance of relevant equipment between two suppliers. While delineation of responsibilities can be made clear, the complexities of the processes related to this option might adversely affect the customer experience. Option 3 would see the responsibilities more clearly delineated than Option 2. However, as it would prevent the gas smart meter being installed ahead of the electricity smart meter it is likely to inhibit the rollout and early adoption of gas smart meters.
- Cost: Option 1 would lead to significant costs to customers. Option 2 should lead to no, or a very small cost to customers, as a result of the need for DCC to maintain a database. Option 2 will, however, lead to additional costs being incurred by gas suppliers that install gas smart meters ahead of the installation of electricity smart meters. Option 3 should lead to no additional cost to customers.
- Time: Options 1 and 2 should meet the rollout target date. Option 3 could slow the pace of rollout of gas smart meters. In extremis, it could potentially threaten the timely delivery of the programme.

- Risk: Option 1 and Option 3 carry the least risk, as responsibilities are very clearly defined. Option 2 could be more risky as responsibilities will depend on which supplier installs the smart meter in the household first and will vary on a premises-by-premises basis, which might create some uncertainty. However, to mitigate the risks with this option, detailed consideration of responsibilities will be considered in the next stage of our work. Options 1 and 2 might marginally increase the risk of electricity theft as the provision of a separate WAN communications module for the smart gas meter would require an external power source that could be more easily tampered with.
- Benefits delivered: Options 1 and 2 have most flexibility in terms of business model. Option 1 requires limited intervention. Option 2 would require regulatory intervention to set out the detailed arrangements. Option 3 requires regulatory intervention to mandate that the electricity supplier must install its meter first. Option 3 could provide electricity suppliers with an advantage over gas suppliers in retail competition.

4.27. In summary, we reject Option 1 on cost grounds. The choice between Options 2 and 3 requires a trade-off between the greater complexity of Option 2 and the risk of slowing down gas meter rollout under Option 3. On balance, we propose that Option 2 is adopted, although views would be welcome concerning the variant of this option referred to in paragraph 4.24.

Question 7: Do you agree with the proposal that the WAN and the HAN in customer premises should be shared infrastructure, with the installing supplier retaining responsibility for ongoing maintenance? If not, would you prefer to have an arrangement by which if the gas supplier is the first to install, responsibilities for the common equipment is transferred to the electricity supplier when the electricity smart meter is installed?

4.28. Building on the ideas set out above, the programme will work with stakeholders to establish what a workable set of arrangements might look like. These would need to be reflected in licence obligations and/or the Smart Energy Code.

Meter provider of last resort arrangements

4.29. As noted above, network companies in the gas sector are currently required by licence condition to act as meter providers of last resort if requested to do so by a supplier.

4.30. The extent to which these provisions will continue to apply once smart meter rollout starts need to be clarified. We recognise that this has important implications for network companies and we invite views on this issue.

4.31. A review of current metering arrangements is being undertaken by Ofgem. The provisions related to the meter providers of last resort will be reviewed, drawing on the conclusions of the review and views put forward in response to this consultation on the wider issues associated with smart metering.

5. Other regulatory and commercial issues

This chapter discusses a number of other regulatory and commercial issues including the treatment of early movers, commercial interoperability and the impact of smart metering on safety inspections.

Question 8: Are there additional measures that should be put in place to reduce the risks to the programme generated by early movers?

Question 9: What is needed to help ensure commercial interoperability?

Question 10: Can current arrangements for delivering technical assurance be developed to gain cost effective technical assurance for the smart metering system? If so, how would these procedures be developed and governed?

Question 11: Are there any other regulatory and commercial issues that the programme should be addressing?

5.1. This chapter addresses a number of other regulatory issues including some which have wider implications. These are:

- The position with respect to suppliers who install smart meters in advance of the start date for the national programme;
- Commercial interoperability of smart meters; and
- The impact of smart metering on safety inspections.

Early movers

5.2. Issues around early movers have been considered in the context of Ofgem's duties to protect consumer interests and promote supply competition, and the risks and opportunities early movers could create for the success of the programme.

5.3. The proposed approach to implementation aims to accelerate the start of the mandated rollout. Before that time, there are two different groups of early movers:

- Those meters that are rolled out at the commercial risk of the relevant supplier ahead of the smart meters technical specification being confirmed; and
- Those meters that are rolled out once the technical specification has been confirmed but ahead of DCC services being available to the market.

5.4. We recognise that, for their own commercial reasons, suppliers may wish to begin deploying smart meters in advance of the start of the mandated rollout. These plans can add experience to that which is already shaping the development of the Great Britain smart metering programme. Indeed, smart metering trials to date have

provided valuable information and insights, for example in highlighting some practical challenges of installing and operating smart meters¹¹.

5.5. The programme aims to provide certainty over the design specifications of the smart metering solution as soon as practicable and we are looking for ways to accelerate our thinking in this area where appropriate. In the interim, we note that investment in smart meters before the design of the GB smart metering regulatory regime is finalised is undertaken at suppliers' own commercial risk.

5.6. It is important that where suppliers install smart meters before the start of the mandated rollout they do so in a way that protects consumer interests and promotes consumer choice and benefits – goals that lie at the heart of the national programme. Equally, it is important that such activity does not jeopardise the successful delivery of the programme.

5.7. Some consumer issues present themselves differently in the context of smart metering. 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, and we expect suppliers to meet these in full. In addition, given Ofgem's principal duty to protect existing and future consumers' interests, Ofgem will continue to monitor the effectiveness of current consumer protection measures, for example those covering sales and marketing and for vulnerable customers, to ensure these anticipate issues and provide appropriate safeguards.

5.8. The programme has also considered a number of measures to reduce the risks associated with early movers and to support the staged approach to implementation set out in the "Implementation Strategy" supporting document. We propose to introduce the following:

- An obligation on suppliers for metering systems to comply with minimum functional requirements and technical specifications once these are confirmed by the Government;
- The need to develop, with industry, the technical specification as soon as practicable;
- A requirement to help with 'future proofing', that the WAN communications module should not be integral to the meter, so that if necessary it can be replaced without changing the meter;
- Obligations on DCC and supply licensees to facilitate the transition to use of DCC services for access to smart meters within domestic households;
- An obligation on suppliers to provide an IHD, where this was not provided in the case of any early installation, for no up-front charge on request for one year following the mandated start of rollout.

5.9. In addition, Ofgem intends to introduce a package of measures in spring 2011 to provide for the continued safeguarding of consumers' interests. This would help ensure that vital consumer protections in areas such as remote disconnection are in

¹¹More detail on the Energy Demand Research Project can be found on the [Ofgem website](#).

place to deal with early movers. This package could also include measures around interoperability aimed at ensuring consumers will not face barriers in switching.

Question 8: Are there additional measures that should be put in place to reduce the risks to the programme generated by early movers?

Commercial interoperability

5.10. Achieving technical and commercial interoperability has always been seen as important but becomes increasingly so in a smart metering environment.

5.11. The ability to switch supplier is fundamental to protecting consumers and promoting effective competition in the retail energy market. In the very early stages of rollout where suppliers are installing smart meters at their own risk, it has been assumed that it is sufficient if the new supplier can simply use the meter like a traditional meter - and pay charges accordingly. However, for the consumer experience, it will very quickly become important for consumers to be able to continue to use the meter in smart mode on change of supplier.

5.12. The first critical requirement to achieve this is technical interoperability. We see development and implementation of the technical specification for the smart metering system as being a priority and will work with industry to progress this as fast as possible. In the "Implementation Strategy" supporting document we seek views on how this process could be accelerated. We also recognise that the common technical specifications need to deal not just with the meter but also with the "head end" or translation service to ensure that the new supplier can read and use the information provided by the meter. We will work with industry to establish where responsibility for head ends should lie ahead of DCC starting service provision.

5.13. The other critical challenge is agreeing the terms on which a new supplier will take on a smart meter, known as "commercial interoperability". The terms need to cover not just use of the meter (an enduring issue) but also use of the communications (until DCC is in place).

5.14. Establishing an agreed technical specification and a basis for new suppliers to take on meters is important both in ensuring retail competition is not affected but also in giving suppliers and investors the confidence to invest in the new meters. Without that the concern is that any investment could be stranded.

5.15. We recognise the importance of this issue and will work with industry to agree how it can be best resolved. Ofgem has initiated a review of the current metering arrangements in April 2010 which should help inform our thinking on what obligations may be needed to facilitate interoperability. If necessary, Ofgem could introduce new interoperability obligations as part of a package of consumer protection measures in the first part of 2011. However we are cautious of moving to a situation where regulated rates are set for the transfer of meters in what is

currently a competitive metering market. An alternative could be the introduction of a licence obligation to secure interoperability.

5.16. In addition to the commercial terms it is anticipated that changes may be needed to data flows and processes to ensure that meter asset owners can keep track of which supplier is using the assets at any time. Some of these arrangements are set out in industry codes and we would expect industry to bring forward amendments to address any issues ahead of the new Smart Energy Code being put in place.

Question 9: What is needed to help ensure commercial interoperability?

Impact of smart metering on safety inspections

5.17. Suppliers are required to inspect meters every two years for damage, interference or anything that might affect their safety and proper functioning. At present these inspections are usually done at the same time as a meter reading. They can pick up issues such as non-compliant installations, damage due to meter tampering, corrosion in gas meters allowing gas to escape or arcing due to insulation breakdown in electricity meters.

5.18. Following Ofgem's Supply Licence Review in 2006/7 some changes were introduced to the "must-inspect" obligations in respect of gas and electricity meters. As a result, gas supply licence condition 12.8 requires that, *'Unless the Authority otherwise consents, the licensee must take all reasonable steps to ensure that it inspects, at least once every two years, any Gas Meter and associated installation in respect of premises at which it is the Relevant Gas Supplier'*. Electricity supply licence condition 12.14 requires that, *'Unless the Authority otherwise consents, the licensee must take all reasonable steps to ensure that it inspects, at least once every two years, any non-half-hourly meter in respect of premises at which it has at all times during that period been the Relevant Electricity Supplier'*.

5.19. In future, as smart meters will be read remotely, safety inspections will have to be done for this purpose alone. According to the DECC impact assessment, the average annual avoided cost of a visit to read a credit meter is £6 million, so changing the frequency of the safety visit has a cost saving potential.

5.20. If a lower frequency of inspection were to be agreed, there would be a favourable impact on the business case. Some suppliers may therefore wish to make a case for less frequent safety visits for smart meters on the basis that alerts built into the meter will, to some degree, take the place of a visual inspection. The most obvious example is alerts related to potential meter tampering.

5.21. The relevant licence obligation permits a supplier to request exemption from the two-year must-inspect obligations. The onus is on the supplier to present evidence to the Authority that demonstrates that the Health and Safety Executive (HSE) has been consulted and that any concerns they may have raised have been

addressed. In considering any application, the Authority would have regard to a number of issues, including how customers will be affected and whether safety will be compromised. As a part of the Supplier Licence Review discussion around the metering licence conditions, the HSE confirmed that it is prepared to consider reform; however, any changes should be risk and evidence based and should not result in any reduction in existing levels of safety, and preferably improve safety standards.

5.22. Ofgem will keep a watching brief on this issue and review the need for action.

In-service performance monitoring of the smart metering system

5.23. The rollout of smart metering in the domestic sector will require the introduction of smart metering equipment into a new environment, such as the customers' premises. We believe it is important to monitor the performance of this new equipment in order to ensure consumer confidence and identify any potential problems with equipment failure, both in early life and longer term, and operational issues such as unintended interaction with unrelated equipment.

5.24. We recognise that gaining technical assurance for the smart metering equipment is key to maintaining public confidence and maintaining benefits enabled through smart metering. We propose to consider this important aspect as part of the work of the Smart Metering Design Expert Group. We acknowledge that industry has worked with the National Measurement Office (NMO) and Ofgem to develop voluntary in-service monitoring of meter accuracy and that ELEXON operates technical assurance procedures for electricity half hourly metering systems. However, we recognise that smart meter technical assurance goes much further than meter accuracy and for metering systems used in the half hourly electricity market. SMDG will consider the potential to co-ordinate approaches and whether a voluntary approach will meet the needs of the programme.

Question 10: Can current arrangements for delivering technical assurance be developed to gain cost effective technical assurance for the smart metering system? If so, how would these procedures be developed and governed?

Question 11: Are there any other regulatory and commercial issues that the programme should be addressing?

6. Impact on wider industry processes

Smart metering will impact on a number of existing industry processes and activities. This chapter outlines the impact in four areas and describes some of the changes that may be required to realise the full benefits of smart metering.

Question 12: What evolution do you expect in the development of innovative time-of-use tariffs? Are there any barriers to their introduction that need to be addressed?

Question 13: Are there changes to settlement arrangements in the electricity or gas sectors that are needed to realise the benefits of smart metering?

Question 14: What arrangements would need to be put in place to ensure that customers located on independent networks have access to the same benefits of smart metering as all other customers?

Question 15: Are there any other industry processes that will be affected by smart metering and which the programme needs to take into account?

6.1. This chapter considers the impact of smart metering on wider industry processes. The following areas are addressed:

- The change of supplier process for credit and prepayment customers;
- The development of TOU tariffs;
- Reforms to settlement in electricity and gas to enable the benefits of smart meters; and
- Other industry processes.

6.2. We note that delivering of broader industry reforms are outside of the scope of the Smart Metering Implementation Programme and can be addressed through normal industry processes. Nevertheless, we recognise the key role smart metering could play in energy industry transformation.

Change of supplier for credit and prepayment customers

6.3. Typically, a customer request to change supplier takes about 5-6 weeks to be confirmed.¹² Part of this time is required to respect mandated cooling off periods and to give the existing supplier the chance to object, for example where the consumer owes significant sums for energy consumed. These periods will not be impacted directly by smart metering. However, part of the time to change supplier is related to the operation of central industry processes, including the gas registration processes and the appointments of agents to obtain electricity meter readings or estimates, and the possibility of dispute between the old and new supplier that arises in relation to this data.

¹² Under the Third Package of EU Directives, consumers should be able to switch supplier in 3 weeks. DECC are currently considering what steps are needed to implement the Third Package.

6.4. Smart meters will enable suppliers to obtain an accurate reading on the supplier switching date. With more accurate information, there should be less need to investigate and resolve exceptions or correct estimated data. Accurate billing is also likely to reduce the number of consumers with significant debt and thus the number of occasions on which valid objections to change of supplier can be raised.

6.5. Some benefits related to change of supplier may depend on the scope of DCC activities discussed in the "Communications Business Model" supporting document. The minimal scope would provide accurate meter readings on change of supplier. However, general improvements in the quality and scope of information may depend on whether gas and electricity smart meter registration arrangements are centralised within DCC¹³ and whether information is reviewed against that held in the existing registers (maintained by each distribution business for electricity and by xoserve and the iGTs for gas)¹⁴.

6.6. Alignment of the gas and electricity processes, so that dual fuel consumers could have supplies of both fuels start on the same day following change of supplier, would also require centralisation of meter registration and harmonisation of the process across the two sectors. We consider that the objective should be for the central systems to be able to support a request for a switch to take place the following day in both gas and electricity, subject to appropriate consumer protections.

6.7. The change of supplier process is more complex in the case of prepayment meters. There is a long history of problems with misdirected payments where, having changed supplier, the consumer continues to use their old key or card when topping up and the payments they make are, as a result, sent to the wrong supplier. There are also practical issues with how to deal with any outstanding credit on the meter at the time the customer switches supplier. Smart metering presents a real opportunity for these processes to be simplified and improved. There will be steps that suppliers can take unilaterally to improve the processes but there will be other changes that will require suppliers to work together to improve current arrangements.

6.8. In summary, rollout of smart meters and the establishment of DCC will offer considerable potential to reduce the time required to change supplier, harmonise the processes for gas and electricity and improve consumers' experience. The role of the programme will be to ensure that DCC incorporates any necessary elements to enable the changes required. We would then expect the industry to take forward any changes under normal industry processes.

¹³ The thinking is that such a register would apply initially only to smart meters but that later in the rollout, as the number of traditional meters shrinks and unit cost for registration rise, there might come a tipping point at which full migration would be justified.

¹⁴ There would be implications for the existing price controls if these responsibilities were to be transferred to DCC, other than as an agent of those who presently have the obligation to provide the registration systems.

Time-of-use tariffs

6.9. The wider adoption of innovative TOU tariffs to reduce peak demand, conserve energy and defer network reinforcement is a significant component of the revised impact assessment, accounting for around 6 per cent of the benefits. The impact assessment only considers benefits from TOU tariffs in the electricity sector; as gas can be stored, applicability of tariffs with daily price variations in the gas sector is likely to be more limited.

6.10. The rollout of smart metering will facilitate wider introduction and use of TOU tariffs. The meters will be remotely configurable to apply different tariffs for different time periods, removing the need to fit a new meter. Consumers will be better able to respond to the incentives using the information on their IHD.

6.11. There are two broad forms of TOU tariffs that can be used to provide incentives to consumers:

- Static tariffs: different tariff rates apply in different periods of the day and, potentially, on different days of the week. Consumption in these periods is recorded on different registers in the meter. The times are defined with the tariff option and remain unchanged during its application; and
- Dynamic tariffs: different tariff rates apply in different periods of the day and on different days of the week. Consumption in these periods is recorded on different registers in the meter. The days and times of applicability are not pre-defined but declared shortly before real time, subject to guarantees that the higher cost periods will have a maximum duration¹⁵. An alternative approach is for the tariff to track wholesale prices in real time so that the price, rather than the period of applicability, is dynamic, but this would pass considerable risk to consumers and is therefore less likely to be adopted in the domestic market¹⁶.

6.12. Suppliers will only have an incentive to offer such tariffs if the settlement arrangements mean that suppliers are credited for encouraging more use in low cost periods or less use in critical periods. This requires customers' consumption to be allocated to the appropriate settlement period. Currently, where meters are only read a few times a year, settlement is carried out on the basis of assumed usage profiles. There is a choice between a standard domestic profile and one for electric storage heating supplied on an off-peak tariff. Smart meters offer suppliers the opportunity to settle accurately on a half-hourly basis and therefore to offer the customers a wide range of tariffs that would introduce incentives to shift consumption from peak periods. However, there may be barriers to adoption of half-hourly settlement for the domestic sector, including:

¹⁵ An example is the Tempo tariff used in France under which there are peak and off-peak periods in each day and each day has a different colour, announced the day ahead. Tariffs for each period on each type of day are published in advance and are unchanged throughout the year. Consumers are guaranteed that there will be no more than a certain number of the more expensive days.

¹⁶ However, new technology may enable consumers to configure suitable appliances to adjust automatically at pre-determined price levels, using the HAN for communication.

- Half-hourly settlement may cost more than remaining in the non-half-hourly market. To be settled in the half-hourly market, half-hourly settlement arrangements are mandatory for larger non-domestic sites and elective for smaller sites. Currently it costs £8.40 per annum in BSC charges to be settled in the half-hourly market, and agent and communication charges add substantially to this amount. While the agent and communications costs are expected to reduce once DCC is established, in the context of wider adoption of half-hourly settlement, some differential may remain; and
- Some customers may have concerns on privacy grounds that half-hourly interval metering will mean sending information about their actual profile of consumption to their supplier or their agents. Our proposals for addressing privacy concerns are set out in the "Data Privacy and Security" supporting document.

6.13. In practice, a wide range of static TOU tariffs could be introduced within the current non-half-hourly market settlement arrangements. This is possible because settlement software allows up to 48 different registers to be used if the metering systems can be so configured¹⁷. Smart metering will offer this flexibility and it will be possible to configure meters remotely in this way.

6.14. Subject to required changes to the BSC, it would also be possible to offer a range of dynamic tariffs¹⁸ without the meter point having to move to the half-hourly market. The changes required concern the need for new arrangements to notify the register switching times (at present it is only the teleswitch notification agent that can do this)¹⁹. Greater changes to settlement would be needed if the switching periods were very short or frequent (approaching the half-hour settlement period) or if the number of different time profiles, and other factors defining the different settlement configurations, were to increase significantly.

6.15. A final consideration is that smart meters will also offer network operators the opportunity to introduce TOU tariffs for network use. The recently introduced Common Distribution Charging Methodology (CDCM) for low voltage and high-voltage distribution networks already provides for charging in three colour-coded charge bands for current half-hourly customers. This could be extended to customers with smart meters whose suppliers elect to be settled using half-hourly interval data. Suppliers would have a choice about whether to reflect the distribution charges in a TOU consumer tariff or to average the charges based on an assumed profile.

6.16. Based on the above assessment, suppliers already have options to introduce TOU tariffs and greater flexibility will be enabled as smart meters begin to be rolled out. Industry is able to propose adjustments to the BSC that may be required to

¹⁷ To the extent that the timeslots represented in the registers span more than a single half hour, the energy in the register must be allocated to settlement periods using one of the existing profiles.

¹⁸ For example, tariffs where the applicability of a higher price period is only notified a few hours ahead of real time to reflect challenges in the supply-demand balance and/or an expectation of high power prices in the market.

¹⁹ For further information see *Limitations of the Current Settlement Arrangements for Dynamic Tariffs*, Elexon, September 2008.

permit dynamic TOU tariffs, including those with very short notice or application periods.

6.17. Ofgem is looking more broadly at demand-side response and has recently published a discussion paper on the issues²⁰. In so far as barriers to take up of TOU tariffs concern settlement we would expect them to be taken forward outside the programme as discussed in the next section. However we would welcome views on any barriers that the Smart Metering Implementation Programme needs to address. The "Consumer Protection" supporting document discusses the consumer protection issues associated with such tariffs and the need for consumers to assess the suitability of such tariffs where offered.

Question 12: What evolution do you expect in the development of innovative time-of-use tariffs? Are there any barriers to their introduction that need to be addressed?

Settlement

Electricity

6.18. We understand that smart metering, in and of itself, is unlikely to have major implications for the central electricity settlement systems. However, smart metering has important implications for both the role and systems of the supplier agents responsible for Data Collection (DC) and Data Aggregation (DA) under the BSC.

6.19. Smart metering will make it easier for suppliers to move smaller non-domestic and domestic customers to the half-hourly market and have their meters settled using interval data, subject to provisions to ensure data privacy and consumer protection. If such a migration were to take place, the consequences would be:

- The systems of half-hourly DC and DA agents would need to be reinforced as they are currently sized for only some 100,000 meters; and
- Certain settlement parameters, notably those that determine the allocation of the Grid Supply Point correction factor to different market segments, would need to be reviewed by industry. There may also be other code changes required.

6.20. With data retrieved remotely through smart meters, it may make economic sense to centralise the DC/DA function in electricity at some point. Centralisation of these activities could achieve economies of scale and remove the need for each supplier to have its own systems and processes.

6.21. It is clear, however, from the stakeholder feedback that there are many arguments for and against the scope of DCC including additional data management activities, such as data aggregation in due course. In parallel with this consultation,

²⁰ *Demand Side Response*, Ofgem, 15 July 2010.

we will take forward further analysis of DCC's scope of activities with the assistance of stakeholders through a Data and Communications Expert Group.

6.22. Delivering of broader settlement reforms are outside of the scope of the Smart Metering Implementation Programme and can be addressed through normal industry processes. The programme will keep this under review and should the case be made for further changes, would seek to bring these forward through normal industry changes or further legislation.

6.23. It is noted that ELEXON has already issued a consultation in May 2010²¹ on the perceived barriers to settling non-half-hourly supply points on a half-hourly basis where an advanced or smart meter has been installed.

6.24. An additional example of the benefit of smart meters relates to the time needed for reconciliation settlement runs. With frequent, accurate meter data, there will be a need for fewer reconciliation runs. Once the rollout of smart meters is completed, the overall settlement schedule could be shortened from the present timescales.

6.25. Finally, smart meters offer the scope to use much more recent information on which to base the standard profiles used in the non half-hourly market. Currently, these are based on survey data that can be up to two years old. As noted earlier, ELEXON have set up a Profiling and Settlement Review to assess the implications and to decide what changes need to be made.

Gas

6.26. Xoserve operates the gas settlement systems and procedures defined by the UNC. The industry, with xoserve, has been considering revisions to the gas settlement arrangements in the light of the introduction of advanced and smart metering.

6.27. The settlement rules for small gas supply points (predominantly domestic) are referred to as 'Reconciliation by Difference'. This approach profiles a supply point's daily consumption based on the Annual Quantity (AQ) of gas expected to be used. This figure is calculated once a year based on the meter reading history.

6.28. Under the gas governance arrangements, the industry is currently undertaking an assessment of requirements to replace or update the main systems that support the UNC (known as Project Nexus). In this context, there are workgroups considering the business rules for gas allocation, AQ determination and reconciliation with gas off-take. There are indications that industry may wish to move away from Reconciliation by Difference towards meter point reconciliation (as is currently used for larger supply points), more frequent updates of AQ and much greater use of allocation based on daily meter readings. To be capable of accepting more daily meter readings, xoserve's systems would need to be updated.

²¹ *Profiling and Settlement Review*, ELEXON, May 2010.

6.29. The programme expects that industry will bring forward modification proposals under the relevant codes to take account of the impacts on settlement discussed here. These will be discussed at the relevant code panels and then submitted to the Authority. The launch of a consultation process by ELEXON and the work done by xoserve and the Joint Office is evidence that this process is already starting.

6.30. We will monitor progress made by industry, both with respect to electricity and gas, and whether important changes, needed to realise the benefits of smart metering, and the corresponding modification proposals are being put forward by industry in a timely manner.

Question 13: Are there changes to settlement arrangements in the electricity or gas sectors that are needed to realise the benefits of smart metering?

Other industry processes

6.31. Currently independent distribution network operators (iDNOs) and iGTs manage their own meter registration systems. Smart meters will be rolled out to all customers, including those located on the independent networks. Therefore, even if DCC's scope does not include meter registration services initially, DCC would still need access to each registration system in Great Britain (including those of iDNOs and iGTs) to support its functions.

6.32. Robust interfaces will have to be established with these registration systems to provide secure access control to smart meters and facilitate effective change of supplier processes. Further, these registration systems, and all other relevant systems and processes, would need to be capable of facilitating access for customers on independent networks to benefits (such as TOU tariffs) that are offered to consumers more widely. This will be important to ensure that the benefits of smart metering are available to all customers.

6.33. There is also a related question as to whether it would be appropriate, once the smart meter roll out is complete, for iGTs to continue to operate with their own distributed systems and processes or whether they should be required, as Gas Distribution Networks (GDNs) are, to use common central systems.

Question 14: What arrangements would need to be put in place to ensure that customers located on independent networks have access to the same benefits of smart metering as all other customers?

6.34. The full implications of the ways in which smart meters may help industry processes have not been fully explored. One area that the programme has not yet considered in detail is revenue protection. Smart meters are able to send out alerts in the event that tampering is detected and these will be received by DCC and passed to suppliers and network operators. Responsibility for follow-up action will

need to be clear and there may be implications for existing codes and for the way that the costs are recovered.

6.35. Views are welcome on other industry processes that are likely to be impacted by smart meters.

Question 15: Are there any other industry processes that will be affected by smart metering and which the programme needs to take into account?

7. Conclusions and next steps

This chapter summarises the main components of the regulatory and commercial framework proposed and next steps.

Summary of key proposals

7.1. We propose to establish a new regulatory regime to 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.

7.2. The key proposals set out in this supporting document are:

- The relationship between DCC and the users of its services will be governed by a new industry code to be known as the Smart Energy Code.
- Suppliers will have responsibility for providing the WAN communications module on the basis of a specification defined by DCC.
- In the case of customers with separate suppliers for gas and electricity, the supplier that is first to install a smart meter (the lead supplier) will have an obligation to share use of the WAN communications module with the second supplier and the lead supplier will retain responsibility for maintenance. The sharing arrangement will be reflected in the charges paid to DCC by each supplier.
- The issue of commercial interoperability becomes even more important to both energy suppliers and their customers in the context of the higher costs of smart metering systems, compared to traditional metering. We will work with industry to develop a proposed solution building on responses to Ofgem's Review of Metering Arrangements and the wider issues raised in this consultation. We will then consider whether any additional obligations are needed to support commercial interoperability.
- We believe that a wide range of static TOU tariffs could be offered without any requirement to settle in the half-hourly market. A change in the BSC is necessary to enable the development of dynamic TOU tariffs. We expect these changes to be brought forward by industry as part of normal code governance arrangements and will keep the consumer protection issues associated with such tariffs under review.
- The implications of smart meters for settlement have been reviewed by the programme team and are also being actively considered by the industry through ELEXON and xoserve.

Next steps

7.3. The key activities in relation to the development and implementation of the Smart Metering Regulatory Regime relate to:

- Development of detailed proposals for changes to existing licences and codes;

- Development of the new Smart Energy Code;
- Defining the scope of the smart meter
- Enabling rollout mandate, including the development of the detailed rules for roles and responsibilities for equipment at customer premises; and
- The preparations to establish DCC.

7.4. Further detail on the implementation timeframes related to the above activities is given in the "Implementation Strategy" supporting document.

Smart Energy Code

7.5. In order to implement the Smart Energy Code, a number of activities will need to be undertaken. The programme together with industry will need to review existing codes, agreements and processes with respect to the impact of DCC, as well as regarding all other aspects of the programme (e.g. design requirements, rollout and consumer protection).

7.6. Preparatory work on the Smart Energy Code will take place in parallel with the review of the impact on the existing regulatory framework. The Code will set out the detail of the technical and commercial arrangements between DCC and users of its services. It will also contain the governance arrangements that will determine how the Code itself will be managed and modified.

7.7. Development of the Code will be informed by the detailed design work in later stages of the programme and will require significant involvement of stakeholders.

7.8. The Smart Energy Code will be developed using two expert groups comprising a range of stakeholders and chaired by Ofgem, in the next stage of the programme. The two expert groups will develop the Code provisions in their respective areas. The combined draft would then be subject to consultation. These expert groups are described in more detail in the "Implementation Strategy" supporting document. The timetable and the terms of reference for the development of the Code will be developed in detail by the programme. We aim to establish the expert groups shortly so that preparatory work can begin as soon as practicable.

7.9. It is to be noted that the Code itself will need to be developed to a significant degree to allow DCC to be established.

Managing rollout

7.10. Enabling rollout will involve work to establish the technical specifications for smart meters and to prepare the relevant licence modifications needed to define the obligations on suppliers in respect of the rollout of smart meters.

7.11. The programme will work with stakeholders to establish an appropriate set of arrangements for roles and responsibilities for equipment at customer premises,

building on the approach set out in this document. These will be reflected in licence obligations and in the Smart Energy Code.

Establishment of DCC

7.12. The programme will take forward the development of the key documents required to establish DCC, comprising:

- The prohibition order for the new licensable activity;
- The new DCC licence (and the Smart Energy Code);
- Licence application regulations for grant of the DCC licence; and
- The identification of the consequential amendments to existing licences and codes.

7.13. More detail is set out in the "Communications Business Model" supporting document.

Reform of wider industry processes

7.14. In relation to wider industry processes impacted by smart metering, we expect industry to bring forward proposed modifications to existing arrangements. We will monitor the situation to ensure adequate proposals are put forward in a timely manner and will consider bringing forward proposals under normal industry change processes or further primary legislation as necessary.

Appendices

Index

Appendix	Name of Appendix	Page Number
1	Consultation Response and Questions	45
2	Current Industry Code Arrangements	48
3	Indicative Smart Energy Code Contents	50
4	Responsibility for WAN Communications Module and Related Arrangements	53
5	Glossary	56
6	The Authority's Powers and Duties	66

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. 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. These detailed questions sit behind the more high-level questions contained in the Prospectus.

1.3. Responses should be received by **28 October 2010** and should be sent to:

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

1.4. 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.

1.5. 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.

1.6. 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).

1.7. 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.

1.8. 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

1.9. 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

Question 1: Have we identified all of the key elements that you would expect to see as part of the Smart Metering Regulatory Regime?

CHAPTER 3

Question 2: Do you agree with the proposal to establish a Smart Energy Code?

Question 3: Do you have any comments on the indicative table of contents for the Smart Energy Code as set out in Appendix 3?

Question 4: Do you have any comments on the most appropriate governance arrangements for the Smart Energy Code?

CHAPTER 4

Question 5: Do you agree with the proposals concerning the roles and obligations of suppliers in relation to the WAN communications module?

Question 6: We welcome views as to which other additional data items should be included in the mandated HAN data set beyond the list for the IHD.

Question 7: Do you agree with the proposal that the WAN and the HAN in customer premises should be shared infrastructure, with the installing supplier retaining responsibility for ongoing maintenance? If not, would you prefer to have an arrangement by which if the gas supplier is the first to install, responsibilities for the common equipment is transferred to the electricity supplier when the electricity smart meter is installed?

CHAPTER 5

Question 8: Are there additional measures that should be put in place to reduce the risks to the programme generated by early movers?

Question 9: What is needed to help ensure commercial interoperability?

Question 10: Can current arrangements for delivering technical assurance be developed to gain cost effective technical assurance for the smart metering system? If so, how would these procedures be developed and governed?

Question 11: Are there any other regulatory and commercial issues that the programme should be addressing?

CHAPTER 6

Question 12: What evolution do you expect in the development of innovative time-of-use tariffs? Are there any barriers to their introduction that need to be addressed?

Question 13: Are there changes to settlement arrangements in the electricity or gas sectors that are needed to realise the benefits of smart metering?

Question 14: What arrangements would need to be put in place to ensure that customers located on independent networks have access to the same benefits of smart metering as all other customers?

Question 15: Are there any other industry processes that will be affected by smart metering and which the programme needs to take into account?

Appendix 2 – Current Industry Code Arrangements

1.1. There are currently twelve industry codes and agreements covering different segments of the energy market. The requirement for the establishment and maintenance of these codes is set out in the network operator's licences with the exception of the MRA and the SPAA.

1.2. Table A2.1 below sets out the code name, licence obligation and segment of the market that it covers.

Table A2.1 – Current industry code arrangements

Code	Sector	Licence obligation	Segment
Uniform Network Code (UNC)	Gas	National Transmission System (NTS) and Gas Distribution Networks (GDNs)	Connection, Use of System, Balancing and Settlement, Supply point administration
Independent gas transporter Uniform Network Code (iGT UNC)	Gas	Gas transporter	Connection, Use of System, Balancing and Settlement, supply point administration
Connection and Use of System Code (CUSC)	Electricity	Electricity Transmission	Connection and Use of the National Electricity Transmission System,
Distribution Connection and Use of System Agreement (DCUSA)	Electricity	Electricity Distribution	Connection and Use of the electricity distribution networks
Balancing and Settlement Code (BSC)	Electricity	Electricity Transmission	Balancing and settlement of the Great Britain-wide electricity market
System Operator – Transmission Owner Code	Electricity	Electricity Transmission	Defines the high-level relationship between the Great Britain System Operator and the transmission operators.
Grid Code	Electricity	Electricity Transmission	Technical obligations relating

			to connection to, operation of and the use of the National Electricity Transmission System
Distribution Code	Electricity	Electricity Distribution	Technical obligations relating to connection to, operation of and the use of the distribution network
Master Registration Agreement (MRA)	Electricity	Electricity Distribution Electricity Supplier	Terms for the provision of Metering Point Administration Services (MPAS Registrations), and procedures in relation to the change of supplier to any metering point
Supply Point Administration Agreement (SPAA)	Gas	Gas supplier Gas transporter	Governance arrangement covering processes that are not ordinarily covered by existing contracts or agreements e.g. change of supplier
MOCOPA	Electricity	MOP	Arrangements for compliance for installations and processes
MAMCoP	Gas	MAM	Arrangements for compliance for installations and processes

1.3. Each of these codes have their own separate governance arrangements managed via panels, boards and/ or Executives. In addition, the membership and nature of these groups vary across the various codes.

1.4. The codes set out the business processes and rules relating to the technical and commercial arrangements between parties for particular areas of the energy industry.

Appendix 3 – Indicative Smart Energy Code Contents

1.1. The list below provides a preliminary indicative table of contents for the Smart Energy Code.

1. Definitions and interpretation
This would set out the defined terms used in the Code and say how the Code should be interpreted.
2. Parties
This would define the parties to the Code. These would include the licensed energy suppliers, licensed electricity distribution companies, licensed gas transporters (DNs and iGTs) and DCC.
3. Accession process
There would be an accession process for new parties in the above categories and provisions relating to accession by unlicensed parties, such as energy service companies or aggregators, to the extent that these parties need to be bound by the Code.
4. Smart Energy Code Panel
A panel would be responsible for governance of the Code. The composition would achieve appropriate representation of all stakeholders while providing for efficient decision making. The Chairman would likely be appointed by the Authority.
5. Modification procedure
This procedure would follow code governance good practice as set out in Ofgem's final proposals from the Code Governance Review.²²
6. Technical interoperability requirements and procedures
The Code would define requirements in a number of areas to ensure technical interoperability - the ability of all suppliers to supply any customers with smart meters without regard to the make of smart meter installed or provider of the HAN and without the need to visit the premises.
7. Commercial interoperability requirements and procedure
This section would contain any provisions that are agreed to enable new suppliers to take over smart meters (and related equipment in consumer premises) from the old supplier on commercial terms.
8. Meter registration (to be confirmed)
This section would set out DCC's responsibilities in relation to smart meter registration, either under its own licence or as an agent of those parties who currently have this obligation. The long-term implications for the MRA and

²² *Code Governance Review – Final Proposals*, Ofgem, March 2010.

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- SPAA will require assessment. It will also address DCC's role in any reformed change of supplier process.
9. Meter installation, removal and exchange obligations and procedures – implementation of rollout obligations
This section would set out practical arrangements between the parties to enable rollout of smart meters and their subsequent maintenance and replacement.
 10. Meter access control and access authentication
DCC would be responsible for management of access control to all smart meters using DCC communications and therefore act as access controller. This would be the primary mechanism to secure access to information held on, and functionality of, smart meters.
 11. Gateways, data exchange formats and commands
DCC would provide one or more gateways through which authorised parties could communicate with DCC and/or with smart meters.
 12. Transfer of data and commands to and from smart meters initiated by authorised parties
This section would deal with the communication services to be offered by DCC. Authorised parties would be able to communicate directly with smart meters, subject to their level of access control, in order to obtain a special reading, to reconfigure the meter for use with a new TOU tariff and so on.
 13. Data services provided by DCC
There would be a number of core data services available to suppliers and network companies. These would include arrangements for provision of consumption data.
 14. Responsibilities of suppliers with respect to meter system operation
Suppliers would be responsible for meter system maintenance and meter configuration. It is also proposed they would have responsibility for the WAN communications module.
 15. Responsibilities of networks with respect to meter system operation
DNOs and GTs would carry responsibilities under the Code as well as having rights to receive consumption and other data subject to any privacy restrictions, in return for payment for DCC services.
 16. Implementation of measures concerning data privacy and consumer protection
This would set out measures in relation to data privacy and consumer protection. It would also deal with the circumstances under which consumers could authorise their own service providers, such as energy service companies, to access their data.
 17. Security and business continuity
This would cover the arrangements relating to the security of the communications network and for business continuity.

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18. Performance levels, performance monitoring and incentivisation
This would set out service levels in relation to communication and data services, how these service levels would be monitored and, in broad terms, the basis for incentivisation. Details of the incentivisation would be set out in contracts between DCC and its service providers.
 19. Business processes
There would be a number of business processes under the Code which would need to be documented.
 20. System and process assurance
There would be a need to include assurance provisions under the Code, including the preparation of some form of risk identification and management plan.
 21. Billing and payment processes
This would define the arrangements for billing and payment based on the charging statement to be prepared in accordance with DCC's licence and consistent with the licence conditions relating to permitted revenues.
 22. Reporting
There would be a requirement to produce an annual report on the operation of the Code with suggestions for improvement, as well as to produce more frequent operational reports.
 23. Interfaces with other industry agreements
There would need to be interfaces established with other industry codes so that industry systems and procedures could be synchronised to enable change control to operate where there are interdependencies.
 24. Dispute resolution
This would set out procedures for resolution of disputes.
 25. Limitation of liability and other provisions
This would define any limitations of liability of the various parties under different circumstances and deal with other provisions of a general nature.

Appendix 4 – Responsibility for WAN Communications Module and Related Arrangements

Overview and key background

1.1. The “Statement of Design Requirements” supporting document proposes that metering metrology and the WAN communications module (WAN module) should not be integrated. The WAN module could, for example, be an exchangeable module within the meter casing or in a separate box and would allow for the units to be installed and replaced straightforwardly, without the need to replace the meter, as communications technology evolves. If cost-effectiveness requires a range of WAN technologies to be operated by DCC’s service providers, a series of WAN modules could be designed and specified accordingly.

1.2. This appendix considers who should be responsible for the provision and maintenance of WAN module. The party responsible may procure and provide the module directly or through a meter asset provider, as occurs in the competitive metering market. Responsibility for the provision of and maintenance of WAN module could be with:

- Energy suppliers; or
- The service provider(s) contracted by DCC (the ‘Service Provider’).

1.3. Regardless who is responsible for the WAN module, a number of operational arrangements would remain the same. These are:

- **WAN module design, specification and accreditation** – These design-related processes would be carried out to ensure compatibility with the communications network and that conforming units are available to support smart metering rollout;
- **Installation** – Installation would be carried out by energy suppliers, or their agents, using compliant WAN modules;
- **Operations and network management** – Network management and operational configuration would be carried out by the Service Provider. Thus the Service Provider would monitor the ‘health’ of the WAN module and its connection to the network, and initiate any remedial action needed;
- **Field maintenance** – Field maintenance (e.g. unit replacement) would be carried out by energy suppliers or their agents; and
- **Consumer contact** – energy suppliers would have responsibility for all customer contact and would have support from a business-to-business helpdesk provided by the Service Provider.

Option analysis

1.4. Table A4.1 sets out key arguments for WAN module ownership by energy suppliers or by Service Providers.

Table A4.1 - Arguments for WAN CPE responsibility being with Energy Supplier or Service Provider

Arguments for energy supplier responsibility	Arguments for Service Provider responsibility
<ul style="list-style-type: none"> ▪ Aligns with suppliers' presence at premises and relationships with customers ▪ Aligns with supplier installation and field maintenance activities ▪ Exposes WAN module costs to competitive pressures as suppliers have incentives to minimise WAN module costs (both with respect to procurement costs generally and the selection of lowest cost options if alternative WAN technologies are deployed and available) ▪ Provides continuity and easier transition from pre-DCC deployments ▪ Responsibility for WAN module and risk of inventory loss or damage during rollout are best aligned ▪ Financing mechanisms with Meter Asset Providers could be extended to cover WAN module costs 	<ul style="list-style-type: none"> ▪ Aligns with Service Providers' understanding of technology risks: for example, due to obsolescence²³ and design failure²⁴ ▪ Aligns with Service Providers taking responsibility for technical performance service level agreements) across the WAN (core network to premises) ▪ Procurement by Service Providers may be more cost effective due to economies of scale from Great Britain-wide smart metering volumes and Service Providers' greater buying power for telecoms devices generally ▪ No WAN module asset ownership change is needed on change of energy supplier ▪ Provides a more neutral basis for wider service development over time (e.g. water metering and communications services such as telecare).

1.5. These arguments are now assessed against the programme criteria:

- Consumer impact: There is no difference between the options against this criterion. Under both options it would be the energy supplier that retains the relationship with the customer; Service Provider inputs would be in the background.
- Cost: The arguments point to lowest costs being achieved if energy suppliers own the WAN module. This choice exposes the costs to competitive pressures. The

²³ Obsolescence risk here means the risk that the WAN module may, over time, become out-dated technology and no longer able to fulfil its communications function cost effectively.

²⁴ Failure risk here means that a significant number of devices fail due to a design flaw i.e. there is a 'pattern of failure' beyond an expected (and very low) level of unit failure.

potential for Service Providers to leverage economies of scale could still be harnessed by enabling them to offer WAN modules for sale without exclusivity. energy suppliers would have the option to source units from Service Providers or other vendors manufacturing within the agreed specification and accreditation process;

- **Timeframe:** There is no difference between the options with respect to delivery to the rollout target or front-loading of benefits;
- **Benefits delivered:** (While the energy supplier responsibility option would require responsibility to be transferred on change of supplier, this is similar to commercial interoperability for the meter itself. Service Provider responsibility for the WAN module could provide a more neutral base from which to consider the development of wider services over time (e.g. water, healthcare, and other value-added services).
- **Risk:** Technical performance across the WAN could be handled contractually under either option. Under the energy supplier responsibility option, Service Providers could be required to commit to coverage obligations for a range of meter point condition reference cases (e.g. 'standard meter installation', 'semi-concealed gas meter', 'extended reach to meter'). Similarly, the issues associated with technology obsolescence and design failure risk could be handled contractually under either option. Under the energy supplier responsibility model, contractual arrangements with the Service Provider via DCC could be used to address these risks. Alignment with energy supplier presence at the premises, responsibility for meter and IHD assets, suppliers' rollout responsibilities and established asset funding models mean supplier responsibility provides a more straightforward implementation model.

Proposed way forward

1.6. The above analysis shows that there are arguments for both options. On balance, we propose that energy suppliers should be responsible for the WAN module rather than Service Providers. The key reasons are:

- Cost effectiveness is best achieved by exposing the cost of WAN modules to competition via energy suppliers, with the option of sourcing units from Service Providers, if the suppliers wish to leverage their purchasing power and knowledge;
- Risk with respect to implementation is minimised by the simplicity that comes from alignment with suppliers' existing 'footprints' at premises; risks relating to technology obsolescence and design failure are manageable and would be based on contractual arrangements providing protection to suppliers against the risk of design flaws and obsolescence; and
- Benefits from extension of the communications infrastructure to non-energy uses should still be achievable.

7.15. Under either option arrangements would need to be put in place for locating and resolving any faults or service issues.

Appendix 5 – Glossary

A

[Access control](#)

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

[Agency Services Agreement](#)

Agreement for the provision of information, data processing, invoicing and supply point administration services in relation to the transmission and distribution of gas in the United Kingdom.

B

[Balancing and Settlement Code \(BSC\)](#)

The BSC contains the rules and governance arrangements for the electricity balancing and settlement in Great Britain. All licensed electricity suppliers must be party to it (see [codes](#)).

C

[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), 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.

Communications service providers

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

Consumer

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

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.

Data collector

A person qualified to retrieve, verify, process and validate meter reading data.

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 retrieval

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

DCUSA

Distribution and Connection Use of Systems Agreement.

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.

Distribution Network Operators (DNOs)

DNOs take electricity off the high-voltage transmission system and distribute this over low-voltage networks to industrial complexes, offices and homes. DNOs must hold a licence and comply with all distribution licence conditions for networks which they own and operate within their own distribution services area. There are 14 DNOs covering discrete geographical regions of Britain.

Dual fuel

A type of energy contract where a customer takes gas and electricity from the same supplier.

E

Economies of scale

Where the average costs of producing a good or providing a service falls as output increases.

Electricity meter

A measuring instrument that records the quantity of electricity supplied.

ELEXON

ELEXON is the Balancing and Settlement Code Company (BSCCo) defined and created by the BSC. The BSC places obligations on ELEXON, who consequently manage the balancing and settlement arrangements, in conjunction with the BSC Panel. ELEXON therefore procures, manages and operates services and systems, which enable the balancing and imbalance settlement of the wholesale electricity market and retail competition in electricity supply.

Energy suppliers

A company licensed by Ofgem to sell energy to, and to bill, customers in Great Britain.

F**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).

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 Distribution Network (GDN)

There are four GDNs, each covering a separate geographical area of Great Britain. GDNs are required to maintain a use of system charging methodology, which must explain to customers the principle of and methods used to calculate charges.

Gas meter

A measuring instrument that records the volume of gas supplied.

Gas shipper

A company licensed by Ofgem, which arranges with a gas transporter for gas to be introduced into, conveyed and taken out of the pipeline system. Shippers must balance their input to and customer off take from the National Transmission System (NTS) each day. Ofgem licences all shippers.

Gas transporter (GT)

A company, licensed by Ofgem, which transports gas through its network on behalf of a gas shipper.

Gas valve

A gas valve may be incorporated into a gas meter to regulate the flow of gas into the consumer premise. 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).

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 licenses 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](#)).

[Licence application regulations](#)

The regulations that will define the different steps in the competitive licence application process to grant the DCC licence.

M**Master Registration Agreement (MRA)**

Along with its supporting documentation, the MRA provides a governance mechanism to manage the processes established between electricity suppliers and distribution companies to enable electricity suppliers to transfer customers.

Meter Asset Manager (MAM)

A person approved by the Authority as possessing sufficient expertise to provide gas meter-related services. A gas MAM essentially provides the services that would be provided by a Meter Asset Provider and Meter Operator in electricity.

Meter Asset Manager's Code of Practice (MAMCoP)

The Code of Practice for Gas Meter Asset Managers (MAMCoP) applies to natural gas only. The MAMCoP extends the duties of a MAM. It applies to Independent Gas Transporters undertaking meter asset management services, as part of a bundled gas transportation business, or MAMs who work on behalf of a gas customer, gas supplier or gas transporter to manage primary meter installations connected to the Network as defined by the Gas Safety (Management) Regulations.

Meter Asset Provider (MAP)

The party responsible for the ongoing provision of the meter installation at a meter point. In electricity the MAP is responsible for supplying electricity-metering equipment for the purpose of satisfying the electricity settlements process, the requirements of the relevant Use of System Agreement and the relevant primary and secondary legislation.

Meter Operation Code of Practice Agreement (MOCOPA)

An agreement between electricity distribution businesses and electricity meter operators in Great Britain. The agreement authorises meter operators to install and connect meters to the electricity network by clarifying that the equipment being provided, installed and maintained meets appropriate technical requirements and that work is carried out to adequate safety standards.

Meter Operator (MOp)

In electricity a MOp is responsible for the installation, commissioning, testing, repair, maintenance, removal and replacement of electricity metering equipment.

Meter Point Administration Number (MPAN)

A Meter Point Administration Number, also known as a Supply Number or S-Number, is a 21-digit reference used to uniquely identify electricity supply points such as individual domestic residences. The gas equivalent is the Meter Point Reference Number.

Meter Point Administration Service (MPAS)

Electricity DNOs are required by licence to provide a Meter Point Administration Service to provide information regarding electricity supply to properties in that DNOs area. Information provided by the service consists of: The name of the electricity company registered to supply a property and the dates that they have supplied from, Customer supply number, Supply numbers to change suppliers. Information can be given to customers, suppliers and agents acting on behalf of customers such as Consultants, with permission from the customer.

Meter Point Reference Number (MPRN)

Meter Point Reference Number, also known as Supply Number or M-Number, is a reference used to uniquely identify gas supply points such as individual domestic residences. The electricity equivalent is the Meter Point Administration Number. Each property in the UK that has a mains gas supply has an MPRN, and in some circumstances more than one MPRN. The MPRN is unique to the property.

Meter Provider of Last Resort

GDNs who are obliged to provide gas meters at the request of a supplier to customers.

Metering Services

The provision to a customer of a meter that meets the prescribed limits for accuracy (currently +2.5% and -3.5%). It includes meter provision and meter operation.

N

Network operators

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

O

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.

P

Prepayment meter (PPM)

These are meters that require payment for energy to be made in advance of use or else they will prevent the supply of gas or electricity. A PPM customer pays for energy by inserting electronic tokens, keys or cards into the meter.

Price control

Ofgem sets the price controls for all energy transportation businesses. A price control sets the maximum amount of revenue which the parties subject to the control can recover from the users of their networks/services. This aims to balance the need to allow the companies appropriate resources with the need to protect customers' interests.

Privacy by design

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

Programme

The Smart Metering Implementation Programme.

S

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.

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.

Supply Point Administration (SPA)

The management of the information relating to all gas supply points in Britain, domestic, industrial and commercial. This is carried out by Xoserve, and the information is used to facilitate the transfer processes which enable gas supply competition to operate effectively in the UK.

Supply Point Administration Agreement (SPAA)

This provides governance around the standard gas industry procedures that exist between non-contracting parties, for example between gas suppliers in facilitation of a customer transfer. The SPAA was created in order to provide governance around those supplier-to-supplier procedures that were not ordinarily covered by existing contracts or agreements, but which were nonetheless considered important to the effective and efficient transfer of consumers between suppliers.

T

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 TOU 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).

U[Uniform Network Code \(UNC\)](#)

The Uniform Network Code is the hub around which the competitive gas industry revolves, comprising a legal and contractual framework to supply and transport gas. It has a common set of rules for all industry players, which ensure that competition can be facilitated on level terms. It governs processes, such as the balancing of the gas system, network planning, and the allocation of network capacity. See also [codes](#).

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.

Appendix 6 – The Authority’s Powers and Duties

1.1. Ofgem is the Office of Gas and Electricity Markets which supports the Gas and Electricity Markets Authority (“the Authority”), the regulator of the gas and electricity industries in Great Britain. This Appendix summarises the primary powers and duties of the Authority. It is not comprehensive and is not a substitute to reference to the relevant legal instruments (including, but not limited to, those referred to below).

1.2. The Authority's powers and duties are largely provided for in statute, principally the Gas Act 1986, the Electricity Act 1989, the Utilities Act 2000, the Competition Act 1998, the Enterprise Act 2002 and the Energy Act 2004, as well as arising from directly effective European Community legislation. References to the Gas Act and the Electricity Act in this Appendix are to Part 1 of each of those Acts.²⁵

1.3. Duties and functions relating to gas are set out in the Gas Act and those relating to electricity are set out in the Electricity Act. This Appendix must be read accordingly²⁶.

1.4. The Authority’s principal objective when carrying out certain of its functions under each of the Gas Act and the Electricity Act is to protect the interests of existing and future consumers, wherever appropriate by promoting effective competition between persons engaged in, or in commercial activities connected with, the shipping, transportation or supply of gas conveyed through pipes, and the generation, transmission, distribution or supply of electricity or the provision or use of electricity interconnectors.

1.5. The Authority must when carrying out those functions have regard to:

- the need to secure that, so far as it is economical to meet them, all reasonable demands in Great Britain for gas conveyed through pipes are met;
- the need to secure that all reasonable demands for electricity are met;
- the need to secure that licence holders are able to finance the activities which are the subject of obligations on them²⁷;
- the need to contribute to the achievement of sustainable development; and
- the interests of individuals who are disabled or chronically sick, of pensionable age, with low incomes, or residing in rural areas.²⁸

1.6. Subject to the above, the Authority is required to carry out the functions referred to in the manner which it considers is best calculated to:

²⁵ Entitled “Gas Supply” and “Electricity Supply” respectively.

²⁶ However, in exercising a function under the Electricity Act the Authority may have regard to the interests of consumers in relation to gas conveyed through pipes and vice versa in the case of it exercising a function under the Gas Act.

²⁷ Under the Gas Act and the Utilities Act, in the case of Gas Act functions, or the Electricity Act, the Utilities Act and certain parts of the Energy Act in the case of Electricity Act functions.

²⁸ The Authority may have regard to other descriptions of consumers.

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- promote efficiency and economy on the part of those licensed²⁹ under the relevant Act and the efficient use of gas conveyed through pipes and electricity conveyed by distribution systems or transmission systems;
 - protect the public from dangers arising from the conveyance of gas through pipes or the use of gas conveyed through pipes and from the generation, transmission, distribution or supply of electricity; and
 - secure a diverse and viable long-term energy supply.

1.7. In carrying out the functions referred to, the Authority must also have regard, to:

- the effect on the environment of activities connected with the conveyance of gas through pipes or with the generation, transmission, distribution or supply of electricity;
- the principles under which regulatory activities should be transparent, accountable, proportionate, consistent and targeted only at cases in which action is needed and any other principles that appear to it to represent the best regulatory practice; and
- certain statutory guidance on social and environmental matters issued by the Secretary of State.

1.8. The Authority has powers under the Competition Act to investigate suspected anti-competitive activity and take action for breaches of the prohibitions in the legislation in respect of the gas and electricity sectors in Great Britain and is a designated National Competition Authority under the EC Modernisation Regulation³⁰ and therefore part of the European Competition Network. The Authority also has concurrent powers with the Office of Fair Trading in respect of market investigation references to the Competition Commission.

²⁹ Or persons authorised by exemptions to carry on any activity.

³⁰ Council Regulation (EC) 1/2003