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DEPARTMENT OF ENERGY & CLIMATE CHANGE

Smart Metering Implementation Programme

Response to Prospectus Consultation

Supporting Document 1 of 5
Data Access and Privacy

March 2011

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If you would like alternative formats of this consultation document, such as Braille, audio cassette or large print, these are available on request - please contact us at the address below. This also includes a Welsh language version.

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Executive Summary

Smart meters will lead to a step change in the amount of data that will be available about consumers' energy consumption. Consumers will be given the information they need to fully understand and manage their energy consumption effectively, save money and reduce carbon emissions. This information will also enable the energy industry to operate more efficiently and effectively and support the provision of new energy services to consumers to help them manage their energy use. Concerns have, however, been raised about how the increased level of detail in consumption data could be used.

The Government is clear that consumers' privacy should be protected. This is important to protect the interests of consumers and to maintain their confidence in smart metering. Arrangements are needed which, at the same time, provide appropriate protections for consumers while the benefits of the rollout can be delivered and competition is promoted in the energy supply and services markets.

The Government has considered how existing legislation, including the Data Protection Act 1998 (DPA), will apply to smart meters data, and what if any additional protection might be needed to supplement the existing protections and access rights to a provide clear privacy policy framework.

Approach to privacy

In developing its approach to data access and privacy, the Government has drawn on international best practice and the advice of privacy experts including the data protection regulator, the Information Commissioner's Office (ICO).

In the Prospectus the programme committed to following best practice and proposed undertaking 'privacy by design'. Privacy by design means that privacy issues have been considered early and embedded into the design of the programme.

Our approach to privacy is being delivered through:

- the development of a Privacy Impact Assessment for the programme
- the development of a privacy policy framework by the programme which will protect the interests of consumers and provide them with assurance on privacy
- a Privacy Charter to be developed by suppliers to provide transparency about the new arrangements
- implementing the framework, for example through changes to licences.

Developing a privacy policy framework

In the Prospectus, we proposed the principle that consumers should have a choice as to how their smart metering data is used and by whom, except where it is required to fulfil regulated duties. Respondents were generally supportive of this principle, though highlighted that it was important that we explained what data uses would be defined as regulated duties and how customer choice would be given effect for other uses of smart metering data. The Government confirms that this principle will

underpin its privacy policy. It will also be important that the arrangements to put this principle into effect do not interfere with existing and separate statutory provisions which provide for access to data for other purposes

Since the Prospectus was published we have done further work towards identifying uses of smart metering data and which should be classed as being needed to fulfil regulated duties. We have held three workshops with suppliers, consumer groups and privacy experts to explore the different potential uses that suppliers and network operators need smart metering data for. We also asked the industry to provide an indication of what level of data is required to fulfil regulated duties and other uses, and the extent of the benefits that different levels of smart metering data would deliver.

The Government is minded to define regulated duties narrowly given that consumers would not have a choice over whether to provide smart metering data for these purposes. Further work will be undertaken in the next phase to refine this list and confirm the level of smart metering data required in each case. We recognise that these regulated duties and the level of smart metering data required for them could change over time, as settlement rules change for example.

For other purposes for which smart metering data could be used by the energy industry (eg to inform the development of time-of-use tariffs), the Government can see the strength of the arguments for requiring industry to obtain explicit informed consent from consumers to access the data. As yet the Government remains to be convinced of the case for allowing industry access to such data as the default.

To reach a decision on industry access to smart metering data, the programme will undertake further analysis in the next phase on the impact of different options for expressing consumer choice. We have set out in this document the further work that the programme proposes to undertake to help inform the decision and determine how the requirements will be implemented.

In the next phase the programme will also undertake more work on other aspects of the privacy policy framework, including smaller non-domestic customer data use issues, and access to smart metering data by third parties such as energy services companies. This will allow any new requirements to be put in place before the mass rollout of smart meters.

Access to data

As well as considering the protection of consumers' data, this document also considers issues relating to how consumers can best access data from their meters.

In particular, we have concluded that there should be a functional requirement for thirteen months of consumption data to be stored within the meter. This will enable consumers to access their historic data, track their energy consumption and compare their usage to previous months. It will also help enable consumers to share this consumption data easily with other parties, such as energy service providers, should they wish to.

1. Introduction

1.1. The Government's vision is for every home in Great Britain to have smart energy meters, with businesses and public sector users also having smart or advanced energy metering suited to their needs. The rollout of smart meters will play an important role in Britain's transition to a low-carbon economy, and help us meet some of the long-term challenges we face in ensuring an affordable, secure and sustainable energy supply.

1.2. To implement this vision, the Government has established a central change programme - the Smart Metering Implementation Programme[1] ("the programme"). The programme is responsible for overseeing the development and implementation of the policy design, including establishing the commercial and regulatory framework to facilitate the rollout. Ofgem E-Serve has worked with the Department of Energy and Climate Change (DECC) during the policy design phase to inform Government conclusions on the policy framework for implementation.

1.3. The Prospectus for the programme, published in July 2010, set out for consultation a range of proposals on the policy design for the implementation of electricity and gas smart metering in the domestic and smaller non-domestic[2] sectors. The installation of advanced meters[3] for larger non-domestic sites[4] has already been mandated for completion by April 2014.

1.4. The Government's conclusions on the policy design for the implementation of smart metering in the light of consultation are set out in the "Response to Prospectus Consultation: Overview Document". The new obligations to deliver the policy design will be introduced principally using powers under the Energy Act 2008, and will be subject to the appropriate consultation processes.

The purpose of this document

1.5. This document is the first of five supporting documents to the Government's response to consultation. It relates to data access and privacy for smart meters as outlined in "delivering smart metering to GB consumers" chapter 2 of the Overview document.

1.6. Each supporting document complements the Overview document in the following ways. First, by explaining further the evidence and reasoning behind the conclusions set out in the Overview document. Second, by setting out related but more technical

[1] *Smart Metering Implementation Programme: Prospectus, DECC/Ofgem*, July 2010
[2] Electricity customers on profile classes 3 and 4 and non-domestic gas customers with consumption of less than 732 MWh per year.
[3] Advanced meters are defined in supply licence condition 12 as being able to provide measured consumption data for multiple time periods (at least half hourly for electricity and hourly for gas) and to provide the supplier with remote access to the data.
[4] Electricity customers on profile classes 5 to 8 and non-domestic gas customers with consumption of 732 MWh to 58,600 MWh per year.

or detailed conclusions together with a description of the evidence and reasoning. Third, by explaining how conclusions relate to the proposals set out for consultation in the Prospectus and its supporting documents.[5] Fourth, by providing a structured summary of responses to the consultation.

Stakeholder engagement

1.7. During the course of this policy design phase, the programme's analysis of issues relating to data access and privacy has been informed primarily by stakeholder responses to the Prospectus consultation. Alongside the Prospectus consultation process, we have been engaging with interested parties to better understand the issues around data access and data privacy. The programme held three data use workshops bringing together representatives from energy suppliers and networks, technology providers, consumer representatives and privacy advocates. These workshops have allowed a more in depth discussion of how smart metering data may be legitimately used to help achieve the programme's expected benefits.

1.8. As a direct response to the issues raised in the data use workshops, energy industry trade associations have commissioned a survey of their members. This will provide more information on industry's view of the relative benefits of access to different levels of personal data. This will be used in the next phase of work alongside other evidence to help us reach a final decision on how to give consumers the ability to exercise choice over industry access to smart metering data.

1.9. In the first phase of the programme, we formed a Privacy and Security Advisory Group (PSAG), drawing on expertise from projects within other Government departments and privacy and security experts such as the ICO. Since the publication of the Prospectus, we have restructured the expert groups providing advice to the programme on data privacy and security matters. We have formed a Security Technical Expert Group (STEG) and reformed and expanded the PSAG into a group more focused on providing privacy advice.

1.10. The PSAG includes representatives from the supply industry who can offer first-hand experience of their trials of rolling out meters with smart functionality. Consumer Focus has also joined the PSAG and are able to provide feedback on consumers' experience and privacy concerns from other large-scale programmes. The group provides feedback to the programme on the policy work being carried out on data privacy and has helped the programme to keep abreast of work being undertaken in Europe on privacy matters.

Legal Framework

1.11. In mandating the rollout of smart meters to domestic and smaller non-domestic consumers the Government needs to ensure that the policies it introduces are lawful. The framework that the Government introduces must be compatible with

[5] *Smart Metering Implementation Programme: Prospectus, DECC/Ofgem*, July 2010

the requirements of the Human Rights Act 1998. In particular, the right to respect for private and family life, where any interference needs to be justified.

1.12. It is the legal responsibility of industry participants to ensure that they comply with the DPA and any other data privacy laws that might also apply. In the context of a mandated rollout of smart meters, the programme has an important role to play in ensuring that an appropriate framework is established that ensures that consumers' rights to privacy are respected and that an appropriate level of security is maintained across all industry parties involved in delivering smart metering.

1.13. The advice received from the ICO is that metering data (in the smart and pre-smart metering environment) is considered as personal data where this can be linked to billing address details, and therefore can identify an individual.

Links with other areas of work

1.14. Data privacy considerations are relevant across the work that has been carried out in the policy design phase of the smart metering programme including the work on the design of the smart metering system. Data privacy will remain a priority for the programme as the design of the metering system and the central data and communications body, "DataCommsCo" (DCC), services that will be required, are established in more detail.

Data Security

1.15. From a privacy perspective consumers have a right to expect that any personal data they might have processed about them is kept secure and cannot be accessed inappropriately. This involves the programme looking closely at all the different points in the process where there are potential risks to data security. Our approach to security is discussed further in the "Design Requirements" supporting document.

Consumer Engagement and Benefits Realisation

1.16. The privacy policy framework that the Government intends to introduce is designed to ensure that consumers' interests are protected while at the same time enabling consumers to engage with, and optimise, their energy use. It will be through the interaction with consumers that many of the programme's energy savings benefits will be realised.

1.17. The elements of the framework outlined in the Prospectus and built on within this document are designed to provide consumers with clarity as to how the data from their smart meter will be used and by whom. It is also designed to establish where consumers can make a choice over the level of data is transferred outside their property and how they can exercise that choice.

1.18. In the next phase of the programme, more detailed work will be undertaken on the approach to consumer engagement to help ensure that the benefits of the programme are realised. This is discussed further in the "Rollout Strategy" supporting document. The programme's overall approach to benefits management is discussed in the "Implementation Strategy" supporting document.

The structure of this document

1.19. This document is structured as follows:

- Chapter 2 sets out how Government is drawing on best practice in its approach to privacy, its commitment to Privacy by Design, the use of a Privacy Impact Assessment to inform thinking and the role of the Privacy Charter in providing transparency
- Chapter 3 considers the privacy framework and the question of what smart metering data suppliers and network operators should be able to access and on what terms, including how this framework might apply to smaller non-domestic customers
- Chapter 4 considers how customers themselves would get access to their smart metering data and how third parties that they authorise access it
- Chapter 5 sets out the proposed next steps for the implementation of the aspects described in the preceding chapters.

1.20. Appendix 1 provides a summary of responses received to relevant consultation questions. Appendix 2 explains the how smart metering data relates to the Data Protection Act 1998. Appendix 3 sets out initial analysis of data use. Appendix 4 provides a glossary of terms used in this document.

2. Adopting best practice - the programme's approach

The Prospectus set out the Government's proposed approach to privacy. This chapter sets out the Government's intention to adopt an approach that is based on best practice, including using the 'Privacy by Design' approach. This chapter explains how the programme has approached the Privacy Impact Assessment and how this is being used in order to inform the creation of the privacy policy framework. It also sets out the role of a Privacy Charter in providing transparency.

What smart meters mean for energy consumption data

2.1. Current conventional meters record accurate usage of electricity and gas, but this information only reaches suppliers through manual reads, which take place every quarter or less. This means that a range of industry activities, from billing and settlement through to network planning, have to be done on the basis of estimates, reducing accuracy and increasing risk.

2.2. Smart metering enables the collection of highly detailed and accurate energy consumption data that can be transmitted to suppliers, networks and other authorised parties on a much more frequent basis.

2.3. The smart metering design requirements set out that the metering system will be capable of storing the energy consumption at a property for each half hour period for electricity and gas. The requirements set out that the meters will show near real time electricity consumption information that can be transmitted over the Home Area Network for the consumer to access[6].

2.4. Smart meter data can be transmitted to suppliers and network operators over a Wide Area Network (WAN) under the control of DCC. DCC will ensure that data is only passed on to those who are authorised to access it. In the smaller non-domestic sector some suppliers may choose not to use DCC and will make their own arrangements for collecting the data.

2.5. The frequency and detail level of the data transmitted from the smart meter will depend on the level of data required by suppliers and networks within the limits of the privacy framework being developed by the programme.

2.6. For domestic consumers, near real-time consumption information will be accessible on their meters' displays and transmitted to their In Home Display (IHD). It is anticipated that commercially available devices would allow consumers (including smaller non-domestic customers) to capture this data and access it through their computer for example. This information will remain under the consumer's direct control through the HAN although they will be able to share it with

[6] Due to the limitations on gas meter battery life the gas meter will be capable of sending information across the HAN on a half hour basis.

third parties if they wish to do so. This much more detailed information could allow innovative services such as appliance monitoring to be offered.

Adopting a best practice approach

2.7. In developing its approach to privacy the Government has sought to follow best practice and draw on expert advice in relation to data protection. The programme has worked closely with the ICO and drawn on their advice in a number of areas.

2.8. The Prospectus asked for comments on the proposed approach to privacy. Consultation responses welcomed the programme's focus on data privacy and access issues at this early stage. However, many respondents provided comments on other aspects that they wanted the programme to consider. These aspects included the need to clarify definitions of the data, its control, rights of access and frequency of access. Several respondents raised issues around the clarity of the process and the need for an end-to-end approach to privacy. These views have informed the approach we have taken as set out in this document.

2.9. Over the last phase of work the programme has drawn on the expertise of members of the privacy and security advisory group (PSAG) and in particular the Information Commissioner's Office. The PSAG will continue to be used to inform the work of the programme. The programme also plans to carry out further workshops involving interested parties to review the mechanisms that will need to be introduced to maintain consumers' privacy while meeting the data requirements of industry. These workshops and other evidence gathered will inform the government's decisions about what level of consumption data is needed to fulfil regulated duties and the mechanisms for providing consumer choice.

Wider Developments

2.10. The programme continues to monitor developments in other countries in smart metering, in particular in the USA and the Netherlands. In the case of the latter, privacy concerns have had a direct impact on the rollout timescales and the ability to deliver the benefits of the rollout. We remain keen to learn from the experience of other programmes while recognising there are particular features of the GB market and rollout (such as the role of suppliers) that mean direct comparisons are not always possible.

2.11. Some key developments since the Prospectus have been:

- the publication by the European Regulators' Group for Electricity and Gas (ERGEG) of its Guidelines of Good Practice (previously in draft form) which reaffirmed the principle of the customer's "right to choose"
- the publication by the EU Smart Grids Task Force Expert Group 2 of its initial report on data privacy issues which looks at the issues in the context of the EU legislative framework

- announcements by 'Hydro One', an energy company in Canada, providing more detail on how it intends to implement the principles of Privacy by Design as established by the Ontario Information and Privacy Commissioner
- publication of a report by the US Department of Energy on 'Data Access and Privacy Issues related to Smart Grid Technologies' which explores many of the issues which the programme has been considering around access to data.

2.12. Internationally there is growing appreciation of the importance of privacy issues and of effective consumer engagement. The Government will continue to feed into the EU work and draw on experience from the EU and more widely in developing its approach to privacy and data access.

Privacy by Design

2.13. In the Prospectus we set out our intention to use the concept of 'Privacy by Design' to ensure that we establish a robust policy framework for smart meters in GB by considering and building privacy into the design of the smart metering system. Privacy by Design means that privacy and data protection compliance is designed into systems holding information right from the start. This concept was initially developed by the Information and Privacy Commissioner in Ontario, Canada and the UK ICO has adapted this approach to provide guidance. It is an approach that the ICO endorses as best practice.

2.14. Privacy by Design looks for "win-win" solutions in which the benefits of a programme/policy can be delivered without compromising privacy. For example, this could be through using anonymised or aggregated data whenever possible. The programme recognises the value in such an approach.

2.15. Consultation responses supported the use of Privacy by Design and in particular the exploration of privacy concerns at this early stage of the programme. The Government confirms that it will approach privacy according to 'Privacy by Design' principles.

Personal data minimisation

2.16. One area that the programme will explore in parallel with the development of the smart metering system's architecture is how the use of personal data can be minimised in line with the principles of the DPA.

2.17. For the majority of smart metering data, it is only when the consumption data is accessed and can be combined with other information relating to an individual that it becomes personal data. The programme will explore whether there are opportunities for the benefits of accessing this data to be realised without combining it in such a way that it becomes personal data. For example, the programme will consider where data can be collected from a sample set of meters or aggregated so it would not be possible to identify a 'living individual'. This will reduce the potential for privacy concerns in-line with best practice and privacy by design principles.

2.18. Work is in process to understand the options for aggregating or anonymising smart metering data and whether it is necessary for the data to be accessed by a party that carries out the data minimisation. Privacy enhancing technology can potentially enable anonymised or aggregated data to be provided without any party having access to the personal data itself. The programme will work with industry and academics in order to explore the applicability of privacy enhancing technologies within the smart metering system.

Privacy Impact Assessment

2.19. Carrying out a Privacy Impact Assessment (PIA) forms part of the ICO's best practice guidance for any project that involves changes to data collection and forms part of the review process for Government programmes. The programme is undertaking a PIA to assess where privacy concerns might arise, looking end-to-end across the proposed smart metering system.

2.20. The programme, working with external experts, has identified areas in the implimentation of the smart metering programme where privacy needs to be considered and managed. This early assessment has formed part of the evidence the programme has considered on privacy and smart metering data.

2.21. The Government is not the 'data controller'[7] for smart metering data, but it recognises the value of carrying out a PIA to ensure that potential privacy issues are taken into account in the Government's technical and governance framework for smart metering.

2.22. Suppliers and other data controllers will need to ensure that their internal processes identify and mitigate potential privacy issues. In the next phase the programme will look into whether it will be necessary for the Government to mandate that industry data controllers carry out and publish their own PIAs, for example as a pre-requisite for using DCC.

Privacy Charter

Prospectus proposal

2.23. The Prospectus proposed the introduction of a privacy charter to address privacy concerns associated with the rollout of smart metering and in line with best practice as identified by the ICO. The Prospectus proposed that the programme would work with stakeholders in order to develop this.

[7] A data controller is a term defined under the DPA as a person who alone, jointly or in common with others determines the purposes for which and the manner in which any personal data are processed. They are responsible for ensuring that the provisions of the DPA are complied with.

Evidence

2.24. The intention to introduce a Privacy Charter received strong support from respondents. Of those who did not support the introduction of a charter many questioned whether a charter was relevant rather than demonstrating a lack of willingness to adopt or adhere to a charter.

2.25. Respondents who supported the creation of a charter saw it as essential for providing consumer confidence or saw it as a useful communication tool to aid of providing transparency for consumers.

2.26. Respondent's comments on the relevance of a charter in part reflected whether they believed that the DPA provides adequate protections for smart metering consumers. In addition, some respondents argued that previous experience of industry developed charters was that they had little impact and were mainly used as a public relations tool. Many respondents saw the charter as part of the wider consumer communication package.

2.27. The Prospectus also asked stakeholders what issues a privacy charter should cover. A number of respondents provided suggestions, including the ownership of the data, what smart metering data will be accessed (and why), who can access it and how this access will be controlled.

2.28. Suppliers have recently indicated that they will work on producing an industry wide consumer privacy charter.

Government's conclusions

2.29. On the balance of views, and in consideration of the ICO's best practice advice, the Government has concluded a privacy charter should be developed, to provide clear reassurance to consumers as part of the overall consumer engagement package.

2.30. The Government recognises that suppliers' offer to develop a Privacy Charter is a positive step, but believe it is vital that an industry-owned charter helps to protect consumers' interests and provides them with adequate reassurance. The Government will look to suppliers to ensure that these concerns are addressed and to ensure that the charter is supported by consumer groups and other industry parties.

2.31. The programme will review the suppliers' development of a privacy charter to ensure that the charter can be adopted by all suppliers and makes consumer protections clear. Depending on the progress made, the programme will decide whether any formal obligation is needed on suppliers to deliver a charter.

3. The policy framework for privacy

This chapter discusses the policy framework for privacy that the Government is looking to introduce. This covers the development of a privacy policy that provides consumers with choice about how their smart metering data is used while providing industry with the data needed to deliver the benefits of the programme.

Developing the privacy policy framework

3.1. The DPA is general legislation that provides a framework for the use and management of personal data. In the context of a mandated rollout of smart meters however, it is important that there is clarity over who has rights to what data and the basis on which it is collected. Appendix 2 contains further information on the DPA.

3.2. Some of the suppliers who responded to the consultation were concerned that any protections put in place might conflict with the requirements of the DPA and would be unnecessary given that legislation already exists dealing with these issues. They highlighted that personal data is already collected and held as part of the process of supplying energy in the pre-smart metering environment. They also pointed out that they already adhered to the DPA. However, some consumer groups raised concerns about the effectiveness of the DPA and the need for clarity about rights to access data in a smart meter context.

3.3. The Information Commissioner has confirmed that it would be wholly appropriate, in due course, for the programme to propose sector specific rules to clarify what are and are not legitimate uses of data in the energy market, provided this is consistent with the DPA.

3.4. The Government approach to sector specific protection is set out in this chapter. There is further work required to establish where the framework will need to accommodate smaller non-domestic customers and third parties who wish to access smart metering data.

Privacy principle

Prospectus proposal

3.5. In the Prospectus we proposed the principle that the consumer should choose in which way consumption data shall be used and by whom, with the exception of data required to fulfil 'regulated duties'. Since the publication of the Prospectus, the European Regulators Group for Electricity and Gas (ERGEG) has confirmed this principle as its best practice.

Evidence

3.6. Overall, consultation responses showed support for the privacy principle set out in the Prospectus. However, most respondents raised questions as to the nature and extent of 'regulated duties' and how consumer choice should be given effect.

3.7. Academics and consumer groups have particularly highlighted the privacy issues which could result from the collection and transfer of energy consumption data at a half hourly level. They indicated that smart metering data, when combined with an individual's address or name, could constitute personal data for the purposes of data protection law. At a half-hourly level this data could potentially then be used to infer information about an individual's lifestyle. Suppliers and network operators stressed the benefits of having access to detailed consumer data and the need to ensure the proposed principle was not applied in a way that constrained delivery of the benefits of the smart metering programme.

3.8. Other respondents pointed to the market advantage that suppliers would have in providing consumers with value-added services, such as energy savings advice, if they had preferential access to this smart metering data.

Government's conclusions

3.9. The Government confirms that the overarching principle set out in the Prospectus will underpin the programme's privacy policy. However, the principle highlights two issues which need to be addressed and which are considered further below:

- which essential energy industry data uses should constitute regulated duties, which consumers will not be able to choose to limit access, and what level of smart metering data is needed to fulfil these regulated duties
- how consumers will be able to choose what smart metering data can be used for other energy industry purposes and who has access to it.

Enabling essential data flows

Prospectus proposal

3.10. As reflected in the principle set out above, the Government recognises that there are legitimate reasons for industry parties to access some data from all consumers' smart meters to enable companies to fulfil their regulated duties and hence support the provision of a secure and affordable energy supply.

3.11. As part of our consultation, we sought views on the level of data aggregation and frequency of access to smart metering data that is necessary in order for industry to fulfil its regulated duties.

Evidence

3.12. In general responses to this question were very high level. Some suppliers and network operators identified broad areas where there would be benefit in them having access to more detailed consumption data. However, there was no assessment of the potential for aggregation or the implications of different levels of detail or frequency of access.

3.13. The consultation responses received did not provide sufficient detail for the programme to assess what data would be needed by the energy industry. The programme explored what smart metering data might be needed further through a series of data use workshops. Suppliers and network operators set out the different purposes they believed they needed access to detailed data for, and those uses which they believed could be considered as regulated duties. In particular, they focused on areas for which they believed half-hourly data was required. A summary of the initial analysis of the main areas identified can be found in Appendix 3.

3.14. The programme and other stakeholders have asked suppliers and network operators to provide more justification of why they require half-hourly consumption details from all consumers and the impact of having different levels of smart metering data. Suppliers and network operators have subsequently commissioned work to quantify the benefits that could be realised through having access to consumer's smart metering data at different levels of detail and on different bases (aggregated, sample etc.). The programme intends to use this information alongside further analysis in order to inform Government decisions in the next phase.

Government's conclusion

3.15. The Government is minded that the data required to fulfil regulated duties should be narrowly defined, covering only the data that is essential to meet licence requirements, given that customers would not have a choice over whether to provide data for these purposes. Any data used for these purposes will need to be kept to a minimum (eg through aggregation where possible) and not all regulated duties will require half-hourly or other forms of detailed data. Unlicensed third parties would need to obtain customer consent to access any data directly from the smart metering system. Chapter 4 sets out more detail on how third parties might access the data in practice.

3.16. Where smart metering data is collected to fulfil regulated duties, companies must still comply with the principles of data protection under the DPA, including not retaining collected information for longer than is necessary.

3.17. Suppliers need access to data for billing and settlement (ie paying for the wholesale energy their customers' use). Further work is needed to determine what level of smart metering data is needed for these purposes. While currently half-hourly data is not needed for settlement, the settlement rules are likely to evolve over time to take advantage of the greater availability of half-hourly data.

3.18. Suppliers and network operators have licence obligations to reduce levels of energy theft and there are, therefore, arguments for allowing access on a case-by-case basis.

3.19. Network operators have important duties in terms of planning, building and operating networks. It is important that they do this cost effectively. By maintaining continuity of supply and responding to the changing requirements as more distributed generation is connected, individual smart metering data may assist in delivering this. For network operators the majority of information that they will require to carry out their licence obligations at the beginning of the smart metering programme may be aggregated or anonymised and so be unlikely to comprise personal data. Subject to provision by network operators of evidence as to the level of smart metering data they would need, there may be a case for considering some of these uses as regulated duties. However, it is suggested that network operators should be expected to utilise aggregated and anonymised data wherever relevant.

3.20. Smart meters will be able to collect more than consumption data. This includes information on the quality of power delivered and information about power interruption[8]. Further work is needed in the next phase to understand the level of data that would be required for these purposes and the extent to which personal data is likely to be needed for these purposes in practice.

3.21. With more distributed generation, low carbon transport, electric heating and a move to a smart grid there may be a need for networks to have more information at an individual property level in future.

3.22. Network operators do not currently receive information directly from meters, this information is currently provided to them by suppliers. The introduction of DCC will allow the possibility of this information being transmitted directly to them via DCC rather than via suppliers, which may allow for aggregation to be used.

Next steps

3.23. Further work will be needed in the next phase to reach conclusions on what should be considered as regulated duties and the level of smart metering data needed to fulfil these duties. The programme will work in the next phase with stakeholders and Ofgem in order to refine the list of regulated duties and the level of data required to fulfil them. The programme will consult on the list of duties and how the requirements will be implemented.

3.24. Recognising that industry needs may evolve over time as the energy market evolves, further thought will also be given to how to accommodate such evolution within the policy framework. In the next phase, the programme will consider the options for reviewing and amending the list of regulated duties defined in the policy framework.

[8] More information on these functionalities can be found within the "design requirements" supporting document.

3.25. There are no plans for DCC to store or have access to personal data for its own use. As the design of DCC is finalised further work will be needed to establish if there are any purposes for which it will need access under the terms of its licence (such as testing communications equipment) and the implications this will have under the DPA.

Providing consumer choice

Prospectus proposal

3.26. As discussed above, where smart metering data is not required to fulfil regulated duties, the customer should be given a choice as to how the data from their smart meter is used and by whom. The Prospectus identified opt-in or opt-out as potential mechanisms for providing consumer choice. We recognised that a requirement to opt-in could lead to a limited number of consumers allowing access to the smart metering data, which might potentially undermine some of the programme's benefits. We also recognised that allowing an opt-out approach would provide wider availability of smart metering data, but could raise issues around how informed consumers were of how their smart metering data was used. We indicated that while it may be appropriate to specify different levels of control for different categories and uses of smart metering data, it is important that arrangements do not become overly complex for consumers or industry to implement.

Evidence

3.27. The programme has explored the issue of providing choice to consumers with stakeholders through the Prospectus consultation questions and the data use workshops.

3.28. Many of the consultation responses on the provision of consumer choice came from suppliers. They argued that the ability to access detailed (eg half hourly) consumption data was necessary for them to design innovative and tailored tariffs and to provide tailored energy efficiency advice. Suppliers were concerned about the administrative burden caused by providing complex levels of opt in / out and that a simple 'opt in' system would not allow consumers to choose to share specific smart metering data or allow visibility for specific uses.

3.29. In addition, some suppliers were concerned that an 'opt in' approach would lead to a low level of provision of the smart metering data. Suppliers have argued that a low level of access to data will result in an erosion of the benefits case for the rollout of smart meters.

3.30. Consumer groups and other stakeholders raised concerns that non-transparent consumer choice mechanisms could allow suppliers to collect an unnecessary level of personal data. This in turn could allow unsolicited consumer profiling and targeted marketing. They believed this level of intrusion could put consumer engagement at risk. They therefore argued that consent should have to be informed and positively expressed.

3.31. In the workshops, consumer groups made the point that many consumers understand that the detailed information that can be obtained from a smart meter has a commercial value and as with other data that they share, expect to gain some benefit from sharing this information (as they do, for example with store loyalty cards).

3.32. Academics and consumer groups in the workshops also highlighted the competition considerations. In particular, they highlighted the need to ensure that potential new entrants to the energy services market should not be put at a disadvantage compared to suppliers in terms of the steps they have to go through to get access to a customer's data.

3.33. The responses to our consultation and our data use workshops have shown that there are divergent views around the approach to (and mechanisms for) providing consumer choice.

3.34. The question of the appropriate approach to take to allow consumers to exercise choice requires consideration of privacy and competition issues together with the impact on the overall programme benefits.

3.35. There is no definition of consent given under the DPA. Instead, in order to inform good practice, the ICO refers to the definition supplied in the European Data Protection Directive 95/46, which states that consent must be freely given, specific and informed and the DPA must be interpreted in a manner consistent with this directive. In addition, Ofgem and the Secretary of State have statutory obligations to protect consumers including where appropriate, by promoting effective competition. European legislation[9] requires Member States to endeavour to avoid any distortion of competition in the provision of end use energy efficiency or energy services, in order to guarantee a level playing field between all energy service providers.

Government's conclusion

3.36. The Government can see the strength of the arguments for requiring industry to obtain explicit, informed consent from consumers to access smart metering data for energy industry purposes, beyond what is required to fulfil regulated duties. It remains to be convinced of the case for allowing the industry access to such data as the default.

Next steps

3.37. The programme will undertake further work to evaluate the impact of different choice mechanisms, how consumer preferences should be collected and how this should be managed by suppliers and DCC.

[9] *European Directive 2006/32/EC* on energy end-use efficiency and energy services

3.38. The programme will undertake further analysis in the next phase to fully understand the impact of different options for providing consumer choice on delivering the business case. This analysis will take on board the information being collated by suppliers on their data requirements. The programme will also look to gain a better understanding of consumer concerns and will carry out further work to explore different choice mechanisms and to understand the potential competition implications of different options.

3.39. With the introduction of DCC the route for access to data from the majority of meters will change from collected by individual suppliers systems to being routed via DCC. In the next phase of work the programme will look at how consumers' choices will be managed and what impact this will have on the role of DCC. Further work is needed to determine how DCC will know whether a customer has chosen to share smart metering data in order for it to collect and channel data to appropriately authorised parties.

3.40. The work to understand better how third parties will access smart metering data as discussed in Chapter 4 will also be relevant. Further work will then be needed to determine how best to incorporate this access into the policy framework, for example through licence changes, and the implications for the wider smart metering system design to ensure that data can only be accessed where there is appropriate authorisation.

Privacy for smaller non-domestic consumers

Prospectus proposal

3.41. In addition to the human rights protection mentioned above, which may apply to some non-domestic customers, some non-domestic consumers will be afforded some protection under the DPA. The DPA relates to the protection of "living individuals". In relation to the smart metering programme this will generally be consumers in domestic premises, but smaller non-domestic customers may also benefit from DPA protection (eg where the customer is a sole trader). Non-domestic customers will also want to ensure that commercial confidentiality is protected.

3.42. The Prospectus proposed an approach to data privacy that was consistent for domestic and smaller non-domestic customers.

Evidence

3.43. Consultation respondents had mixed views on whether the same privacy and security protections should be provided to smaller non-domestic and domestic consumers. Some indicated that the one size fits all approach might not suit both domestic and smaller non-domestic consumers, and pointed to the different legal obligations that apply. Others pointed out that, where non-domestic suppliers chose not to use DCC, additional provisions to safeguard privacy might be necessary. Most respondents, however, supported the parity of protection proposed.

Government's conclusion

3.44. The Government recognises the variety of smaller non-domestic customers. These customers range from sole traders, micro-businesses and small and medium enterprises to branches of large public and private sector organisations. The Government recognises that any proposals in respect of data privacy should take full account of this range of customers, who may not be best served by a common approach. As part of the next stage of work, the programme will, therefore, continue to explore with stakeholders the most appropriate data privacy framework for the smaller non-domestic sector.

4. Access to smart metering data by consumers

This chapter looks at issues related to consumers, and third parties that they authorise, accessing information from their smart meter.

Enabling easy access to smart metering data for consumers

4.1. Enabling consumers to access their consumption data readily is key to providing the information they need to better manage their energy use. The Government has also already decided that domestic consumers should be provided with an IHD giving near real-time feedback on energy use. Consumers may also want to access historical data, or provide their half-hourly consumption data or more detailed data to a third party (such as a switching site or energy services company).

4.2. There are important competition considerations around suppliers having access to energy consumption data for the provision of energy services. If suppliers had significantly easier access to smart metering data than other third parties, this could place suppliers at a significant advantage in the sale of energy efficient end-use products (such as low energy appliances or heating controls) or the provision of tailored advice services.

4.3. The Government's adoption of the principle of allowing consumers to choose who can access their smart metering data is in part designed to ensure that energy services can be provided by whomever a consumer wishes. The ability of consumers and third parties having easy access the data collected by the smart meter is an important aspect of the design of the smart metering specification and delivery of the benefits of the programme.

Designing access into the smart metering system

4.4. The functional requirements catalogue published as part of the Prospectus specified that the smart metering system installed within consumer premises should be capable of storing twelve months of consumption data.

4.5. The subject of data storage has been discussed within the Smart Metering Design Expert Group but has implications for privacy and providing access to smart metering data. If an appropriate amount of information is not stored within consumers premises, consumers would need to obtain this via their supplier or DCC. This has the potential to take the control away from the consumer, would necessarily involve either DCC or a supplier in the process, and has implications for the availability of the data if there is a transmission cost for this to be sent back to the consumer.

4.6. Providing storage for 13 months of consumption data would allow consumers to compare their energy consumption for the same month in two consecutive years. The provision of a year's worth of consumption data was strongly supported by

consumer groups and energy services companies who felt that it would benefit consumers and promote competition in both retail supply and the energy services markets.

4.7. As detailed in the "Design Requirements" supporting document, the Government has indicated that thirteen months of data storage should form part of the minimum functional requirement for the smart metering equipment within the consumer premises.

4.8. In the next phase the programme will look at the implications of this functionality for data privacy and access if the consumer changes supplier or moves house.

Routes for accessing smart metering data

While consumers will have thirteen months of consumption data stored at the meter, the value of this smart metering data can only be realised when this data is accessed. Detailed data could be accessed in two ways: remotely or locally. Local access includes access via an IHD or via a data capture device (eg a connection to a PC or web portal via the metering system's home area network). Remote access allows consumption data to be analysed without a connection within consumers' premises, this access will be via suppliers or DCC.

4.9. Another route for customers to access their overall consumption data is through their energy bill. In the Prospectus, Ofgem committed to reviewing the information provided on consumers' energy bills. The programme will work with Ofgem and stakeholders in the next phase to identify if there is additional information that should be provided to customers through their energy bills to help them better manage their energy usage.

Local access

4.10. The Prospectus indicated that the main avenue for most domestic consumers to access consumption data, at least to begin with, would be through the In-Home-Display (IHD) or on the meters' displays. The Government has already confirmed that an IHD will be provided to all domestic consumers. The "Design Requirements" supporting document sets out the functional requirements for the IHD.

4.11. The IHD does not form part of the mandated rollout to smaller non-domestic consumers although the provision of a Home Area Network (HAN) is included in the functional requirements. Representatives of energy services providers and building services providers have expressed concerns about their ability to access data from smart meters. These market players will be able to help non-domestic consumers to achieve the expected energy efficiency benefits and hence it is important that there are clear routes for them to access the smart metering data with the customer's consent. The programme has engaged with stakeholders from these businesses and

the Energy Services Trade Association (ESTA) has been involved in the Smart Metering Design Expert Group.

4.12. The option for a local device to collect and transfer a consumer's detailed consumption data to another device such as a personal computer or 'smartphone' will provide another route for consumers to engage with their energy consumption. There are already applications available that allow consumers to customise the feedback they receive on their energy efficiency and allow them to compare with similar households. The Government is keen to encourage innovation in this area.

4.13. In order to fully understand the options for local access via a securely connected local device, the programme will continue to engage with stakeholders through working groups to look in more detail at the possible technical routes for consumers and third parties to access consumption information.

Remote access

4.14. The communications infrastructure will dictate the way in which smart metering data will be accessed remotely. The routes for remote access are expected to change with the introduction of DCC. Before the introduction of DCC the consumer, or authorised third party, will only be able to remotely access smart metering data through the supplier (as the communications infrastructure will be controlled by them). With the introduction of DCC, domestic consumers could be able to allow third parties to obtain information directly via DCC. The DCC route of remote access will be available for some smaller non-domestic consumers. However, where a non-domestic supplier chooses not to use DCC, their customers will continue to have to access their smart metering data through them, as will any third party the customer wishes to engage.

4.15. Some stakeholders have indicated that without appropriately authorised remote access it would be difficult for consumers to obtain tariff advice to facilitate switching suppliers and the market for time-of-use tariffs. Within the smaller non-domestic sector, the energy services market currently relies on data from existing advanced metering systems. With the introduction of smart meters, this market will require similar access to information to continue to provide these services.

4.16. The programme will continue to consider what measures are required to ensure that remote access is possible, balancing the needs for appropriate protections with the need to make the process easy to use and hence support the development of innovative services. In particular the process by which DCC will validate that a party has the right to access consumer data will need to be defined.

4.17. The programme will continue to examine whether there are any specific provisions that will be required for non-domesticsmaller consumers to enable them, or third parties working for them, to access their smart metering data. As a part of this work the programme will explore the extent to which particular groups of non-domestic customers, such as micro-businesses, might have different requirements.

5. Next steps

This chapter sets out the further work that the programme will carry out in order to develop the framework around access to data and privacy and to consider the implications for the design of the smart metering system.

5.1. The Government's response to consultation, of which this supporting document forms a part, sets out a range of decisions and conclusions. Collectively, these provide a robust platform for implementation. The next stage of work will require specific outputs to be delivered to build on this platform.

5.2. The following are the main outputs in respect of Data Access and Privacy drawn from the material presented in chapters 3 to 4:

- Defining Regulated duties:- The programme will work in the next phase with stakeholders and Ofgem in order to refine the list of regulated duties and the level of smart metering data required to fulfil them. Before these regulated duties are established, the programme will consult on the list of duties and how the requirements will be implemented.
- Developing a mechanism for changing regulated duties:- the list of regulated duties may need be updated over time in the light of wider market developments such as a move to half hourly settlement in the domestic electricity market, or new obligations on industry participants. In the next phase, the programme will consider the options for reviewing and amending the list of regulated duties defined in the policy framework.
- Understanding the impact of providing choice in data sharing:- The programme will carry out further work evaluate the impact of different choice mechanisms, how consumer preferences should be collected and how this should be managed by suppliers and DCC.
- Providing a mechanism for data sharing:- It is important that the technical mechanisms for providing choice are embedded into the design of the smart metering system and the services supported by DCC. The programme will evaluate the options for this to inform Government decisions on how consent should be given.
- Ensuring transparency:- Consumers need to understand what choices they have and how they can exercise them. The programme will look at how this transparency should be given, through the wider consumer communication strategy and the supplier-led development of a privacy charter.

5.3. These outputs form part of a consolidated plan for the programme as a whole. More detail on the timing and sequencing of these outputs and how they relate to other programme outputs can be found in the "Implementation Strategy" supporting document.

Appendices

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Appendix 1 - Summary of Consultation Responses

1.1. The Prospectus consultation document published on 27 July 2010 sought the views of interested parties in relation to a package of proposals. We received 279 responses from 197 different stakeholders. This appendix summarises responses received to consultation questions asked in the Prospectus and its supporting documents on the subject of data access and privacy.

1.2. Consultation responses were provided by a wide variety of stakeholders. A full list of those that responded is provided in the Overview document, which this document is published alongside. The programme has considered each consultation response and the evidence and opinions contained in it. These have informed our analytical work and, in turn, the conclusions reached by the Government.

1.3. In order to provide an accessible overview of the consultation responses received, we have grouped responses under types of stakeholders. Where the consultation responses of particular respondents or classes of respondents have not been mentioned in the following overview this does not mean that they have not been considered or given due weight and merely reflects the summary nature of this overview.

1.4. Responses received by the programme which were not marked as being confidential have been published on Ofgem's website (www.ofgem.gov.uk).

Prospectus Question 2 and Data Privacy and Security Question 1: Do you have any comments on our overall approach to data privacy?

1.5. Among the groups of respondents listed out below, there was very strong or strong support expressed by the majority. The largest single group of respondents to this question were consultants or service providers to the energy sector. However, there were only small numbers of respondents in each group.

1.6. There was strong support from the majority of respondents for the approach proposed in the Prospectus. In expressing their support many respondents made comments on other aspects of privacy policy that they wanted the programme to consider. These aspects included the need to clarify definitions of the data, its ownership, rights of access and frequency of access. Several respondents raised issues of clarity on the process and the need for an end-to-end approach to privacy and security.

Consultants and service providers

1.7. This group raised the point that the issue around sharing data was one of maintaining trust. The group raised the need for opt in/ opt out arrangements with several in this group explicitly stating that consumers must own the data. Several

respondents suggested the need for the overall approach to include more explicit assessment and development of end-to-end structures.

1.8. Some noted that while an approach based on customer consent was appropriate further consideration is needed of the consent process and how to ensure informed consent and its enforcement in the context of the Data Protection Act; while also providing sufficient access to data for those third parties who need it to deliver the benefits. Some recommended that it would be appropriate to differentiate data separating the data needed for consumer settlement and that related to the technical management of the grid. The latter could be aggregated and handled with lower risks to privacy and would be consistent with an approach being considered in Europe.

Meter installers, manufacturers or operators and Network operators

1.9. A small number raised the need for clarity of the approach proposed. They noted that privacy concerns have adversely affected consumer confidence in schemes elsewhere.

Suppliers

1.10. This group of respondents were most likely to suggest that existing standards and regulations provide sufficient protection for data privacy. A small number raised the need for clarity of the approach proposed. Some suppliers noted that privacy concerns have adversely affected consumer confidence in other international smart metering schemes. .

Industry bodies and Trade associations

1.11. This group of respondents, along with many others, raised the need to clarify definitions of the data, its ownership, rights of access and frequency of access and security issues; particularly as third parties will need access to data to deliver the benefits of Smart Metering. Attention was drawn to European work in the area.

Consumer groups

1.12. There was very strong support from for the approach proposed in the Prospectus but several of this group raised concerns over lack of clarity and progress.

1.13. The progress made so far was acknowledged, and the working group based approach was welcomed. However, some felt that fundamental issues have not yet been addressed. There were concerns that the practicalities of complying with the Data Protection Act while also delivering the benefits of the Smart Metering System have not been adequately considered.

Telecoms sector

1.14. Respondents from this group commented on the need for a holistic approach to data privacy; the need for it to be considered not only in the technology architecture but also in the business processes from deployment to procuring and infrastructure. Data protection needed to be embedded in the core design and mandated before rollout to avoid problems encountered elsewhere. It was also suggested that partitioning data would provide an additional layer of protection, as well as contracting only those with appropriate embedded security protocols.

1.15. Some noted that while an approach based on customer consent was appropriate, further consideration is needed of the consent process. This included how to ensure informed consent and its enforcement in the context of the Data Protection Act; while also providing sufficient access to data for those third parties who need it to deliver the benefits.

1.16. The proposed mechanisms for data storage was recognised as providing the control and ownership for customers but the approach was thought to provide technical challenges of resilience and data access.

Data Privacy and Security Question 2: We seek views from stakeholders on what level of data aggregation and frequency of access to smart metering data is necessary in order for industry to fulfil regulated duties

1.17. Overall there was a mixed response to this question with the majority of respondents focusing on the level of detail of data collection and how often data would need to be transmitted outside the home. While there was broad support for data being collected at a half-hourly level there was also support for access to be defined by the evolving smart metering system and be determined with consumer agreement.

1.18. A number of respondents highlighted that data collection would need to be on a regular basis (eg for billing) and on an ad hoc basis (eg if a consumer phones a supplier with a query).

Consultants/ Service Providers

1.19. Consultants and service providers supported the more frequent collection of data than is currently accessible. A small majority indicated that half-hourly data was desirable. One respondent suggested that, as data could be collected at a much higher level of detail, the maximum benefit would be obtained where access was at as detailed level as could be supported by the technology used.

1.20. A number of respondents from this group recommended that the level of aggregation that would be used should be determined by a cost/ benefit analysis, given that this would impact on data volumes and hence transfer, processing and storage costs.

1.21. One respondent representing service providers suggested that regulated duties should be formed with reference to smart grids rather than smart metering.

Consumer Groups

1.22. The limited number of groups who responded to this question indicated that the privacy issues raised would depend on the level of access industry participants and third parties had. This in turn depends on the definition of regulated duties.

1.23. One consumer group called for a further, more focused, consultation on the framework to be introduced for privacy and security, suggesting that until this was done the data access frequency should remain as it currently stands. They indicated that the decisions on "regulated duties" needed to be taken after a properly evidenced and transparent process of assessing data needs.

Industry bodies

1.24. One of the bodies who responded indicated the important role that detailed data could have on improving the balancing and settlement processes for electricity. The other respondent in this group pointed to the need to understand the cost and benefits of the level of detail as this would have an influence on the infrastructure required by DCC. They also suggested that different types of data might have different access levels, in particular they pointed to the need for near-real time alert data.

Meter manufacturers and operators

1.25. The responses from meter manufacturers and operators indicated that while currently a low level of detail was required to meet licence conditions the minimum requirements would evolve. This group pointed to the need for appropriate controls and authorisations for any access to data.

Suppliers

1.26. Overall the responses from suppliers provided the strongest support for access to half hourly or high frequency data in order to support their business needs. The responses identified a number of reasons why data was required but there was not enough detail in the responses in order to draw any conclusions on the level of detail required.

1.27. Suppliers pointed out that all data collected would be subject to the Data Protection Act and as such they should be able to access data for legitimate business purposes.

1.28. A number of suppliers pointed out that current licence obligations required only one cumulative read a year, but that accurate billing required more frequent

readings. One supplier commented that the level of access to a consumer's data should be proportionate with the service that they required.

Network operators

1.29. Network operators pointed to the usefulness of having access to consumer details. They indicated that the opportunity that access to more detailed data would assist in fulfilling their regulated duty to manage local distribution grids effectively and efficiently one example given was its usefulness in understanding the networks limitations. There was a recognition that this data requirement went beyond consumption (eg monitoring voltage) One of the key messages from this group's responses was that the level and frequency of data required would evolve over time and that aggregated data may eventually not be sufficient to allow the development of the smart grid.

1.30. The responses identified a number of reasons why data was required but there were not enough detail in the responses in order to draw any conclusions on the level of detail or access required.

Data Privacy and Security Question 3: Do you support the proposal to develop a privacy charter?

Data Privacy and Security Question 4: What issues should be covered in a privacy charter?

1.31. Overall there was strong support for proposal to develop a privacy charter. The only group with mixed views was suppliers where some respondents questioned whether a privacy charter was necessary, citing instead existing privacy legislation, regulation and or codes of practice. Some consumer representatives supported the development of a charter but questioned its value on the grounds that it may become a public relations tool for industry unless developed as part of a wider communications tool to raise awareness of rights.

1.32. A small number of respondents suggested that a dedicated stakeholder engagement process is needed to scope the issues to be covered in a privacy charter, with some noting the need for this to be a dynamic process as services evolve. Respondents provided a range of issues that could be covered in a privacy charter, these encompassed:

- Restating the principles of the data protection act
- Ownership of the data
- Rights and responsibilities of customers, their agents, Distributed Network Operators, suppliers or other relevant third parties such as micro generators or Energy Service Companies
- What information and data will be accessed
- Who may access it
- How access will be managed or controlled

- How the information and data can be used and options (eg whether or not for marketing purposes),
- Allowed storage period and means of disposing of data
- How options are communicated (opt in or opt out mechanisms for consumers)
- Training and awareness of staff
- Requirements for vulnerable customers
- Data security arrangements.

Consumer Protection Question 5: Do you agree that consumers should be able to obtain consumption information free of charge at a useful level of detail and format? How could this be achieved in practice?

1.33. The views of all the groups of respondent were similar and therefore are considered as a whole. None of the respondents explicitly disagreed with consumers being able to obtain some information free of charge, with broad support for the approach. However, some respondents suggested that there would need to be a limit on what data will be provided free of charge and how it is made available. Others observed that customers in practice would pay for the provision of this information as part of the costs within their contracts.

1.34. There was little explicit support for the IHD being the only medium with which to access data. The most mixed support was expressed from among meter manufacturers, operators and network operators responding to the consultation. Within this group almost equal numbers explicitly supported charges for anything other than a basic data set delivered via the IHD

Non-Domestic Sector Question 9: What steps are needed to ensure that (non-domestic) customers can access their data, and should the level of data provision and the means through which it is provided to individual customers or premises be a matter for contract between the customer and the supplier or should minimum requirements be put in place?

1.35. The general view of respondents was that it would useful for the programme to consider defining basic minimum data standards that would be common to both domestic and smaller non-domestic customers.

Consultants and service providers

1.36. A range of views were expressed. This included concerns that the minimum data set had not yet been adequately defined and mechanisms for how the consumer gives permission for access to their consumption data beyond the regulatory requirements were not fully addressed. A minority of respondents also suggested that customers should be provided with different routes to obtain their data free of charge (for example via the internet, HAN etc.), but that any access should be secure.

Meter installers, manufacturers and operators

1.37. Respondents suggested that a minimum data set should be defined and suppliers should have the freedom to innovate on how best to present data. In addition, the customer should have unfettered rights to choose access to the data and that this should become part of all relevant supplier contracts.

1.38. Respondents suggested that as the IHD is not mandated in the non-domestic sector, data should be made available in a timely and accurate way. A minority of respondents suggested that with the introduction of smart meters there could be a requirement for the smaller non-domestic market to provide equivalent minimum data using alternative solutions. This should be in the form of access to half hourly consumption data and could be provided via a range of routes such as the HAN, the internet or a physical port.

Suppliers

1.39. There was strong support for provisioning data as part of the contractual agreement between the customer and their supplier. Data should be provided at an appropriate update frequency and level of detail and be accessed in different ways, such as via the internet or through a HAN.

Industry bodies and trade associations

1.40. Respondents observed that customers should be able to choose how data is used beyond the regulatory requirement. They commented that the data should be available free of charge and provided in an open format to enable the consumer to seek energy efficiency advice from any chosen party.

1.41. In the absence of an IHD, a small number of respondents suggested that the supplier be obliged to provide timely and accurate data, including the half hourly data.

Other respondents

1.42. Comments from this group of respondents included views that:

- Data should be relevant to user need and available in a flexible manner. The level of data available to customers and their suppliers should be a matter of commercial agreement
- Access to data by third parties should be regulated
- There should be a licence obligation on suppliers to ensure customer access rights to energy data.

Respondents from the telecoms sector

There was a consensus from respondents that customers should be able to obtain consumption information free of charge and that access to it should be secure. Data to customers could be made available by a number of routes including the internet or a HAN.

Non-Domestic Sector Question 10: Do you agree with our approach to data privacy and security for non-domestic customers?

1.43. A limited number of respondents responded to this question. With the exception of industry bodies, who were very strongly in favour, there was mixed support for the proposals laid out in the Prospectus.

1.44. Some respondents observed that domestic and non-domestic customers had different legal obligations and therefore a consistent approach may not work. However, some respondents considered that the data security and privacy rules for the non-domestic sector should be the same as for the domestic sector.

1.45. Some considered that clarity is needed on what data must remain within the consumer's premises and what is necessary for effective consumer billing and operation of the competitive market. Similarly, it was considered that there needs to be clarity on how consumers will authorise third parties to collect data on their behalf, whether differing levels of data should be allowed for different users and the mechanism for obtaining this data whether remotely or locally.

1.46. Other observations included the views that there is a need to:

- Recognise that smaller non-domestic customers may need to share data with many others and an appropriate methodology maybe needed so that access is maintained to only those to whom the customer has granted access
- Recognise that, where a supplier opts out of the DCC model, additional confidence regarding security and privacy may be necessary
- Share aggregated data from non-domestic consumers and make it available (in aggregated form) for a range of secondary purposes including energy efficiency initiatives and experiments
- Make third party energy service providers subject to regulation and accreditation to increase the confidence that they are acting in the best interests of the consumer.

Appendix 2 - Smart metering data and the Data Protection Act (DPA) 1998

The Information Commissioners Office

1.1. The Information Commissioners' Office (ICO) oversees and enforces the DPA, the Freedom of Information Act 2000, the Environmental Information Regulations 2004, and the Privacy and Electronic Communications Regulations 2003. It is responsible for ensuring that organisations do not break these laws through influencing company policy and resolving issues and for taking enforcement actions against those who ignore or refuse to accept their data protection obligations.

1.2. The primary concern within the DPA is the protection of sensitive personal data[10] and personal data. It sets out that:

- Personal data is anything that identifies you as an individual, either on its owner by reference to other information and includes expressions of opinion about you.
- Sensitive Personal data is personal data that also includes sensitive information on for example an individual's racial or ethnic origin, physical or mental health or condition. (Data from which an implication of criminal conduct could be drawn could count as sensitive data.)

1.3. The DPA also states that relevant conditions must be present for processing personal data. These include:

- It being necessary to discharge the contract with the customer
- It being necessary to comply with legal requirements
- The customer has given consent
- Where it is in the legitimate business interests of the company but this needs to be balanced with the rights of the individual.

1.4. The principles of the DPA state that personal data:

- Shall be processed fairly and lawfully
- Shall be obtained for specified purposes and shall be processed in a manner compatible with these purposes
- Shall be adequate, relevant and not excessive according to these purposes
- Shall be accurate and up-to-date
- Shall not be kept for longer than is necessary
- Shall be processed in accordance with the rights of the data subject set out by the DPA and that
- Appropriate security measures are in place

[10] It is unlikely that data collected by the metering system will be sensitive personal data, except for data collected in the process of investigating energy theft (linked to an alleged offence).

- Data will be processed in the European Economic Area[11] unless adequate levels of protection have been established elsewhere.

[11] The 27 countries of the EU plus Norway Iceland and Liechtenstein

Appendix 3: Initial analysis of Data Uses

1.1. Drawing on the responses to consultation and the outputs from the workshops there are a range of potential uses of consumption data that we have identified. This appendix sets out, in broad terms, the main uses that have been identified to date and some of the issues that we have identified through the responses to consultation, the workshops and Ofgem's experience in regulating the sector. Further work will be undertaken in the next phase to develop this analysis.

1.2. The focus of debate to date has been on the electricity sector given that there are greater benefits to be achieved there from, for example, shifting demand within the day and the stronger driver in terms of smart grids. Further work on the gas sector will be undertaken in the next phase.

Billing

1.3. Suppliers need to be able to bill their customers for the energy that they consume. There are currently three main ways in this process occurs: Credit customers who pay for their energy after they have been billed for it, direct debit customers who pay a fixed monthly sum and pre-pay customers who have to 'top up' their meters before using energy.

1.4. For non-smart meters suppliers are able to understand how much energy their pre-pay customers are using when they top up their meters. The introduction of smart metering offers the opportunity for alternative remote top up and pay-as-you-go tariffs. With more innovative pay-as-you-go tariffs suppliers may need to be able to monitor a meter more frequently in order to understand the amount of energy being consumed and therefore know when to instigate a charge. However, customers will need to sign up to these innovative tariffs and as such data access might form part of the contract they agree to.

1.5. For non-smart meters, credit customers are billed based on manual meter readings or estimates of usage. One of the benefits of smart metering is that it will enable accurate billing based on actual consumption. However, credit billing is typically on a regular basis, such as monthly or quarterly. There is a need for the meter reading to be collected by the supplier at a frequency that matches the billing period in order for the bill to be accurate.

1.6. For direct debit customers suppliers have a licence obligation to take all reasonable steps to ensure that the direct debit payment level is set based on the best information available.

Energy Efficiency Advice

1.7. Delivering the benefits of smart metering depends on consumers changing their energy consumption behaviour. Some of these benefits will be derived through consumers having an In Home Display, but they also depend on the take up of energy efficiency advice and actions by consumers. Suppliers have already provided some evidence that with more detailed smart metering data the advice they can give to consumers can provide greater benefits compared to simply having an IHD alone. Suppliers have also argued that consumers in many cases would not appreciate the value of the advice they would receive, until suppliers have given it to them, and for this they need access to the data from the meter.

1.8. Given that third parties such as energy service companies will have to obtain the customer's prior informed consent to gain access to this smart metering data there are important competition implications of providing access to suppliers on a different basis.

1.9. Consumers, will also, if they actively choose to, be able to share the near real-time data provided over the HAN with suppliers or energy service companies. This would enable the provision of even more detailed and tailored advice (such as identifying particular appliances that are not energy efficient and should be upgraded).

1.10. Currently suppliers have licence obligations to provide energy efficiency advice on request and in specific circumstances (where the customer is struggling to pay or they are being blocked from changing supplier because they have an outstanding debt). However suppliers currently fulfil this obligation through the provision of generic advice. While access to detailed smart metering data might allow the provision of more tailored advice we do not consider that having the detailed data is necessary for suppliers to discharge their current licence obligations in this area.

1.11. Further consideration of the following issues is needed in the next phase:

- how the benefits of energy services can be delivered by suppliers and third parties depending on the type of consumer consent mechanism
- how competition in the energy services market is maximised.

1.12. There are links between this work and the consumer engagement project which will help build a broader picture of how the behaviour change that is central to the programme benefits can best be facilitated.

Settlement

1.13. In the electricity market suppliers have to purchase an amount of electricity that matches the amount they provide to their end customers. This is done through a process known as settlement. Suppliers have to "settle" on a half hourly basis with higher charges at peak times (reflecting the higher costs of generating and

transmitting the energy at those times). While larger industrial customers already have half hourly meter reading allowing their consumption to be fed directly into settlement, for domestic and smaller industrial and commercial customers suppliers only know the total consumption which is then apportioned across half hourly periods based on typical “profiles”.

1.14. This “averaging” process means that charges are not properly cost reflective and suppliers do not have any ability to reduce their costs by encouraging consumers to shift their load away from peak times. There could be benefits in clearer price signals from moving away from 'profiles'. However, the process of “de-averaging” costs does not in and of itself generate benefits, but would result in a potentially significant redistribution of costs between customer groups. There are also potential challenges that might arise in terms of greater volatility of wholesale charges for customers remaining on profiles that need to be better understood.

1.15. Further work is being done by Elexon looking at the benefits of moving to greater use of half hourly meter readings for settlement (particularly within the industrial and commercial sector) but at this stage there is no requirement on suppliers to settle individual customers using half hourly meter readings, and significant barriers to them doing so for domestic customers in terms of the process and system implications (including links with network charging). There are however ways for them to create new profiles (if they are able to attract customers onto TOU tariffs for example).

1.16. At this stage, therefore, suppliers do not need to have access to half hourly data to meet their obligations in relation to settlement as currently 'profiles' are used. However, over time, with greater use of TOU tariffs, changes may be made to the settlement arrangements to take advantage of the wider availability of half-hourly data, which would then require this extra detail. Any decision to change the settlement rules in this way would necessitate a fresh consideration of the privacy impacts.

1.17. The current “profiles” are based on a sample of special meters, which do take half hourly reads. Further work is needed to identify if improvements could be made to the profiling method, which could use smart meters, although this could be based on some form of sampling which need not require the provision of personal data.

Time-of-UseTariffs

1.18. One of the benefits of smart metering is that it enables the introduction of more specific time-of-use tariffs which can provide an incentive for customers to shift their load away from peak times reducing costs and helping protect security of supply.

1.19. Typically, these tariffs would have different rates for different times of day but could alternatively be dynamic tariffs offering reductions on peak days – or days when there are particular security of supply challenges (with customers being notified shortly before when these days will be). Ofgem's work on demand side

response indicates that dynamic tariffs may be more effective in encouraging customer response but this has not been tested in a GB context.

1.20. Net benefits from time-of-use tariffs are generated if the customer responds to the price signal by shifting consumption to off-peak periods. If this occurs, on average energy can be generated at a lower cost, delivering a resource cost saving to the economy as a whole. Lower peak demand also means that long-term capacity investment in generation and networks can be reduced. However, simply moving selected customers onto time-of-use tariffs would not necessarily deliver any overall benefits if these customers do not change their consumption patterns. This is because while it may yield savings for that customer (if eg, their energy consumption is less than average during peak times) and potentially for their supplier (if they can then settle those customers on a different basis) there has been no reduction in the overall system costs. In this scenario, customers on flat tariffs may end up paying more in the short run.

1.21. Suppliers have argued that they need access to half hourly data from all customers to enable them to design and promote these tariffs, ensuring that customers are on the best tariff for them. Further analysis is needed in the next phase on whether all smart metering data is needed, or whether anonymised data or data from just those customers who wish to have a ToU tariff would suffice.

Wholesale hedging

1.22. Wholesale hedging is a commercial activity linked to the settlement issue discussed above. Suppliers will typically buy a large proportion of their energy needs in advance and will need to do so for half hourly slots. The better the information they have on their customers' current usage levels and profiles the better they will be able to forecast their future energy demands and buy ahead what they need and manage their costs.

1.23. However, by its nature the information that is needed here would appear to be an aggregate forecast not information by individual consumer. Further work needs to be done on how far aggregated or sample data could meet suppliers’ needs in this area.

Energy Theft

1.24. Energy theft is a problem for suppliers and network operators, with all customers bearing the costs of energy that is not paid for. The Government's impact assessment indicates that £113 million could be avoided through the use of smart meters to reduce energy theft.

1.25. Suppliers have argued that having access to daily meter readings would allow them to much more closely track patterns of energy use and identify potential cases of theft. However, suppliers have not yet provided information on how this could be done or the case for using meter data in addition to the tamper alerts that will be part of the meter functionality.

1.26. In the US smart meter data is being used to detect theft through reconciliation of energy usage levels in an area with usage measured higher up in the distribution system. This then flags where theft may be an issue.

1.27. Suppliers have a licence obligation to take all reasonable steps to detect and prevent the theft or abstraction of electricity at premises supplied by it. There may be a case for theft management to be a regulated duty for which suppliers should have access to smart metering data and tamper alerts. However, further work required in the next phase to confirm what level of smart metering data is required.

Debt management / Customer Service

1.28. Suppliers have argued that having access to daily meter reads would allow them to identify customers in payment difficulty and help ensure that debt levels are not building up. It is not clear if this information is needed routinely for all customers or could be collected as required. For example, where suppliers are negotiating repayment rates or discussing billing queries with customers they would be able to obtain an up to date reading as part of that process (subject to the system allowing near real time requests). It may also be open to suppliers, where they consider it necessary, to agree with customers that they will monitor usage on a more regular basis as part of a debt repayment arrangement queries.

1.29. More information is needed from suppliers about how this would work in practice and whether this could be dealt with on a case by case basis rather than requiring smart metering data from all consumers.

Protection of vulnerable customers

1.30. Consumer groups have highlighted the potential for smart metering information to be used to help in identifying and protecting vulnerable consumers. In line with best practice guidance produced by Ofgem, suppliers are expected to act responsibly when dealing with customers who may be struggling to pay their bills. Suppliers also have certain licence obligations in this area.

1.31. The programme will consider further in the next stage whether there are any circumstances which using smart metering data to identify and protect vulnerable consumers should be considered a regulated duty, for example in monitoring self-disconnection and whether any additional obligations need to be placed on suppliers in this context. This issue is also being considered by Ofgem as part of its Spring Package consultation.

Network operators

1.32. Network operators have a licence obligation to "maintain an efficient and economic network". They also have standards to meet in relation to levels of supply interruptions that are experienced and time taken to repair faults and restore supply. Ofgem as regulator sets the price controls on these companies, which determine the

level of charges they can recover based on their expected operational costs and investment needs. In setting future price controls Ofgem would expect the companies to be making use of improved information from smart metering to improve performance and avoid unnecessary investment.

1.33. There may be a case that, where energy consumption data is needed by network operators for planning or for operational purposes, it should be considered as needed to fulfil a regulated duty. Further work will be needed through the next phase to confirm the level and nature of the smart metering data required and in what situations aggregated or anonymised data would be sufficient.

1.34. Network operators have indicated that where a customer has an electric vehicle or distributed generation and hence will be imposing particular loads on the system, personal data might be needed. In such cases, allowing access to more detailed data could reasonably be a condition of those services being connected.

1.35. In addition to consumption data, network operators need access to power quality voltage and other technical data to help them more efficiently manage the network. In the EU Smart Grids Taskforce this has been classed as technical data although further discussion is needed with stakeholders to ensure this would not present the same privacy issues as detailed consumption data.

1.36. Ofgem has currently funded through the Low Carbon Network Fund a number of smart grid trials some of which involve smart metering. These trials should be helpful in identifying how network operators can in practice make use of this information.

Appendix 4 - Glossary

A

Access control

The mechanism used to ensure that access to smart meters and the data that they hold is only available to properly authorised parties.

Advanced meters

Advanced meters are defined in standard supply licence conditions as being able to provide measured consumption data for multiple time periods (at least half hourly for electricity and hourly for gas) and to provide the supplier with remote access to the data.

Aggregation

The process of collating data. In respect of smart meters this means that data from individual meters and bringing this together to produce larger data sets. See data minimisation.

Alert

Collective term relating to the detection of events and the sending of warning messages relating to them. Events shall be due to: faults, tampers and exceptions.

Anonymisation

The process of removing the ability for data to be traced to an individual.

Authorised parties

Any organisation or person who is authorised by the Smart Energy Code to carry out an activity on the smart metering system.

B

Balancing and Settlement Code (BSC)

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

C

Catalogue

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

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.

Communications service providers

Providers of communications services that will enable the transfer of data to and from smart meters.

Community of Technical Experts (CoTE)

Following publication of the Prospectus, expert groups were set up to draw on the experience of stakeholders. The CoTE has considered the scope of DCC's activities, WAN usage scenarios and service levels, indicative WAN and data management cost assumptions and timescales for implementation of various options.

Consumer

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

Consumption Tariff

A tariff structure that uses tier thresholds with different unit prices during a billing period. Also known as a Block Tariff, where the price rate being applied is dependent on the volume already consumed during a defined period of elapsed time.

Credit mode

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

Customer

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

Customer premises equipment

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

D

Data and Communications Expert Group (DCG)

One of several expert groups established by the programme, following publication of the Prospectus, to draw on the experience of industry and other stakeholders. DCG has considered the scope, set up and activities of the central data and communications body.

DataCommsCo (DCC)

The new entity that will be created and licensed to deliver central data and communications activities. DCC will be responsible for the procurement and contract management of data and communications services that will underpin the smart metering system.

Data minimisation

The process of reducing the amount of personal data used. This can be through the use of aggregation, anonymisation, or sample sets of data.

Data processing

The validation of meter reading data and calculation of values used in settlement (performed by Data Collectors in electricity and xoserve in gas).

Data Protection Act 1998

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

Demand-side management

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

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 that 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 supply where a customer takes gas and electricity from the same supplier.

E

Early movers

Suppliers who are already installing meters with "smart" functionality.

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.

End-to-end smart metering system

The end-to-end smart metering system covers all equipment, communication links and connections from every customer through DCC to suppliers, network operators and authorised third-party service providers.

Energy Demand Research Project (EDRP)

The EDRP is a suite of large scale trials across Great Britain that seeks to better understand how consumers react to improved information about their energy consumption. The EDRP has trialled a range of methods of providing customers with improved feedback on their energy consumption and other associated interventions. These interventions include smart meters, enhanced energy consumption information on bills, energy efficiency information, visual display units, incentives to reduce or shift consumption and community engagement.

Energy supplier

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

Estimated bills

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

European Regulators' Group for Electricity and Gas (ERGEG)

The European Commission's formal advisory group of energy regulators. ERGEG was established by the European Commission, in November 2003, to assist the Commission in creating a single EU market for electricity and gas. ERGEG's members

are the heads of the national energy regulatory authorities in the 27 EU Member States.

F

Fault

Failure within a component such as to compromise its performance. This may be minor; eg a temporary communications failure; or major eg a gas meter battery about to expire.

Firmware

Firmware is software that runs on a hardware device such as a smart meter or IHD that provides the instructions for how the device operates. As with other types of software, firmware can also be updated.

Feed-in-tariff (FIT)

A feed-in tariff is a policy mechanism that came into effect in April 2010. It is designed to encourage the adoption of renewable energy sources.

Foundation stage

The period before market readiness for the mass rollout is fully established. This is also referred to as Phase 2 of the Smart Metering Implementation Programme.

Fuel Poverty

Households are considered as being in "fuel poverty" if they spend more than 10 per cent of their household income on fuel to keep their home adequately heated.

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. These describe 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 meter

A measuring instrument that records the volume of gas supplied.

Green Deal

The Green Deal is the Government's initiative to establish a framework that will enable private firms to offer consumers energy efficiency improvements to their homes, community spaces and businesses at no upfront cost, and to recoup payments through a charge in instalments on the energy bill.

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

Information Commissioner's Office

The Information Commissioner’s Office is the UK’s independent authority established to uphold information rights in the public interest, promoting openness by public bodies and data privacy for individuals.

In-home display (IHD)

An IHD 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) on both a technical and commercial basis. See also commercial interoperability and technical interoperability.

K

Kilowatt hour (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 licences require the establishment of a number of multilateral industry codes that underpin the gas and electricity markets. Licensees need to be signatories 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.

Low Carbon Networks (LCN) Fund

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

M

Meter Asset Manager (MAM)

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

Meter Operator (MoP)

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

Meter Owner

The person owning a gas meter and/or a meter installation.

Metering services

The provision, installation, commissioning, inspection, repairing, alteration, repositioning, removal, renewal and maintenance of the whole or part of an installed gas or electricity meter.

Microgeneration

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

Module

Sub assembly of the smart metering system equipment capable of on-site exchange without removing the host equipment, eg the WAN module that can be exchanges without removing the meter.

N

Network operators

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

O

Ofgem

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

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 policy design phase of the Smart Metering Implementation Programme.

P

Pay As You Go (PAYG)

See prepayment mode.

Prepayment meter

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 prepayment customer pays for energy by inserting electronic tokens, keys or cards into the meter.

Prepayment mode

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

Privacy by design

A design philosophy whereby privacy issues are considered before and while a system is designed, rather than afterwards.

Programme

The Smart Metering Implementation Programme ("the programme") is the central change programme established by the Government. It is responsible for overseeing the development and implementation of the policy design, including establishing the commercial and regulatory framework to facilitate the rollout. Ofgem E-Serve has managed, on behalf of DECC, the policy design phase of the programme that has informed the Government decisions set out in this document. DECC will be directly responsible for managing the programme during the implementation phase.

R

Rate

A means of charging differing amounts for energy consumed, based on the time of day the consumption occurred (ie units consumed between midnight and 05:59:59 to be charged at x pence, units consumed between 06:00:00 to 23:59:59 charged at y pence).

Remote Communication

Communication (two way) from a head-end system to a smart metering system, and from the metering system to the head-end system.

Remote meter functionality

Functions of a smart meter that can be updated/switched between remotely without the need for manual interaction with the meter.

S

Security by design

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

Security Technical Expert Group (STEG)

One of several expert groups established by the programme, following publication of the Prospectus, to draw on the experience of industry and other stakeholders. STEG has considered issues relating to the security of the end-to-end smart metering system.

Smaller non-domestic sector

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

Smart appliances

An appliance that can alter the way in which it uses energy (consumption level or time-of-use) in response to an external signal, eg a price signal.

Smart Energy Code (SEC)

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

As part of an electricity power system, a smart grid 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

A meter which, in addition to traditional metering functionality (measuring and registering the amount of energy which passes through it) is capable of providing additional functionality for example two-way communication allowing it to transmit meter reads and receive data remotely. The proposed minimum functionality of smart meters is set out in the Functional Requirements Catalogue.

Smart Metering Design Expert Group (SMDG)

One of several expert groups established by the programme, following publication of the Prospectus, to draw on the experience of industry and other stakeholders. SMDG has considered functional requirements for smart metering equipment.

Smart metering system

The smart metering system refers to smart metering equipment in customers' premises. In the domestic sector, this equipment comprises the electricity meter, the gas meter, the HAN, the WAN module and the IHD.

Smart metering regulatory regime

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

T

Tamper

The detection of deliberate interference with a component; eg connecting a meter in reverse.

Tamper alarm

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

Tariff

A table of fixed prices (for amount of energy consumed by a consumer) that is made up of various rates and tiers.

Technical interoperability

Technical interoperability is the ability for different smart metering system components to exchange data and work together independent of manufacturer. This ensures that different suppliers can install in premises without having to change existing equipment at change of supplier, thereby minimising disruption to the consumer. It is also 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 smart metering, this means the seamless, end-to-end connectivity of hardware and software from consumer 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 minimum functional requirements.

Time-of-use tariff

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

V

Value-added services

See consumer value added services.

W

Wide area network (WAN)

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

WAN module

The WAN module connects the meter to DCC.