

DEPARTMENT FOR BUSINESS
ENTERPRISE & REGULATORY REFORM

ENERGY BILLING AND METERING

**Changing Consumer
Behaviour**

**A Consultation on
Policies Presented in the
Energy White Paper**

AUGUST 2007

This consultation follows the publication of the Energy White Paper. The wide range of measures set out in the White Paper take forward our commitment to meeting the two long-term energy challenges. They are:

- tackling climate change by reducing carbon dioxide emissions both within the UK and abroad; and
- ensuring secure, clean and affordable energy as we become increasingly dependent on imported fuel.

This and other consultations taking place over the coming months will further help to formulate our long term energy policy.

Further information on the White Paper and related documents is available on the BERR website:
www.berr.gov.uk/energy/whitepaper/consultations

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A Consultation on Policies Presented in the Energy
White Paper

August 2007

About this Consultation

The Energy White Paper underlined the Government's commitment to reducing carbon dioxide emissions. We can all play a part by reducing our own energy use and better information about our energy use should help us to do that.

The Energy White Paper set out a number of policies on billing and metering, designed to reduce energy consumption.

This consultation seeks views on the implementation of those policies. In summary, these are:

- to promote awareness of domestic energy use through a requirement on energy suppliers to:
 - present consumption data, preferably in graphical form, on consumers' bills to allow consumers to compare different periods of energy consumption;
 - provide real time display units to certain customers so that they can see in real time and in a way relevant to them how much electricity they are consuming;
- to require the installation of smart meters for business customers above a certain energy usage threshold, where it has been proven to be cost-effective.

The Energy White Paper also set out the Government's expectation that smart metering would be introduced in the remainder of the business sector and the domestic sector over the next decade. This consultation therefore seeks views on how smart meters might be so deployed, including the method and costs of doing so.

This consultation is also being conducted in the light of the need to implement, by May 2008, the requirements of Article 13 of the Energy End-Use Efficiency and Energy Services Directive ("Energy Services Directive"). In taking final decisions on billing and metering, the Government will need to comply with the requirements of the Directive.

Issued on: 3rd August 2007
Respond by: 31st October 2007
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Executive Summary

The Energy White Paper¹ set out a range of billing and metering measures designed to give consumers direct access to information about their energy use to help them manage that use and reduce their carbon emissions. This followed the Government's earlier consultation which had sought information and views in this area.²

The Energy White Paper outlined three core billing and metering activities that would heighten awareness of energy use and reduce consumption:

- to promote awareness of domestic energy use through a requirement on energy suppliers to present consumption data on consumers' bills to allow them to compare different periods of energy consumption;
- to promote awareness of domestic energy use through a requirement to provide certain customers with real-time display units so that they can see in real time, and in a way relevant to them, how much energy they are consuming and what it is costing; and
- to ensure that business customers in those sectors of the market where it was now cost-effective would receive smart meters over the next five years.³

More broadly, the White Paper set out the Government's expectation that smart meters would be provided to all business and domestic customers over the next decade.

This second consultation on billing and metering seeks further views on the policies presented in the White Paper and their implementation, and whether it would be appropriate to apply those policies to smaller business. The consultation also seeks views on options for the deployment of smart meters.

A summary of responses to BERR's November consultation on metering and billing is available at:
www.berr.gov.uk/files/file40613.pdf

1 Energy White Paper: Meeting the Energy Challenge (www.dti.gov.uk/energy/whitepaper/page39534.html)

2 Energy Billing and Metering: Changing Customer Behaviour – an Energy Review Consultation (www.dti.gov.uk/files/file35042.pdf)

3 Advanced metering for SMEs (www.carbontrust.co.uk/publications)

How to respond

Responses should reach BERR by 31st October 2007.

BERR will consider all responses. In due course, it will publish a digest of responses as part of its overall response to the consultation. Individual responses may be published, and will in any case be available for public examination.

When responding, please state whether you are doing so as an individual or on behalf of an organisation. If you are responding on behalf of a representative or membership organisation, please make clear who your organisation represents and, where applicable, how the views of members were canvassed and assembled.

Responses should be submitted to:

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Information provided in response to this consultation, including personal information, may be subject to publication or disclosure in accordance with the access to information regimes (these are primarily the Freedom of Information Act 2000 (FOIA), the Data Protection Act 1998 (DPA) and the Environmental Information Regulations 2004). If you want other information that you provide to be treated as confidential, please be aware that, under the FOIA, there is a statutory Code of Practice with which public authorities

must comply and which deals, amongst other things, with obligations of confidence.

In view of this, it would be helpful if you could explain to us why you regard the information you have provided as confidential. If we receive a request for disclosure of the information we will take full account of your explanation, but we cannot give an assurance that confidentiality can be maintained in all circumstances. An automatic confidentiality disclaimer generated by your IT system will not, of itself, be regarded as binding on the Department.

The Department will process your personal data in accordance with the DPA. In the majority of circumstances, this will mean that your personal data will not be disclosed to third parties.

Help with queries

Questions about the policy issues raised in the document can be addressed to either Ngaio Wallis at the address above or to:

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If you wish to comment on the conduct of this consultation or make a complaint about the way this consultation has been conducted, please write to:

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A copy of the Code of Practice on Consultation is in Annex A.

Section 1: Introduction

- 1.1 In November 2006, the Government sought views on a range of billing and metering issues in its consultation, “Energy Billing and Metering, Changing Customer Behaviour”. A summary of responses to this consultation is available at www.berr.gov.uk/files/file40613.pdf. In the light of this and other work, in the Energy White Paper the Government set out a range of measures designed to change consumer behaviour through billing and metering. These measures were designed to help achieve our goals on climate change, whilst ensuring compliance with the provisions of the Energy Services Directive.
- 1.2 This second consultation document on billing and metering sets out the Government’s policies in greater detail, and asks how best we can implement them. In particular, it addresses the provision of additional information on domestic customers’ bills, the roll-out of real-time displays in the domestic sector and the role of smart meters, including the mandatory provision of these meters to segments of the SME market.
- 1.3 These measures are intended to ensure compliance with the billing and metering requirements of the Energy Services Directive.

Section 2: Policies on billing and metering

- 2.1 In November 2006, the Government set out a range of broad proposals in its consultation, "Energy Billing and Metering, Changing Customer Behaviour". Following consideration of the views expressed during the consultation and discussion with interested parties, the Government set out more specific policies in the Energy White Paper. These policies dealt with smart metering, real-time display devices and the provision of more detailed consumption data on bills.

The Government proposes that, from 2008, it will:

Domestic

- require the provision of comparative historical consumption data on bills for all domestic gas and electricity customers;
- require electricity suppliers to provide (where technically possible) a real-time display unit when an electricity meter is replaced or newly installed in domestic premises;
- require electricity suppliers to provide a real-time display to all electricity consumers who request one for a period of two years;

Business

- require gas and electricity suppliers to install smart meters in those parts of the SME sector, above a certain energy usage threshold, where it has been shown to be cost-effective to do so and where such a meter is not already installed.

- 2.2 In addition, the Government set out its expectation that, over the next ten years, all gas and electricity customers will be given smart meters with separate visual displays or potentially other ways of providing real-time information, if they are shown to be effective, that allow communication between the meter, the energy supplier and the customer.
- 2.3 The analysis conducted for the Energy White Paper suggests that smart meters are not universally cost-effective at present. This reflects a number of facts. Smart metering

technology is still evolving which has meant that smart meter prices have remained high. Work is also underway to develop standards for smart meter interoperability which may help to reduce costs and help to make their widespread use more cost-effective and compatible with our competitive supply market. Asset stranding and the design and establishment of the communications infrastructure needed to support smart metering also represent key issues to be resolved.

- 2.4 This consultation seeks views from interested parties on the costs and benefits of all our policies and on the development of policy for smart meters.

Section 3: Compliance with the Energy Services Directive

The terms of the Directive

- 3.1 Our November Consultation “Energy Billing and Metering, Changing Customer Behaviour” described in detail the billing and metering requirements of the Energy Services Directive. The Energy Services Directive, which was agreed in December 2005, requires Member States to develop national action plans for achieving a 1% target for saving energy from end-users. The Directive also contains a series of provisions designed to improve energy efficiency. The provisions dealing with metering and billing are generally contained in Article 13.⁴
- 3.2 On meters, Article 13(1) of the Directive requires that Member States ensure that, in so far as is “technically possible, financially reasonable and proportionate in relation to the potential energy savings”, final customers for electricity, natural gas, district heating/cooling and domestic hot water are provided with competitively priced, individual meters that accurately reflect the customer’s actual energy consumption and provide information on actual time of use.
- 3.3 It further requires that, when an existing meter is replaced, such competitively priced individual meters should always be provided unless it is “technically impossible” to do so or it is “not cost-effective in relation to the estimated potential savings in the long-term”. It also requires that, when a connection is made to a new building, or a building undergoes major renovations⁵, such competitively priced individual meters should always be provided.
- 3.4 In defining energy efficiency improvement measures, the Directive states that account should be taken of the efficiency gains obtained through the widespread use of cost-effective technological innovations, for instance, electronic metering. It says that, in the context of the Directive, competitively priced individual meters include

⁴ Article 13 should be read in tandem with the recitals to the Directive and with Articles 1 (“Purpose”), 2 (“Scope”), 3 (“Definitions”) and 6 (“Promotion of Energy End-Use Efficiency and Energy Services”)

⁵ As set out in Directive 2002/91/EC

accurate calorimeters (measuring instruments that determine quantities of heat).⁶

3.5 Article 13(2) and (3) of the Directive deals with billing and the provision of information on bills. Article 13(2) requires Member States to ensure that, where appropriate, energy billing performed by energy distributors, distribution system operators and retail energy sales companies⁷ is based on actual consumption and is presented in clear and understandable terms. It also requires that information shall be provided with the bill to provide customers with a comprehensive account of current energy costs. It further states that billing on the basis of actual consumption shall be performed frequently enough to enable customers to regulate their own energy consumption. The Energy Services Directive makes it clear that to enable final consumers to make better informed decisions about their individual energy consumption, they should be provided with a reasonable amount of information thereon, and should be encouraged to check their own meter-readings regularly.⁸

3.6 Article 13(3) of the Directive requires Member States to ensure that, where appropriate, energy distributors, distribution system operators and retail energy sales companies make available on bills, contracts, transactions and/or receipts, in clear and understandable terms:

- information about current actual energy prices and consumption;
- comparative information showing the customer's consumption for the same period in the previous year, preferably in graphical form;
- wherever possible and useful, comparative information for an average normalised or benchmarked user in the same category; and
- contact information for consumers' organisations etc, from which information may be obtained about energy efficiency improvement measures, comparative end-user profiles and/or objective technical specifications for energy using equipment.

3.7 Member States may exclude small distributors, small distribution system operators and small retail energy sales

6 Recital 29

7 Defined in Article 3(o), (p) and (q) of the Energy Services Directive

8 Recital 29

companies from the application of Article 13. These are defined as natural or legal persons distributing or selling less than the equivalent of 75 GWh of energy per annum or employing fewer than ten persons or whose annual turnover or balance sheet total does not exceed EUR 2 million.⁹ Energy supply companies fall within the Directive's definition of "retail energy sales companies".

The Government's response to Article 13 of the Directive

- 3.8 The Government believes that smart metering, combined with time of use information, is the optimum way of meeting the metering requirements of the Directive. Previous analysis undertaken by BERR, which included simplifying assumptions about method of roll out, indicated that the universal introduction of smart metering would not, at present, be financially reasonable and proportionate in relation to the potential energy savings. Due to a number of developments since this work was conducted, including ongoing work on smart meter interoperability and a Government vision outlining a smart meter roll-out within 10 years, the costs used in that analysis may have changed substantially, and this consultation will seek updated views on the costs and benefits of smart metering. As a result of the changing cost position, the Government considers that the objectives and terms of the Directive can best be met by a phased approach.
- 3.9 In the business energy market, the largest electricity and gas consumers already use smart meters ("half-hourly" and "daily read" meters respectively) and provision of such meters is required by the Balancing and Settlement Code and the Uniform Network Code. The Government considers that there is evidence that smart metering would be cost-effective for a bloc of business customers with medium levels of use, and proposes to require that these customers be provided with smart meters. Further details on this policy can be found in Section 7 of this consultation document.
- 3.10 The Government does not propose to require suppliers to ensure that smart meters are provided to the smallest business customers, as there is no evidence that they would be financially reasonable and proportionate in relation to the potential energy savings at this time. We are, however, seeking views from suppliers and small business on this issue. The Government expects the roll-out of smart meters

⁹ Article 2 and Article 3(r)

to these customers to occur as part of the roll-out to domestic customers.

- 3.11 In the domestic market, where smart meters do not at present appear to be financially reasonable and proportionate in relation to the potential energy savings, the Government plans to meet the objectives and terms of the Directive by providing customers with information about actual time and levels of energy use. In the first instance, and pending the provision of smart meters combined with time of use information, as described at paragraph 3.8, the Government plans to do this by requiring suppliers to provide real-time electricity displays to customers in circumstances where it is cost-effective to do so. Section 6 sets out these circumstances. The Government also sees a long-term role for displays, or, potentially, other methods of providing similar information, in tandem with smart meters.
- 3.12 This consultation provides the means of testing the data on which the Government has finalised the policies set out in the Energy White Paper. An Impact Assessment setting out the Department's cost benefit analysis can be found at Annex C.
- 3.13 With respect to the billing elements of the Directive, the Government will ensure that information showing the customer's energy consumption for the current billing period compared to the same period in the previous year is provided on domestic customers' bills as soon as possible. In doing so, the Government will ensure that gas and electricity suppliers have the flexibility to deliver this in the most appropriate manner.
- 3.14 The Government will introduce these billing and metering requirements by inserting new conditions into the standard conditions of gas and electricity supply licences, using regulations made under section 2(2) of the European Communities Act 1972. The draft regulations and licence conditions are at Annexes D and E.
- 3.15 Member States may exclude small distributors, small distribution system operators and small retail energy sales companies from the application of Article 13. These are defined as natural or legal persons distributing or selling less than the equivalent of 75 GWh of energy per annum or employing fewer than ten persons or whose annual

turnover or balance sheet total does not exceed EUR 2 million. If this exclusion is relevant to any energy suppliers, the Government will consider applying it.

Section 4: Policy Implementation (Draft) Timescales

August – October 2007	Consultation period
August – October 2007	Stakeholder meetings
August – October 2007	Smart Meter CBA Development
November 2007	Responses to Consultation
December – March 2008	Conditions inserted in supply licences by regulations made under section 2(2) of the European Communities Act 1972 for three core policies on Billing, Displays and Smart Meters for Business
January 2008 – onwards	Energy suppliers begin to prepare for compliance with new licence conditions, and begin provision of displays from date set in licence.
May 2008	Implementation deadline for Energy Services Directive

Section 5: Provision of historical consumption data on domestic energy bills

- 5.1 The Government believes that historical comparative information on bills or statements will help customers to be more aware of their energy consumption and subsequently help reduce that energy consumption. In addition, Article 13(3)(b) of the Energy Services Directive requires Member States to ensure that, where appropriate, comparisons of a customer's current energy consumption with consumption for the same period in the previous year, is provided by energy suppliers in or with their bills. We therefore propose that historic information, preferably in graphical form, which compares energy usage in one billing period with the same period the previous year, should be provided on domestic customers' energy bills or statements, or, for those customers with internet-based contracts, electronically. In this way we consider we will implement the requirement in Article 13(3)(b) of the Energy Services Directive. This measure is expected to deliver carbon savings of up to 0.18MtC per year by 2020 (see Impact Assessment at Annex C).

Information to be presented

- 5.2 The Government intends to allow as much flexibility to suppliers as possible in the provision of comparative information on bills. We recognise that bills already contain a considerable amount of information and that each supplier will have a different format and design for its bills. We also want to allow suppliers to find innovative means of providing this information on the bill.
- 5.3 The Government proposes that, on the bill, data should be provided on the amount of energy used within the period, with estimated readings clearly marked as such. We intend to allow suppliers the flexibility to provide *either* the total energy used *or* average data, for example average energy use per day during the period.

Question:

What are your views on the information to be provided?

- 5.4 We do not intend to require suppliers to present weather-corrected data or to attempt to take account of changes in the household (eg additional occupants residing in the property) due to the complexity and prohibitive cost of doing so. However, we do want to consider whether advice should be provided to clarify the relevance and validity of the historical information provided on the bill. Such clarification may be provided on the bill or there may be a reference on the bill to another source, such as a website.

Question:

What are your views on the provision of corrected data or advice on uncorrected data?

Change of occupancy or supply

- 5.5 Suppliers will not be required to provide comparative data to a consumer where a change of supply or a change of occupancy has occurred within the previous twelve months. There will be no requirement to seek data from previous suppliers on a consumer's historic use.

Question:

As a supplier, what proportion of your customers will lack access to comparative data because of change of occupancy or supply?

Presentation of data

- 5.6 The Government intends to give suppliers flexibility in presenting information. This will allow them to provide information in a way that best suits their billing system, and should encourage innovation in presentation.
- 5.7 We therefore propose setting a general requirement that information must be presented to consumers in a way that is clear and easy to understand and interpret. Suppliers will retain flexibility on the shape, size and location of data. While we would prefer to see data presented graphically, we will not require this or specify the type of presentation used.

Question:

Is this the right approach to regulating the presentation of billing information?

Frequency of provision of data

- 5.8 In general, we expect billing and comparator periods to be quarterly but we recognise that this may not always be the case. Some customers will receive bills or statements over other periods, such as monthly or annual basis. In such cases, the comparator period should be the current statement or billing period compared to previous periods.

Business customers

- 5.9 The policies on billing only cover domestic customers. Larger business customers will either already have smart meters or will be subject to the policy on smart metering set out at Section 7, and will, therefore, already have or will shortly have, access to detailed historical information. Smart meters do not automatically provide comparative information – or billing of any particular type – but, equally automatically, they possess the means to allow customers access to comparative information if they require it, subject to arrangements with their supplier. The Government’s previous consultation found no support for providing historical information to the smallest business customers, but the Government wishes to take this further opportunity to establish whether the provision of comparative information to this sector would be appropriate, given that we are not intending to include the smallest business customers in the smart meter roll out.

Question:

Do you agree that these policies for billing should only cover domestic customers or would the comparative information be useful for the smallest businesses?

Energy efficiency advice

- 5.10 The Government does not intend to require additional energy efficiency advice on the bill beyond requiring suppliers to make it clear that Energywatch is a source

of information on energy efficiency. Suppliers already provide a significant body of energy efficiency information to customers, and are already required to include contact details for Energywatch, the statutory gas and electricity consumer body, on bills. Energywatch's website signposts customers to other bodies providing energy efficiency advice. Energywatch's call centre can provide general advice on energy efficiency, sends domestic customers requiring more detailed advice to the Energy Saving Trust and sends business customers to the Carbon Trust by "hot" transfer. The Government expects similar arrangements to be maintained when Energywatch is replaced by a successor body during 2008 and the Government will keep this position under review. In respect of domestic customers, we therefore consider that there is no need to take further action to implement Article 13(3)(d) of the Energy Services Directive, which requires suppliers to provide contact details for consumer organisations providing energy efficiency information, beyond requiring that suppliers make it clear on bills that Energywatch is a source of information on energy efficiency. It is also open to suppliers to provide additional references or links to any information that may be available, perhaps on a website.

- 5.11 Gas and electricity suppliers are not required to provide contact details for Energywatch on business customers' bills. The Government sees scope for the growth in provision of energy efficiency services in the business sector, and would welcome views on whether such an approach would be a more effective way of promoting energy-saving than the addition of contact details to customers' bills.

Questions:

What are your views on the usefulness and cost of any additional energy efficiency information?

If you are a supplier, do you already provide or intend to provide complementary energy efficiency advice?

What scope is there for the development of more energy efficiency and energy demand management services in the business sector?

Would the provision of contact details for Energywatch or others be appropriate for this sector?

Small Energy Suppliers

- 5.12 The Government seeks views on the potential implementation issues that this policy may pose for small energy suppliers; that is, those that are above the broad exclusion within the Directive, but are small in terms of gas and electricity supplied in the British market.

Question:

Should small suppliers be afforded additional time to implement this policy?

Fuels other than gas and electricity

- 5.13 The Government will consider further what, if any, provisions of Article 13 of the Directive might apply to suppliers of fuels other than electricity and natural gas (for example, heating oil, liquid petroleum gas, coal etc) in its parallel consultation on compliance with the Energy Services Directive. However, given the nature of the markets and use of these fuels, the Government considers that it would not be practicable or helpful for suppliers to provide comprehensive and accurate information about previous use.

Draft Statutory Instrument

- 5.14 Draft license conditions containing this billing requirement are attached with this consultation (see Annexes D and E). The Government would welcome views on the draft condition.

Question:

Do you have any views on the attached draft licence condition for this policy?

Question:

Do you have any other comments on these policies to require the provision of comparative information on bills?

Energy Services Directive

- 5.15 Article 13(2) of the Energy Services Directive requires Member States to ensure that billing carried out by energy suppliers is, where appropriate, done on the basis of actual

energy consumption and is performed frequently enough to enable customers to regulate their energy consumption. In the Energy Review, we said that we would consult on the frequency with which customers are provided with accurate bills. The Government has also investigated the levels of actual meter readings.

5.16 Ofgem advises that, on average, over 87% of customers in the domestic energy sector receive at least one bill based on an actual meter-reading each year. In the business sector, Ofgem advises that, on average, electricity suppliers read 92% of non-half hourly meters at least once per year, whilst gas suppliers read 86% of non-daily read gas meters at least once per year. As we consider billing on the basis of an annual accurate meter read is sufficiently frequent to enable customers to regulate their energy consumption, the Government does not propose any further action in this area at this time.

5.17 As set out in Section 3 of this consultation document, Article 13(3) of the Energy Services Directive requires Member States to ensure that, where appropriate, energy suppliers make available on bills, contracts, transactions and/or receipts, in clear and understandable terms:

- (a) information about current actual energy prices and consumption;
- (b) comparative information showing the customer's consumption for the same period in the previous year, preferably in graphical form;
- (c) wherever possible and useful, comparative information for an average normalised or benchmarked user in the same category; and
- (d) contact information for consumers' organisations etc, from which information may be obtained about energy efficiency improvement measures, comparative end-user profiles and/or objective technical specifications for energy using equipment.

5.18 We are not proposing taking any further action in respect of the requirement in Article 13(3)(a) because energy suppliers are already required to set out the current prices of energy and the customer's actual consumption in their bills.

5.19 We are also not proposing at this stage to require suppliers to provide benchmark data as referred to in Article 13(3)(c) of the Energy Services Directive. As the Government's

response to the November consultation shows, there was no support for providing information of this kind, because, for a variety of reasons, it did not appear useful in helping consumers reduce their energy consumption.

Section 6: Provision of “time of use” consumption data to domestic consumers through a real time display

- 6.1 In November, the Government sought views on how it might best rapidly roll out real-time electricity displays in the domestic sector.¹⁰ Analysis undertaken following the November consultation (see Annex C), and evidence from their use in other electricity markets, suggests that displays raise consumers’ awareness of energy use and help them reduce consumption. Our analysis shows that, using central assumptions about costs and persistence of reduction of energy use, 0.15MtC per annum could be saved by 2020 through the use of displays. Our central case assumptions, which assume a cost of £15 for the device, £11 for installation and an additional £3 for ongoing customer service and maintenance costs with a cost of capital of 10% indicates that these proposals will produce a total net benefit of £205 million, based on a range of values for energy saved. Our analysis shows that the approach to providing display devices set out below is financially reasonable and proportionate in relation to the potential energy savings.
- 6.2 The benefits were calculated using a wholesale price, which is 35% of the electricity retail price (without tax). This will understate the benefits of the policy because energy efficiency policies lower demand and provide additional cost savings over time. Based on a modification of this assumption, where energy benefits are assumed to be a function of the retail price, the calculated net benefit for this policy would be up to 5.5 times higher (£1.13 billion) than in the central case. Calculating the benefits of the policy using the retail price would overstate the benefits. We are reviewing what the appropriate price will be for calculating benefits in future analysis and hence how much benefit energy efficiency can achieve for Great Britain. (This analysis should not be compared with other policies in the Energy White Paper where benefits were calculated on a different basis.)

¹⁰ At present, displays that can be used with existing gas meters do not exist, and it is not in any case clear that the benefits of time-of-use information for gas, which is used for space heating, water heating or cooking, would be analogous to those for electricity.

- 6.3 The Energy White Paper subsequently set out two approaches to providing displays. It also noted that the Government would consult on their implementation in the context of its ambition for a roll-out of smart meters within ten years.
- 6.4 We believe that there is a key role for real-time electricity displays with smart meters and potentially – although probably in the longer term – for other forms of transmitting information about energy use via digital technology to a television, mobile telephone or personal computer. We also consider that electricity suppliers are in a good position to deliver display devices or other means of information transmission cost-effectively.
- 6.5 The Government considers that, for a two-year period, an electricity supplier should provide a real-time display device free of charge at the request of a customer. In addition, suppliers should also provide a display device when a standard meter is replaced or newly installed. However, in the light of our long-term policy on smart meters, we would also welcome views on what would be required to enable suppliers to move directly to installing a smart meter, accompanied by an appropriate display device or other means of transmitting information to devices in the home when a meter is replaced or newly installed or under wider circumstances. We would also welcome views on other means of making self-standing real-time displays entirely accurate relative to the meter in advance of a full roll-out of smart meters, and of reducing the likelihood of asset-stranding of display devices.

Questions:

What are your views about these approaches, and about the ways in which information could be provided via a smart meter in the longer term?

How might the risk of stranding self-standing displays be reduced?

General requirements on provision of displays and transmission of information

- 6.6 The Government wishes to allow suppliers as much flexibility as possible in the choice of display device, how they offer devices to customers and any ancillary services they wish to build around them, subject to a common

requirement that the customer should receive time of use information about electricity consumption and cost on a display device that enables them to see the effects of using or not using appliances. The Government does not intend at this time to impose a standard on the accuracy of data provided to consumers through these devices.

Questions:

Are there devices other than display devices that can be used in conjunction with an existing meter to provide this information?

Is it appropriate not to impose a standard for the accuracy of data provided to consumers from display devices?

6.7 It is for suppliers to determine whether they wish to provide additional information, products or services. If suppliers can demonstrate that additional features can produce increased carbon savings, then they may be able to secure credits under the Carbon Emissions Reduction Target (CERT), the successor to the Energy Efficiency Commitment, which will come into force in April 2008. For example a more sophisticated display or information method might:

- show cumulative data and compare consumption in one month with the previous month;
- allow for information to be downloaded from a display or smart meter to a personal computer to give the household more detailed information about their energy use;
- provide information about the energy consumption of individual appliances.

6.8 The results from the Government's Energy Demand Research Project may in due course help in establishing any additional carbon reduction savings that could feed into an assessment for CERT credits. Through this project, the Government is co-funding with supplier-led consortia a series of two-year trials. These will test consumers' responses to different interventions, including combinations of some or all of the following: improved billing (with and without smart meters), energy efficiency information, community engagement, visual display units and smart meters. The trials will involve around 40,000 households across Great Britain.

Questions:

What are your views on such additional provision attracting CERT credits?

If you are a supplier, will you consider taking up such an opportunity and to what extent?

- 6.9 Where an electricity supplier provides a device, and subject to the proposals on installation at para 6.11, the Government does not propose that the supplier should be under any further obligation to the consumer beyond that in general consumer law. The supplier would not be required to update the device after a change of tariff, although suppliers may choose to provide additional support or maintenance on a commercial basis.

Questions:

Do you consider that there is potential for suppliers to provide ancillary services such as charging for recalibration?

What on-line or other services might suppliers provide?

- 6.10 It has been suggested that display devices or other new ways of providing information may present problems to certain customers, in particular vulnerable customers or those on the priority services register. The Energy Demand Research Project will provide useful evidence to this effect, however, the Government would welcome views on whether this might be the case, the extent of any potential problem, and ways in which it might be addressed.

Question:

The Government would welcome views on any potential problems for vulnerable customers and how these problems might be addressed.

The Government's proposals

From May 2008, providing real time displays with all new and replacement electricity meters

- 6.11 The Government proposes that, from May 2008, where technically feasible (see para 6.13), every household having an electricity meter replaced and every household receiving a new connection, should be given a real-time electricity display, free of charge.

- 6.12 Assuming a domestic electricity meter population of 26 million with an annual replacement turnover of 5%, we anticipate that more than 1 million devices will be provided each year. Electricity suppliers will also be responsible for the safe installation and operation (in so far as it relates to the installation of the device) of real time displays where they undertake that installation – our impact assessment (Annex C) assumes that suppliers will make arrangements to have these devices fitted by a suitably qualified person.
- 6.13 It is sometimes not technically possible to install a display, for example where the meter is a considerable distance from the household, or where the cable from the meter is not amenable to the use of the clip-on display. The Government does not propose that electricity suppliers should take additional steps to install displays in such circumstances.
- 6.14 The Government does not intend to preclude the use of a transmitter, rather than a clip-on, built into a standard meter, a smart-enabled meter or a smart meter in meeting the requirement in respect of display devices.
- 6.15 An alternative, which might fit well with our longer term approach to smart metering, would be that suppliers could provide smart meters with a display when an existing meter is replaced or when a meter is newly installed or in wider circumstances.

Question:

Do you agree that no requirements beyond the safe installation of such devices should be applied to suppliers?
Do you have any other views?

Question:

Under what circumstances might suppliers move towards the installation of a smart meter and means of displaying information as a way of meeting this requirement?

Question:

What effect would the separate provision of display devices have on the Government's ambition of providing all homes and businesses with smart meters over the next ten years?

Providing real time displays on customer request for two years from as early as possible in 2008

- 6.16 The Government proposes that, for two years from as soon as possible in 2008 and no later than May 2008, any household requesting a display for its existing electricity meter should be given one free of charge, by their energy supplier, unless a supplier has provided a device with a smart meter. An impact assessment of this policy is at Annex C.
- 6.17 The Government does not intend to impose specific requirements on suppliers in respect of installing or marketing displays. The Government will consider how it might promote access to such devices.
- 6.18 A further option would be to roll out display devices to all consumers (i.e. not just those consumers requesting one) over a five-year period. At this stage, Government feels that whilst this could have the potential to deliver additional carbon savings, there are significant concerns about the operational and administrative practicality of such an approach, as well as about the manufacturing capability to deliver this volume of devices on this timescale. We consider that the most cost-effective carbon savings would be achieved by providing display devices to those people who request them, as these are the people most likely to use the display devices and therefore reduce their electricity consumption. It seems likely that a universal, short-term provision of displays would result in the distribution of many devices that would not be used and for which there would be no corresponding carbon savings. The Government invites comments on this approach.

Question:

What effect would the separate provision of display devices have on the Government's ambition of providing all homes and businesses with smart meters over the next ten years?

Question:

How might suppliers make real time displays available to customers? Do suppliers have particular views on their provision?

Questions:

What would be the range of costs (devices, provision etc) of providing displays to all customers (i.e. not just those customers requesting a device) on a short-term – eg 5-year – basis?

What additional carbon savings could be achieved by moving from the “on request” policy to a full universal roll out of display devices?

Small Businesses and Energy Suppliers

- 6.19 The Government seeks views on the potential implementation issues that this policy may pose for small energy suppliers, not caught by the definition of small retail energy sales company in the Energy Services Directive (see paragraph 3.7 for this definition).

Question:

Should small suppliers be afforded additional time to implement this policy? Should this policy on display devices be applicable to small suppliers?

- 6.20 Following the November consultation, the Government’s view is that self-standing display devices would not materially help business customers to reduce energy use because of the different circumstances in which domestic and business customers use electricity supply. A small business will customarily use the electricity that it needs for a specific purpose. It is unlikely, for example, that a small business will have large numbers of electrical items on stand-by, or that it will find information about the impact of using a particular electrical item helpful. Additionally, responses to the November consultation indicated that display devices would provide little benefit to these customers especially where financial responsibility for bill payment is remote from the energy consumption.
- 6.21 Finally, many small firms are based in domestic premises and will have access to a display device in line with other domestic customers. Although the cost of an individual display device is a relatively small amount, for these reasons we do not expect the devices materially to reduce energy use in the small business sector and therefore we do not consider that the provision of display devices would be financially reasonable and proportionate in relation to the potential energy savings. However, the Government would

welcome views on this, particularly from customers and customer representatives.

Question:

Do you agree that business customers should be excluded from this proposal?

If you disagree, could you indicate which business customers might benefit from display devices, and in what way?

Draft Statutory Instrument

- 6.22 A draft statutory instrument with proposed new licence conditions is attached with this consultation (see Annex D). The Government would welcome views on this draft.

Question:

Do you have any views on the attached draft licence condition for this policy, including the text in respect of the technical feasibility of display devices in tandem with meters?

Implementation of the Energy Services Directive

- 6.23 We set out in paragraphs 3.2 and 3.3 of this consultation document the metering requirements of Article 13.1 of the Energy Services Directive. We consider that, in respect of the domestic sector, our policies on the provision of real-time display devices fulfil the requirements of the Directive, as the display device will show a customer's electricity consumption and provide information on actual time of use of that electricity.
- 6.24 Article 13.1 does not require the provision of such a meter where it is not financially reasonable and proportionate in relation to the potential energy savings. For the reasons set out at paragraph 6.18 above, we are limiting the roll-out of display devices to new and replacement meters and to those customers who request one because we do not consider it would be cost-effective to do more. This will apply only to electricity as gas display devices are not at present available.

Question:

Do you agree that it would not be financially reasonable and proportionate in relation to the potential energy savings to roll out display devices to all domestic customers in the short-term?

What would be the additional costs of a universal, short-term roll-out?

- 6.25 We are also limiting the provision of display devices to domestic customers because, for the reasons set out in paragraph 6.20 and 6.21, we do not consider that it would be financially reasonable and proportionate in relation to the potential energy savings to require suppliers to provide display devices to those small and medium sized businesses who will not receive smart meters (for which see Section 7).
- 6.26 Article 13(1) of the Energy Services Directive requires that a competitively priced individual meter that accurately reflects a customer's actual energy consumption and provides information on actual time of use, be provided where a building undergoes major renovations, as set out in Directive 2002/91/EC . The relevant aspects of that Directive have been implemented in England and Wales by Regulation 17D of the Buildings Regulations 2000 (as amended) and in Scotland by Standard 6.10 of the Building (Scotland) Amendment Regulations 2006. In relation to our policies on the provision of real time displays in the domestic sector, we will consider our approach to this part of Article 13(1) of the Energy Services Directive with the Department for Communities and Local Government and the Scottish Building Standards Agency. It is likely that a further consultation on this aspect of the Energy Services Directive will be required.

Section 7: Smart metering for the business sector

- 7.1 Advanced types of meters which provide readings on either an automatic half-hourly basis for electricity or on a daily basis for gas are already mandatory for large users of energy. The data provided by these types of meters, combined with energy saving advice, allows businesses, including commercial and public sector organisations, to make informed decisions about investment in energy efficiency. Increasingly, suppliers and metering companies are offering such services to smaller users.
- 7.2 The Government proposes that energy suppliers should extend to all but the smallest business users smart metering within the next 5 years. This could save 0.11–0.32 MtC per year by 2020 (see Annex C for impact assessment). This policy applies to the supply of electricity and gas and excludes “heat”.
- 7.3 The Government defines a smart meter as an interval meter allowing two-way communication between the energy supplier and the customer. Suppliers may choose to utilise existing technology used for larger electricity and gas consumers in the half hourly and daily read markets although it is anticipated that more cost effective technologies will be available for the non-half hourly and non-daily read markets.
- 7.4 The findings of the Carbon Trust smart metering trials support the Government’s policies in this area. The results of these trials highlighted that smart metering combined with consumption data and advice was effective at reducing consumers’ consumption by 5% on average where potential average savings of 12% were identified¹¹. Subsequent analysis by BERR (attached in Impact Assessment at Annex C) confirmed the view of the Carbon Trust report that deploying this technology was only cost-effective, at present, to the higher energy users within the small and medium-sized business market. The Government’s policy therefore only applies to those segments where the technology was found to currently be cost-effective.

11 Carbon Trust Advanced Metering for SMEs (www.carbontrust.co.uk/Publications)

- 7.5 We therefore propose that smart metering be installed for specific segments of the SME market as follows:
- Profile Classes 5-8 of the electricity markets, which reflect the highest energy users in the sub-100KWh market that currently require metering to record maximum demand peaks and load factors;
 - all non-daily metered gas sites consuming > 73,200 kWh per annum.

This will not affect the current requirement in the Balancing and Settlement Code and the Uniform Network Code for the provision of half-hourly or daily read meters for large energy users and that requirement will remain in place.

- 7.6 This market represents approximately 200,000 metering points in Great Britain, of which some already have smart metering installed. All of the remaining meters should be replaced with smart meters over the next 5 years. This policy does not restrict delivery of smart meters to other consumers outside the defined segments.
- 7.7 The remainder of the business market tends to be broadly similar to the domestic market both in terms of energy consumption and the types of metering used. The Government therefore proposes to consider these smaller businesses within the broader smart metering context for domestic customers (see Section 10).

Questions:

What are your views on the segment of the market that we propose will be subject to these requirements?

Should the smallest businesses be covered under the terms of a domestic smart meter roll out?

- 7.8 The Government intends to allow for flexibility in the type of meter provided – a ‘half-hourly’/daily read meter or a ‘smart meter’. However, we recognise that there may be interoperability issues around the installation of such meters (that is, the ability of customers to switch supplier without meters being replaced).

Questions:

Does asset-stranding represent a significant commercial problem in the larger business market to which the Government proposes that smart meters be provided?

Are interoperability arrangements necessary to underpin a roll-out of smart meters to this sector?

- 7.9 The Government expects that the availability of more frequent and accurate data will promote growth in ancillary services to these consumers. The Government seeks views on whether additional energy efficiency advice should be provided and who should provide this information.

Question:

What are your views on the provision of such services?

- 7.10 Subject to interoperability issues being addressed and with regulatory requirements in place by May 2008, the Government considers that the five year timescale for roll out of smart meters to this sector is feasible.

Questions:

Is five years an appropriate period in which to roll out smart meters in the business sector? If not, what might be an appropriate period?

What are the stranding and other cost drawbacks of this proposal and the 5-year timescale? Are these material?

- 7.11 The Government recognises that this policy will increase the amount of data available to consumers, but also that this data may have effects on settlement processes. It expects such data to make settlement processes more accurate, although there may be a concern in the medium-term about the settlement systems' capacity to respond to a significant increase in customers metered on something akin to a half-hourly or daily-read basis. The Government also expects this additional data to enable energy suppliers to offer more complex time-of-use tariffs that could result in network benefits and peak-load reductions. This data may also lead to an increase in the provision of energy management services third parties.

Questions:

What impacts will this policy have on gas and electricity settlement processes?

Will changes to the Balancing and Settlement Code and the Uniform Network Code be required?

What changes would be required, and over what timescale, to allow energy to be settled on the time of use data provided by the smart meter rather than via a profile?

What changes, if any, would be required, and over what timescale, to ensure that the best use is made of smart meters in terms of peak load reduction and network management?

What measures should be put in place to ensure that customers or their agents can access data from smart meters?

Implementation of the Energy Services Directive

- 7.12 Paragraphs 3.2 and 3.3 of this consultation document explain the requirements of Article 13.1 of the Energy Services Directive. As smart meters (including half hourly and daily read meters) reflect a customer's energy consumption and provide information on actual time of use, we consider that our smart meters for business policy implements the Article 13.1 requirements of the Energy Services Directive. The metering requirements of Article 13.1 do not apply where provision of the Article 13 meter would not be financially reasonable or proportionate in relation to the potential energy savings. For the reasons set out in paragraph 7.4, we do not consider that it is currently cost effective to require suppliers to provide smart meters for the smallest businesses – although we have invited comments on this analysis.
- 7.13 As set out in paragraph 3.3, Article 13(1) of the Energy Services Directive requires that a competitively priced individual meter that accurately reflects a customer's actual energy consumption and provides information on actual time of use be provided where a building undergoes major renovations, as set out in Directive 2002/91/EC . In light of this requirement, we will consider our approach on the provision of smart meters in the business sector with the Department for Communities and Local Government and the Scottish Executive. It is likely that a further consultation on this aspect of the Energy Services Directive will be required.

Small Energy Suppliers

- 7.14 The Government seeks views on the potential implementation issues that this policy may pose for small energy suppliers.

Question:

Should small suppliers be afforded additional time to implement this policy?

Draft Statutory Instrument

- 7.15 Draft licence conditions are attached to this consultation (see Annexes D and E). The Government would welcome views on the draft.

Question:

Do you have any views on the attached licence condition for this policy?

Question:

Do have any other views on these policies on the provision of smart meters for business?

Question:

Can the competitive supply market be relied upon to ensure that businesses are offered competitively priced smart meters?

Section 8: Heating Schemes

- 8.1 The extent of the district heat market in the UK was described in a recent report by BRE Ltd¹². This noted that 4% of the total UK building floor area is served by district heating schemes and around 1% -2% of housing. In some specific types of buildings, such as hospitals and universities, there is greater use of district heating, but overall its use is currently small. Overall less than 1% (0.75%)¹³ of the UK's total final energy demand is met by the direct supply of heat.
- 8.2 Although the BRE report looked at district heating in the UK, any proposals flowing out of this consultation will not relate to Northern Ireland. The Scottish Executive has certain responsibilities for heat metering and billing in Scotland and consequently we will discuss the outcome of the consultation and the possible way forward with the Scottish Executive before any final decisions are taken.

Metering

- 8.3 The Energy Services Directive requires that, in so far as is technically possible, financially reasonable and proportionate in relation to the potential energy savings, final customers for district heating are provided with competitively priced, individual meters that reflect accurately the customer's actual energy consumption and provide information on actual time of use¹⁴. The Directive covers retrofitting of existing meters, new and replacement meters and the installation of a "time of use meter" where major renovations¹⁵ of a building have been carried out.
- 8.4 The BRE report outlined the current extent of metering in heat schemes. Overall, about two-thirds of all buildings and three-quarters of dwellings in district heat schemes are not heat metered. In many cases this is because meters are perceived as not cost-effective.

12 BRE Client Report 236515: Desk Study on Heat Metering, www.defra.gov.uk/environment/climatechange/uk/energy/energyservices/index.htm

13 Digest of UK Energy Statistics

14 Energy Services Directive Article 13 (1)

15 As defined in Directive 2002/91/EC

Questions:

We would welcome any further evidence on the extent to which individual meters that reflect accurately the customer's actual energy consumption are provided to district heating customers – both domestic and business. Are those meters capable of providing information on the time of use of heat energy or can additional devices be used (for example a clip on display device) to provide this information to consumers?

If such meters are available, how do the costs compare to a heat meter that only provides information on levels of consumption?

- 8.5 The distribution of schemes by size is skewed. For example, the vast majority of local authorities and health authorities manage fewer than ten schemes each, but a handful manage over one hundred schemes. Member States may exclude small retail energy sales companies from the application of Article 13 (see definitions at paragraph 3.7) and “retail energy sales company” would cover a company supplying heat to its customers. Taking into account this exemption, the vast majority of heat suppliers sell less than the equivalent of 75GWh of heat per year, and only 4% of local authority/housing associations who operate heating schemes would fall outside the exemption.
- 8.6 The BRE report examined cost effectiveness of installing heat metering in a number of scenarios. It showed that whilst meters could deliver energy savings, the associated energy savings in both existing dwellings and new build were insufficient to make heat metering cost effective. The Net Present Value (NPV) cost (including the social cost of carbon) ranges from -£661m using the worst case scenario (retrofitting meters into existing schemes and new schemes delivering a 15% energy saving) to -£4.6m in a scenario with heat meters introduced in new build only and a 20% energy saving (which is considered the upper end of the realistic range).
- 8.7 It is only when an even greater energy saving of 30% per year is assumed that the NPV, including the social cost of carbon, approaches a positive value. However, because in two of the three meter fitting scenarios studied (retrofitting meters into existing schemes and new schemes, and new schemes only) the costs are still negative there is no clear evidence that even with high assumed energy savings cost efficiency can be achieved.

- 8.8 This analysis reflects the general view of respondents to the Government's consultation on Billing and Metering in November 2006¹⁶, that the costs of retrofitting meters to existing schemes would be disproportionate to the potential benefits that could be achieved. The views on new build were more mixed, but these depended on the nature of heat source and planned development.
- 8.9 The BRE analysis showed that in specific types of buildings, for example some schools and hospitals, heat metering could be cost-effective. To be consistent with the Government's overall approach to metering (for gas and electricity) it is necessary to adopt the same overall sector classification as used throughout this consultation. However, given the lack of clear information pointing to cost effectiveness in comparable sectors, and that the overall heating market is currently small, the Government's view is that it is inappropriate to break the sector down further to look at the installation of meters in certain sub-sectors.
- 8.10 Taking account of the results of the BRE study into cost-effectiveness of metering, the views obtained in last year's consultation and the small size of the heating market, our initial view is that Government should not require the installation of individual meters for final customers in heat schemes – either retrofitting meters into existing schemes or installing them into new build – on the basis that it would not be financially reasonable or proportionate in relation to the potential energy savings. However, this view is subject to further analysis of the cost information that we are seeking in this consultation.

Questions:

Do you agree with this approach?

What are your views on the cost-effectiveness of installing heat meters that reflect accurately the customer's actual heat energy consumption and provide information on actual time of use?

What are your views on requiring the installation of meters for certain sectors within the heating market?

Is there any addition cost benefit analysis at broad sector level?

- 8.11 The Government would encourage new build schemes, and those undergoing major refurbishment in particular, to

¹⁶ Energy Billing and Metering: Changing Customer Behaviour – An Energy Review Consultation (www.berr.gov.uk/files/file35042.pdf)

consider the wider customer and environmental benefits of installing such meters and therefore, whilst supporting the use of meters where individual schemes or businesses see a benefit in installing them and subject to the outcome of this consultation, the Government currently does not propose to require the installation of individual meters for final customers in heat schemes in any sector.

- 8.12 There are a number of reasons, not least the need to make substantial carbon reductions, that may mean the number and scale of heat networks and the economics of heat metering may change in the future. The need for metering will be under review in the context of the broader issues in the regulation of heat networks.

Question:

Are there issues around the development and regulation of heat markets and heat metering that need to be considered in the medium to longer-term?

Billing

- 8.13 The Energy Service Directive requires that, where appropriate, billing for the supply of heat is based on actual energy consumption and shall be performed frequently enough to enable customers to regulate their own energy consumption¹⁷.

The Directive also requires that, where appropriate, companies make available on bills, contracts, transactions and/or receipts for the supply of heat, in clear and understandable terms¹⁸:

- current actual prices and consumption of energy;
- comparative information showing the customer's consumption;
- comparisons with an average normalised or benchmarked user; and
- contact information for consumers' organisations from which information may be obtained on energy efficiency.

- 8.14 Most households that are part of district heating schemes do not have individual meters and many do not pay for heat separately (i.e. it is a component of rent or management

¹⁷ Energy Services Directive article 13 (2)

¹⁸ Energy Services Directive article 13 (3)

charge). Typically, they pay a fixed share of the energy used by the scheme overall and not an amount based on their actual usage.

- 8.15 A small number of dwellings do have individual metering and billing, although it is estimated that the heat energy consumed in such dwellings accounts for less than 0.1% (0.06%) of total UK domestic energy consumption.
- 8.16 The Government is mindful of the cost implications of these measures and the current very small potential energy savings that may arise from them. However, before making a decision as to how to take forward our policies in the billing area, we need to more fully understand how billing is currently undertaken for district heating schemes and consequently what impact it would have on the district heating industry and district heating consumers if a requirement to bill on the basis of actual consumption was imposed on heat providers where the consumer concerned had an individual heat meter.

Questions:

The Government would welcome any further information about the way in which billing is currently undertaken for district heating schemes and non-domestic heat users. Where an individual heat meter is provided, is that consumer always billed on the basis of actual consumption?

How often are estimates used and how often are individual heat meters read?

What would be the cost implications for heat providers if they were required to bill their consumers on the basis of actual consumption of heat?

What would be the benefits to heat consumers of this approach?

Information about Energy Efficiency

- 8.17 The Energy Services Directive requires that Member States ensure that, where appropriate, contact information for consumers' organisations is provided with energy bills. All consumers in district heat schemes will also be supplied with electricity and electricity suppliers are already required to provide the contact details for Energywatch on domestic consumer bills. Energywatch's website signposts customers to other bodies providing energy efficiency advice. Energywatch's call centre can provide general

advice on energy efficiency, sends domestic customers requiring more detailed advice to the Energy Saving Trust and sends business customers to the Carbon Trust by “hot” transfer. We expect that this requirement will continue when Energywatch is replaced by its successor body, but we will need to keep this requirement under review. Consequently, consumers will already receive the contact details of a consumer organisation from which information may be obtained on energy efficiency on their electricity bills so we are not proposing to impose any additional requirements in this area.

- 8.18 Gas and electricity suppliers are not required to provide contact details for Energywatch on business customers’ bills. However, as set out in paragraph 5.11, the Government sees scope for the growth in provision of energy efficiency services in the business sector – which could also cover energy efficiency in relation to the provision of heat energy. Therefore we would welcome views on whether such an approach would be a more effective way of promoting energy-saving than the addition of contact details to business customers’ bills.
- 8.19 In addition, the nature of heating schemes provides a direct link between the heat supplier, who will often be the landlord (i.e. a local authority, housing scheme etc), and the consumer. There is therefore an existing additional mechanism and an incentive for the supplier to provide advice on energy efficiency.

Question:

Do you agree with this approach? To what extent do existing scheme operators provide energy efficiency information?

Section 9 Unlicensed gas and electricity supply

Introduction

- 9.1 The underlying principle of electricity and gas supply regulation is that the activity should be licensed. Supply licensing is the responsibility of Ofgem. However, the Government has also taken the view that, for better regulatory purposes, it would be inappropriate to require all electricity and gas supply to be licensed, and thus subject to the cost and administrative burdens of the licensing regime. Supply of a de minimis nature may, therefore, be exempt from licensing. The arrangements under which such exemption can be claimed are set out in an Order made under the Electricity Act 1989¹⁹. Gas exemptions are provided under a series of Orders made under the Gas Act 1986.
- 9.2 Unlicensed electricity suppliers may supply a range of end-users – for example, residents of blocks of flats or tenants on industrial estates. This supply may derive from electricity generated on-site, or from the public electricity system. Some, but not necessarily all, end-users within these sites will be individually metered. Unlicensed gas supply may largely take the form of quasi-district heating, for instance, where gas is provided for heating and cooking to properties within an estate, such as a military-owned estate, but where individual end-users may not be separately billed. In respect of the Energy Services Directive, some exempt suppliers will be covered by the small supplier exclusion described at paragraph 3.7.
- 9.3 Article 13 of the Energy Services Directive (the chief requirements of which are set out in Section 3) applies to both the licensed and unlicensed supply of electricity and gas. However, as unlicensed electricity and gas supply, like district heating, is not subject to the conditions of supply licensing, the imposition on exempt suppliers of any particular metering or billing requirement arising from the Directive would require first the establishment of a register of such suppliers, then a regime for overseeing the

¹⁹ The Electricity (Class Exemptions from the Requirement for a Licence) Order 2001, SI 2001/3270

activities of suppliers and enforcing any metering or billing requirements.

- 9.4 The BERR/Ofgem Distributed Energy Working Group is currently considering the market and licensing arrangements of this sector in respect of electricity, and any decisions made on the application of the Article 13 requirements to this area will be considered in the light of both this Group's work and findings, on which it will present proposals in November 2007 with a view to implementation of measures during 2008, and the responses to this consultation. The Government would, therefore, welcome the comments of exempt electricity and gas suppliers, their customers and others to the specific questions below.

Metering

- 9.5 The Energy Service Directive requires that, in so far as is technically possible, financially reasonable and proportionate in relation to the potential energy savings, final customers for electricity and gas are provided with competitively priced, individual meters that reflect accurately the customer's actual energy consumption and provide information on actual time of use²⁰. The Directive further requires that, in a new or substantially renovated property, or where a meter is replaced, such meters should be provided. Sections 6 & 7 set out the Government's approach to metering for the licensed sector. The Government seeks views on current practice in the unlicensed sector, as well as the appropriateness, costs and benefits of applying the approaches detailed in Sections 6 & 7 to the unlicensed sector.

Questions:

We would welcome any views and evidence on:

- (a) the extent to which individual meters that reflect accurately the customer's actual energy consumption are already provided to customers of exempt suppliers, and the costs of providing smart meters for the categories of business customer set out at Section 7 and of providing display devices on the basis described at Section 6;

²⁰ Energy Services Directive Article 13 (1)

- (b) where individual meters are not provided, the infrastructure and other costs of providing them and the impacts on the supplier and customer of doing so, both of itself and in the light of the proposals on smart meters at Section 7 and 10 and display devices at Section 6; and
- (c) the benefits, including the energy-saving benefits, that would accrue to suppliers and customers by applying the proposals on smart meters at Section 7 and 10 and display devices at Section 6 to the unlicensed sector.

Billing

- 9.6 The Energy Services Directive requires that, where appropriate, billing for the supply of electricity and gas is based on actual energy consumption and shall be performed frequently enough to enable customers to regulate their own energy consumption²¹.
- 9.7 The Directive also requires that, where appropriate, suppliers make available on or with their energy bills in clear and understandable terms²²:
- current actual prices and consumption of energy;
 - comparative information showing the customer's consumption in a current billing period compared with their consumption in the same billing period in the previous year;
 - comparisons with an average normalised or benchmarked user; and
 - contact information for consumers' organisations from which information may be obtained on energy efficiency.
- 9.8 Many customers of exempt suppliers are likely to be billed in the same way as customers of licensed suppliers, that is, regularly and on the basis of actual or estimated individual consumption. Some customers of exempt suppliers may not have individual meters and some may not pay for energy supply separately – it may be a component of rent or of a management charge. In those circumstances, as in district heating schemes, customers are likely to pay a fixed share of the energy used overall and not an amount based on their actual use. Before making any final decisions on

²¹ Energy Services Directive Article 13 (2)

²² Energy Services Directive Article 13 (3)

billing in respect of unlicensed suppliers, we need to better understand the basis upon which unlicensed suppliers currently bill their customers.

Questions:

In respect of both domestic and business customers:

- to what extent is billing in the unlicensed sector based on actual individual consumption?
- do exempt suppliers follow a particular practice in terms of meter-reading and billing, such as a quarterly, six-monthly or annual cycle?
- where customers are individually billed on the basis of their own consumption, to what extent are estimates used?
- where customers are not billed on the basis of actual individual consumption, what would be the costs and benefits of doing so?
- to what extent do unlicensed suppliers provide contact details for energy efficiency organisations? Is the provision of such information appropriate as a means of reducing energy use by customers of unlicensed suppliers?
- would it be appropriate for unlicensed suppliers to be required to provide comparative historical data in the form proposed for the licensed sector at Section 2?
- what would be the benefits to customers of unlicensed networks of such an approach?
- what would be the costs to unlicensed suppliers of such an approach?

Section 10: The Government's vision for smart metering

Introduction

- 10.1 This section of the consultation is designed to gather a range of views and evidence from a wide range of stakeholders about smart metering. In the Energy White Paper, we set out our vision of having smart meters deployed over the next ten years. We are now seeking detailed views about the costs of metering, different approaches to the roll-out of meters, asset stranding issues, the communications infrastructure required to support smart meters and also the benefits to consumers and industry. The impact of smart meters and the range of issues we wish to consider go well beyond the effects on customer behaviour with which the majority of this consultation is concerned.
- 10.2 The Government is considering what, if any, interventions are required to realise its vision. We therefore set out three potential approaches (para 10.9) and seek views on these, as well as any alternatives.
- 10.3 In parallel with this consultation, BERR will shortly undertake a more detailed economic analysis of the costs and benefits of smart metering. In combination with responses to the overall consultation, this will play an important role in determining our approach to the deployment of smart metering.

Background

- 10.4 In the Energy White Paper, the Government set out its expectation that, over the next ten years, all gas and electricity customers would have smart meters with visual displays or potentially other ways of providing real-time information if they are shown to be effective. The Government defines a smart meter as an interval meter allowing two-way communication between the energy supplier and the customer.

- 10.5 The Government recognises the benefits that smart metering can deliver, including more accurate billing, a wider range of tariff offers and better customer service. But it also recognises that, on the basis of available information, smart metering is currently only cost-effective for the very largest industrial electricity and gas users (who already use such metering) and for the next class of industrial and commercial business users, to whom we propose to roll out smart meters over the next five years (see Section 7). These customers use significant volumes of energy, and there is scope for them to make early and significant savings if they receive detailed information about usage, supported, where appropriate, by additional advice about energy-saving measures.
- 10.6 For the remaining customers – smaller businesses and households – whose energy use is much lower, a cost-effective position has yet to be reached, although there is evidence that smart metering is theoretically cost-effective in particular customer segments, such as prepayment meter customers or those to whose meters it is difficult to gain access. This represents around 25% of this market.
- 10.7 The Government expects this position to change, and is committed to promoting that change. Smart metering technology – and in particular the communication technologies necessary to support smart metering – is still evolving. And at the same time, the range of costs is becoming more fully understood and is falling.
- 10.8 The Government is closely monitoring progress from two initiatives already under way, which will provide additional insights to smart metering for both Government and gas and electricity suppliers:
- the series of trials under the Energy Demand Research Project that the Government is co-funding with supplier-led consortia, which will run for two years. These trials, which are now underway, will give a much greater understanding of the impacts of smart meters and associated improved consumption data on customer behaviour;
 - the interoperability work being undertaken by gas and electricity suppliers under the aegis of the Energy Retail Association and Ofgem. This seeks to agree a set of minimum standards that can be applied to all smart meters. This will help to avoid the need for customers to switch meters when they change supplier and, as a result,

minimise the potential for asset stranding. This will have a significant impact on the cost/benefit analysis, because it will clarify – and, potentially, reduce – the range of costs. The Government’s intention is that appropriate standards will be agreed by energy suppliers and Ofgem, and that these will form a voluntary standard that will avoid the need for Government to regulate further.

Policy Options

10.9 The Government considers that there are several approaches that may enable it to realise its vision for rolling out smart meters over the next ten years. It assumes that, for any approach, an interoperability standard is required. Illustrative options include:

- taking no further Governmental action beyond mandating smart meters for business as set out in section 7 and providing policy certainty, and then relying on suppliers to take forward the agenda;
- requiring all new and replacement meters to be smart;
- requiring all meters to be smart within 10 years (or a similar timescale).

We would welcome views on these and other potential mechanisms that might facilitate the deployment of smart meters over the next ten years.

Question:

What are your views on the options presented above and other alternatives that may exist, including how different options might deliver the most cost effective rollout scenarios?

Policy Options in Detail

10.10 The following section provides further details on the possible impacts of each illustrative policy option and how it may facilitate smart meter roll-out. This section of the consultation poses questions about roll-out costs, timescales and volumes in relation to the specific policy options. We would welcome view on each of the options, whilst recognising that policy decisions may be based on a wider set of options post consultation.

Take No Action

- 10.11 This option, under which Government would take no action, represents the current regulatory and investment position, with the caveat that an agreed standard for smart meter interoperability would be put in place between suppliers. This would significantly reduce the risk of stranding new smart meters when customers changed supplier, which should, in turn, lead to lower costs for smart meters and a greater appetite to invest in them.
- 10.12 It is possible that investment by energy suppliers would only occur where they viewed it to be cost-effective. This may result in a targeted roll-out to customers who carried a high cost-to-serve, such as those on prepayment meters, those living on hard to access sites and those who regularly settle their accounts late. It is also noted that initial investment where there is a business case to do so may lead to further cost reductions or efficiencies which in turn may lead to smart meters becoming cost effective for other segments.
- 10.13 Without other incentives it is possible that smart metering may only be rolled out to certain groups of customer groups over the next ten years, and that the Government's vision of providing all customers with a smart meter over that period would not be realised.
- 10.14 Such a deployment would also be likely to result in energy suppliers running multiple operational and IT infrastructures to support the "non-smart" and "smart" operations. That might in itself lead to an accelerated smart meter roll-out.
- 10.15 If the Government takes no action with regards to smart meter policy then it is likely that an alternative method of compliance with the Directive would be required. Currently we would envisage this to require a continued roll- out of real time displays in the domestic sector.

Questions:

What would be the impact of running two infrastructures in parallel supporting smart and non-smart meters, including the resulting impact on consumers?

What, if anything, would prevent a critical mass of smart meters being reached, creating a tipping point where it would become cost effective to accelerate smart meter installation?

What options exist for the installation of meters in this scenario, for example on a new and replacement basis, on a geographic basis or through a different replacement approach?

What would be the likely range of asset stranding values in this scenario?

Would a dual-fuel approach be taken for meter installation?

Which customer groups carry a high cost-to-serve and may present an early target for smart meter roll out? What proportion of customers does this represent?

What percentage of meters would be changed over ten years under this scenario? Please provide supporting evidence.

Why has investment in smart metering not occurred to date and what else could be done to facilitate investment?

How would a smart meter communications infrastructure be deployed in this scenario?

What other risks of benefits would this option present?

New and Replacement Meters

- 10.16 With an interoperability standard agreed, energy suppliers could quickly move to an approach that would see all new and replacement meters being smart meters, although consideration would have to be given as to how to ensure that this option delivers compliance with the Energy Services Directive.
- 10.17 A significant number of gas and electricity meters are replaced each year as they come to the end of their useful lives. In addition new or substantially renovated properties also receive new meters. This equates to approximately 3 million meters being installed each year. However, very few of these installations are conducted on “dual-fuel” basis (where the gas and electricity meter are exchanged simultaneously).
- 10.18 Such a deployment of smart meters would also be likely to lead to energy suppliers’ running multiple operational and

IT infrastructures to support the “non-smart” and “smart” operations. This might again accelerate a smart meter roll-out.

10.19 This policy option has several potential advantages:

- The absence of a requirement for an accelerated asset replacement plan may minimise stranding implications in respect of both meters and current IT system investments, and avoid potential penalties under legacy metering contracts.
- This approach would maintain a “smooth” asset investment profile preventing the creation of a significant investment peak which may be difficult to manage in the future. It should also incentivise energy suppliers to innovate and make least-cost investment decisions.
- As a minimum this should see approximately three million meters installed each year meaning that over a ten-year period approximately two thirds of the meter population could be replaced with smart meters.
- This approach would still allow individual energy suppliers to create specific business cases to invest in high cost to serve customer groups early in the roll out.

10.20 However, this option also has several drawbacks:

- Because gas and electricity meter lives and replacement dates are not synchronised, replacing the meters in a “dual fuel” manner may result in one meter being replaced prematurely (stranded). It may be more cost-effective to replace both meters in a single visit and strand one asset, than to conduct separate visits. It may be possible to retrofit smart technology to meters to avoid stranding.
- Although meters must be replaced at the end of their specified life or when faulty, it may be more efficient to replace meters on a geographical basis to maximise density and hence efficiency.
- Such a deployment would be likely to lead to energy suppliers running multiple operational and IT infrastructures to support the “non-smart” and “smart” operations for a period of time, resulting in duplication of certain activities.
- It might not facilitate the use of the lowest cost communications technologies.

Questions:

What would be the impact – including on consumers – of running two parallel infrastructures to support smart and non-smart meters?

What, if anything, would prevent a critical mass of smart meters being reached, thus creating a tipping point at which it would be cost-effective to accelerate installation?

What would be the likely range of asset stranding values under this scenario?

What installation options are there under this scenario – for example on a new and replacement basis, on a geographic basis or through a different replacement approach?

Would a dual-fuel approach be taken to meter installation?

If a theoretical tipping point were reached, how would the remainder of the asset base be replaced? Would this be different to the approach taken before a tipping point was reached?

How would a smart meter communications infrastructure be deployed in this scenario?

What other risks or benefits would this option carry?

All Meters Smart within 10 Years

- 10.21 Under this approach, the Government would set a time-limit for the replacement of all meters with smart meters. This might take the form of a requirement to replace c90% of meters within ten years, with the remaining 10% being replaced over an additional period. This would give suppliers the freedom to choose the most effective method of roll-out over this period, although consideration would have to be given as to how to ensure that this option delivers compliance with the Energy Services Directive.
- 10.22 To deploy smart meters in this way would be likely to lead to suppliers running multiple operational and IT infrastructures to support the “non-smart” and “smart” operations. This might again lead to an accelerated roll-out.
- 10.23 This policy option has several potential advantages:
- it ensures that the great majority of meters are smart within a set timescale, possibly 10 years, in line with the Government’s vision

- suppliers should conduct this work in the most cost-effective way available to them within the set timescale.

10.24 However, this option also has several drawbacks:

- it may lead to significant asset stranding if suppliers chose to replace meters on a geographic, not meter age, basis. This would be likely to be influenced by the Government's treatment of asset stranding and cost recovery. There could be additional stranding costs because of the terms of legacy contracts.
- Under current metering market regulation it is unlikely that full dual-fuel synergies could be attained for meter replacement. Only in some cases would both the gas and electricity meter be replaced at the same time.

Questions:

What would be the impact – including on consumers – of running two parallel infrastructures to support smart and non-smart meters?

What would be the likely range of asset stranding values under this scenario?

What are the options for installation under this scenario, for example on a new and replacement basis, on a geographic basis or through a different replacement approach?

Would a dual-fuel approach be taken to installation?

How would a smart meter communications infrastructure be deployed under this scenario?

What other risks or benefits would this option carry?

Benefits of Smart Metering

10.25 The Government anticipates that a wide range of benefits will arise from the deployment of smart metering, across a number of interested parties – including energy suppliers, distributors and generators and consumers – and policy areas – for example, the environment. In particular, we expect benefits to arise in the following areas:

- demand management and carbon reduction;
- reduced customer management costs for energy suppliers;
- peak load shifting (with associated time of day tariffs);

- network management;
- microgeneration;
- consumer benefits – more accurate billing and more control over energy use.

The roll-out of smart metering may also support work towards a Supplier Obligation and may lead to more competition in the energy supply market. The analysis that we are undertaking alongside this consultation will help develop our understanding of these benefits.

Question:

What are your views on the benefits of smart metering with regard to the specific areas detailed above?

General issues to be considered

10.26 Beyond these policy options, the Government wishes to explore further a number of other areas, including the communications infrastructure, asset stranding, IT investment, and real-time displays.

Smart Meter Communications Infrastructure

10.27 It appears that a number of communications technologies, or a combination of such technologies, could be used. The communication process has a number of constituent and connected parts, potentially including:

- (i) *in the home*: communication between the meter and the chosen means of displaying information (display device etc) potentially through a low-power short-range radio signal or suitable alternative. Technological advances might also allow communication between the meter and individual appliances for load-management purposes;
- (ii) *local area network*: between the meter in the home to a concentrator, hub or router that could send external communications by power line carrier or radio;
- (iii) *between the local area network and the wide area network*: onward transmission by fixed or cellular means;
- (iv) *between the meter and the wide area network*.

- 10.28 The choice of communication infrastructure will be driven by cost, regional geography, density of metered locations, regulatory framework and potential longevity .
- 10.29 There are a number of ways that a communications infrastructure could be deployed across Great Britain to support smart meters, and, in some cases, the infrastructure may already exist. If a smart meter roll-out is mandated, all energy suppliers must have access to the most cost-effective technology. This is a developing area and may require Government intervention to promote development and investment, although the Government's starting point is that this is first and foremost a matter for energy suppliers.

Questions:

What is the cost-effectiveness of the different communication options under different roll-out scenarios?
Are there other suitable approaches?

Should the development of a suitable communications infrastructure be left to the market, or is Government intervention of some form required?

Does the communications infrastructure, or particular technologies, represent a natural monopoly?

Metering Technology and Costs

- 10.30 There are a range of smart metering products on the market, together with compatible display devices. In Great Britain, there would seem to be a need for a number of different smart meters: an electricity meter, probably capable of being remotely switched between standard credit and prepayment; a gas meter, probably capable of being remotely switched between standard credit and prepayment; and potentially a smart meter that could provide data about both electricity and gas usage. A smart meter-compliant display device would also be required.
- 10.31 Several factors have, and will continue to, influence the cost of a smart meter. These include interoperability, risk of stranding, level of functionality, volumes purchased and the types of communications used.
- 10.32 The Government's intention is that appropriate interoperability standards agreed by energy suppliers will form a voluntary standard and that Government will not regulate further.

Question:

What is the likely range of costs of a smart meter, having regard to different levels of functionality?

Microgeneration

10.33 Microgeneration is growing in popularity, and, with electricity generating technologies now available in large retail outlets, Great Britain is taking the first steps towards increasing the market for such technologies. For those technologies that have the scope for buy-back arrangements with suppliers, an export meter from the property provides a means of measuring electricity provided by the customer. Such meters may be of a standard or smart type. Whilst a smart meter is not a prerequisite for a successful microgeneration installation, it could be helpful in terms of monitoring performance and communicating that performance to the customer. In these circumstances, the development and implementation of smart meters that facilitate the incorporation of microgeneration in a system can, in turn, contribute to the growth of microgeneration.

Question:

How could smart meters facilitate the uptake of microgeneration?

Asset Stranding

10.34 The stranding of assets has been raised as an issue in the deployment of smart meters. The competitive supply market and its associated customer switching create significant stranding risks if energy suppliers opt to use different, non-compatible technologies. The Government believes that standards for interoperability are key to reducing these risks and thus lowering the cost of meters and promoting investment.

10.35 The manner of roll-out will present significantly different potential effects in terms of asset-stranding. For example, requiring new and replacement meters to be smart would minimise stranding of existing assets. Conversely, a simple mandate to replace all meters over 10 years might maximise stranding. The Government therefore seeks views on the stranding impacts, including those of legacy

metering contracts, of different roll-out approaches, and on who would bear the costs of stranding.

Questions:

What are the potential implications of asset stranding of existing meters, including legacy metering contracts, as well as the costs and environmental impacts relating to the disposal of large numbers of unwanted meters? (Responses should be made with reference to the policy options presented where possible.)

How should the costs of existing or historical asset investments be determined and recovered if the Government takes actions which would result in the stranding of those investments? What regulatory oversight of the recovery of such costs would be needed? Who would bear the costs of stranding?

IT Development Costs

10.36 Significant IT investment may be required to support the deployment of smart meters. This may include changes to billing systems, asset management systems and changes to core industry processes and rules such as those that support the customer transfer process or the rules of the Balancing and Settlement Code and the Uniform Network Code.

Question:

What is the likely scope of the IT infrastructure and investment and the timescale over which this would fall? (This should reflect requirements both within and between companies required to support a smart meter roll out and the cost implications to energy suppliers and consumers.)

Display Devices

10.37 The Government's policy on the provision of free display devices will see a significant number of devices provided over two years from 2008 to consumers who request them and when a meter is newly installed or replaced. The display device is not a substitute for the meter, but the models envisaged under this policy will work alongside the existing meter. A smart meter ideally requires a more sophisticated device, and is likely to be able to function with other means of communication. Where no display device

is currently available, the Government envisages that gas smart meters would communicate with a display or some other means of providing information. Consideration needs to be given to the type of information that might lead a customer to reduce consumption.

Impact on Meter Installer, Meter Reading and Energy Management Industries

10.38 Although a wide range of industries will be affected, the Government recognises that a move to smart metering would have a significant impact on those organisations which install meters and those which read existing non-smart meters. It may also create significant opportunities for growth in the energy management industry.

Questions:

What are your views on the effects on meter installers resulting from different meter installation approaches such as under new and replacement terms or a simple mandate to replace within 10 years?

What are your views on the effects on meter-reading organisations of the different policy options?

What opportunities exist for the growth of energy management companies, and what measures should be put in place to ensure that customers or energy management companies acting as their agents can access data from smart meters?

Social and personal information issues

10.39 Some efficiency gains for energy suppliers should also benefit customers as a whole, but may not be regarded as benefits by some consumers. For example, suppliers will have the ability easily to switch customers from credit to pre-payment. They will also, subject to the range of safeguards in this area and any others to be determined, be able remotely to disconnect electricity and gas supply. They might, for example, choose to do this with problem customers or when a customer leaves a property.

10.40 Under the standard conditions of gas and electricity supply licences, suppliers cannot disconnect customers unless they have taken the steps set out in the Licence to recover

charges. In addition, they cannot disconnect in Winter where a customer is of pensionable age, disabled or chronically sick. They also have to offer a prepayment meter before disconnecting. Suppliers would need to conform to these arrangements if a customer were provided with a smart meter capable of being remotely switched between credit and prepayment or of being remotely disconnected.

- 10.41 Once smart meters are installed, energy suppliers will have detailed information about a household's energy consumption at different times. This information will also be communicated between the household, the supplier and third parties that collect or manage billing data. All data would fall under existing data protection rules. Additionally, the industry has safeguards on protecting customers' information.
- 10.42 Once smart meters are installed, there may be a large number of new tariffs, as in the mobile phone market. Whilst such offers are characteristic of a competitive and innovative market, they could result in consumer confusion, particularly when a customer changes supplier.
- 10.43 Once a smart meter is installed, especially if a customer has microgeneration and exports electricity, bills may be more complicated than at present.
- 10.44 The Government is aware that smart metering may give rise to concerns over privacy, including data protection, and fuel poverty. We would welcome comments and views on these issues.

Questions:

What are your views about the social impacts of the added functions of smart meters, for instance, the ability of suppliers to switch meters to pre-payment or disconnect supply more easily? Are any additional safeguards needed?

Given existing data protection rules, and safeguards applied by energy suppliers, are any additional safeguards needed in respect of how the data is used or the way in which it is transmitted?

What are the potential beneficial and negative impacts on fuel poor and other low-income or vulnerable customers?

List of Annexes

Annex A: The Consultation Code of Practice Criteria

Annex B: Article 13 of the Energy End-Use Efficiency and Energy Services Directive

Annex C: Impact Assessment

Annex D: Draft Statutory Instrument for Electricity

Annex E: Draft Statutory Instrument for Gas

Annex A: The Consultation Code of Practice Criteria

1. Consult widely throughout the process, allowing a minimum of 12 weeks for written consultation at least once during the development of the policy.
2. Be clear about what your proposals are, who may be affected, what questions are being asked and the timescale for responses.
3. Ensure that your consultation is clear, concise and widely accessible.
4. Give feedback regarding the responses received and how the consultation process influenced the policy.
5. Monitor your department's effectiveness at consultation, including through the use of a designated consultation co-ordinator.
6. Ensure your consultation follows better regulation best practice, including carrying out a Regulatory Impact assessment if appropriate. The complete code is available on the Cabinet Office's website, address:

<http://www.cabinetoffice.gov.uk/regulation/consultation/index.asp>

Annex B: The Energy Services Directive

DIRECTIVE 2006/32/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of 5 April 2006

on energy end-use efficiency and energy services and repealing Council Directive 93/76/EEC

Article 13

Metering and informative billing of energy consumption

1. Member States shall ensure that, in so far as it is technically possible, financially reasonable and proportionate in relation to the potential energy savings, final customers for electricity, natural gas, district heating and/or cooling and domestic hot water are provided with competitively priced individual meters that accurately reflect the final customer's actual energy consumption and that provide information on actual time of use.

When an existing meter is replaced, such competitively priced individual meters shall always be provided, unless this is technically impossible or not cost-effective in relation to the estimated potential savings in the long term. When a new connection is made in a new building or a building undergoes major renovations, as set out in Directive 2002/91/EC, such competitively priced individual meters shall always be provided.

2. Member States shall ensure that, where appropriate, billing performed by energy distributors, distribution system operators and retail energy sales companies is based on actual energy consumption, and is presented in clear and understandable terms. Appropriate information shall be made available with the bill to provide final customers with a comprehensive account of current energy costs. Billing on the basis of actual consumption shall be performed frequently enough to enable customers to regulate their own energy consumption.

3. Member States shall ensure that, where appropriate, the following information is made available to final customers in clear and understandable terms by energy distributors, distribution system operators or retail energy sales companies in or with their bills, contracts, transactions, and/or receipts at distribution stations:
- (a) current actual prices and actual consumption of energy;
 - (b) comparisons of the final customer's current energy consumption with consumption for the same period in the previous year, preferably in graphic form;
 - (c) wherever possible and useful, comparisons with an average normalised or benchmarked user of energy in the same user category;
 - (d) contact information for consumers' organisations, energy agencies or similar bodies, including website addresses, from which information may be obtained on available energy efficiency improvement measures, comparative end-user profiles and/or objective technical specifications for energy-using equipment.

Summary: Intervention & Options

Department /Agency:	Title:	
Department for Business, Enterprise and Regulatory Reform	Impact Assessment of Billing & Metering Policies Set out in the Energy White Paper (May 2007)	
Stage: Partial	Version: 1	Date: 1 July 2007
Related Publications: Energy white paper: meeting the energy challenge (www.dti.gov.uk/energy/whitepaper/page39534.html)		

Contact for enquiries: Geoff Hatherick

Telephone: 020 7215 5047

What is the problem under consideration? Why is government intervention necessary?

The proposal works towards the Government's carbon reduction goals of reducing carbon dioxide emissions by 60 per cent over 1990 levels by 2050, with real progress by 2020. Reducing energy consumption and using energy more efficiently is key to meeting these longer term challenges. The Government believes that energy can be saved if customers have access to better information about their energy use. In parallel to Governments ambitions here regarding climate change these measures are also required by Article 13 of directive 2006/32/EC on energy end-use efficiency and energy services.

What are the policy objectives and the intended effects?

These policies will provide consumers with more relevant information about their energy consumption and provide the basis for those consumers to take action to reduce their consumption. The package will see i) historic consumption data provided on domestic consumers bills, ii) display devices provided to domestic electricity consumers which will provide real time information on consumption and iii) provision of new "smart meters" to a specific group of small and medium sized businesses. This will generate CO2 reductions by 2010 and 2020 as well as providing compliance with the ESD.

What policy options have been considered? Please justify any preferred option.

These policies are part of a package of measures designed to savings of 0.2MtC by 2010 and X by 2020 through better billing and metering as stated in the Climate Change Programme Review. Several scenarios were tested for each policy varying costs and scale of application and scale of impact. These are discussed later in this IA. The overall package also includes a vision to roll out smart metering to all customers over the next 10 years and also provide display devices with those meters to highlight their consumption more clearly in real time. "Do Nothing" options were also considered.

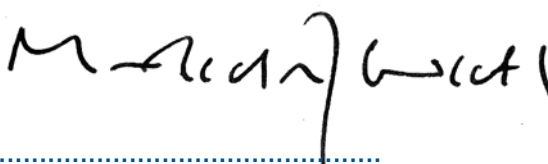
When will the policy be reviewed to establish the actual costs and benefits and the achievement of the desired effects?

The policy should be reviewed by March 2011.

Ministerial Sign-off For consultation stage Impact Assessments:

I have read the Impact Assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options.

Signed by the responsible Minister:



Summary: Analysis & Evidence

Policy Option: Better Billing	Description: Provision of Historic Consumption Data on Energy Bills
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COSTS	ANNUAL COSTS	Description and scale of key monetised costs by 'main affected groups' Firm: One Off Cost: Bill redesign
	One-off (Transition) Yrs	
	£ 1.3m	
	Average Annual Cost (excluding one-off)	
£	Total Cost (PV)	£ 35m
Other key non-monetised costs by 'main affected groups' Suppliers and Consumers - addition of more information to domestic utility bills may make bills more complex and difficult to interpret.		

BENEFITS	ANNUAL BENEFITS	Description and scale of key monetised benefits by 'main affected groups' Consumer: Continuous Benefits: Emissions savings; energy reduction
	One-off Yrs	
	£	
	Average Annual Benefit (excluding one-off)	
£ 12.9m	Total Benefit (PV)	£ 350m
Other key non-monetised benefits by 'main affected groups'		

Key Assumptions/Sensitivities/Risks

Costs annuitised using 5 year cost recoup principle and 10% cost of capital. Behavioural responses (central case) 0.25% reduction in consumption, persisting for 15 years. Effectively 99% of market is dominated by large companies.

Price Base Year 2005	Time Period Years 27	Net Benefit Range (NPV) £ 50m-840m	NET BENEFIT (NPV Best estimate) £ 315m
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What is the geographic coverage of the policy/option?	GB Wide Coverage				
On what date will the policy be implemented?	Subject to consultation				
Which organisation(s) will enforce the policy?	Ofgem				
What is the total annual cost of enforcement for these organisations?	£ tbc				
Does enforcement comply with Hampton principles?					
Will implementation go beyond minimum EU requirements?					
What is the value of the proposed offsetting measure per year?	£ 0				
What is the value of changes in greenhouse gas emissions?	£ 100m				
Will the proposal have a significant impact on competition?	No				
Annual cost (£-£) per organisation (excluding one-off)	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center;">Micro Small</td> <td style="width: 15%; text-align: center;">Small Small</td> <td style="width: 15%; text-align: center;">Medium Small</td> <td style="width: 15%; text-align: center;">Large 36m</td> </tr> </table>	Micro Small	Small Small	Medium Small	Large 36m
Micro Small	Small Small	Medium Small	Large 36m		
Are any of these organisations exempt?	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center;">No</td> <td style="width: 15%; text-align: center;">No</td> <td style="width: 15%; text-align: center;">N/A</td> <td style="width: 15%; text-align: center;">N/A</td> </tr> </table>	No	No	N/A	N/A
No	No	N/A	N/A		

Impact on Admin Burdens Baseline (2005 Prices)		(Increase - Decrease)
Increase of £	Decrease of £	Net Impact £

Key: Annual costs and benefits: Constant Prices (Net) Present Value

Summary: Analysis & Evidence

Policy Option:	Description: Provision of Real Time Displays to Domestic Electricity Consumers. RTDs in 2008-9 on request and with new/replacement meters from 2008
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COSTS	ANNUAL COSTS		Description and scale of key monetised costs by 'main affected groups' Firms: One Off Cost: RTD and installation. On Going: Call centre costs
	One-off (Transition)	Yrs	
	£ 11.6m		
	Average Annual Cost (excluding one-off)		
	£ 5.9m		Total Cost (PV) £ 475m
Other key non-monetised costs by 'main affected groups'			

BENEFITS	ANNUAL BENEFITS		Description and scale of key monetised benefits by 'main affected groups' Consumers: On Going Benefits: Reduction in energy consumption; reduced carbon emissions.
	One-off	Yrs	
	£		
	Average Annual Benefit (excluding one-off)		
	£ 25.1m		Total Benefit (PV) £ 680m
Other key non-monetised benefits by 'main affected groups'			

Key Assumptions/Sensitivities/Risks

Costs annuitised over 7 years at 10% cost of capital. Behavioural responses (central case) 2.5% reduction in consumption from the first year with a display and persisting for 15 years.

Price Base Year 2005	Time Period Years 27	Net Benefit Range (NPV) £ 410m (cost) - £940m (ben)	NET BENEFIT (NPV Best estimate) £ 205m
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What is the geographic coverage of the policy/option?		GB Coverage		
On what date will the policy be implemented?		Subject to consultation		
Which organisation(s) will enforce the policy?		Ofgem		
What is the total annual cost of enforcement for these organisations?		£ TBC		
Does enforcement comply with Hampton principles?		Yes/No		
Will implementation go beyond minimum EU requirements?		Yes/No		
What is the value of the proposed offsetting measure per year?		£		
What is the value of changes in greenhouse gas emissions?		£ 180m		
Will the proposal have a significant impact on competition?		No		
Annual cost (£-£) per organisation (excluding one-off)	Micro TBC	Small TBC	Medium TBC	Large 5.9m
Are any of these organisations exempt?	NO	NO	N/A	N/A

Impact on Admin Burdens Baseline (2005 Prices)		(Increase - Decrease)	
Increase of £	Decrease of £	Net Impact	£

Key: Annual costs and benefits: Constant Prices (Net) Present Value

Summary: Analysis & Evidence

Policy Option:

Description: Provision of Smart Meters for Business

COSTS	ANNUAL COSTS		Description and scale of key monetised costs by 'main affected groups' Firms: One Off Cost: Installation; Smart Meter; system update. Ongoing: Maintenance cost.
	One-off (Transition)	Yrs	
	£ 0.8m		
	Average Annual Cost (excluding one-off)		
	£ 6.1m		Total Cost (PV) £ 170m
Other key non-monetised costs by 'main affected groups'			

BENEFITS	ANNUAL BENEFITS		Description and scale of key monetised benefits by 'main affected groups' Firm: Continuous Benefit: Avoided meter reads; Lower disconnection costs; Reduced contact centre time; System peak reduction; Reduced losses. Consumers: Continuous Benefits: Emission savings; Energy reduction
	One-off	Yrs	
	£		
	Average Annual Benefit (excluding one-off)		
	£ 43.5m		Total Benefit (PV) £ 1090m
Other key non-monetised benefits by 'main affected groups'			

Key Assumptions/Sensitivities/Risks

Costs annuitised using lifespan of asset and 10% cost of capital. Behavioural responses (central case) 2.5% reduction in consumption, persisting for 15 years from installation. Effectively 99% of market dominated by large companies. Net of CRC overlap.

Price Base Year 2005	Time Period Years 25	Net Benefit Range (NPV) £ 470m - 1465m	NET BENEFIT (NPV Best estimate) £ 915m
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What is the geographic coverage of the policy/option?			GB Coverage	
On what date will the policy be implemented?			Subject to consultation	
Which organisation(s) will enforce the policy?			Orgem	
What is the total annual cost of enforcement for these organisations?			£ TBC	
Does enforcement comply with Hampton principles?				
Will implementation go beyond minimum EU requirements?				
What is the value of the proposed offsetting measure per year?			£ TBC	
What is the value of changes in greenhouse gas emissions?			£ 150m	
Will the proposal have a significant impact on competition?			No	
Annual cost (£-£) per organisation (excluding one-off)	Micro TBC	Small TBC	Medium TBC	Large -13.5m
Are any of these organisations exempt?	No	No	N/A	N/A

Impact on Admin Burdens Baseline (2005 Prices)			(Increase - Decrease)	
Increase of £	Decrease of £	Net Impact	£	

Key: Annual costs and benefits: Constant Prices (Net) Present Value

1. Provision of Historic Consumption Data

Introduction

Ensuring householders have direct access to information about their energy use within their homes will enable consumers to manage and reduce their carbon emissions. The Government believes that additional information on bills or statements can help customers reduce their energy consumption.

The policy set out in the EWP proposes that, “historic information, preferably in graphical form, which compares energy usage in one quarter with the same period in the previous year, should be provided on domestic customers’ energy bills or statements, or, for those customers with internet-based contracts, electronically”.

Description of Policy and Rationale for Government Intervention

This measure aims to improve domestic gas and electricity bills through the provision of historical information on use in an easily understood format. The premise is that such information would help households have a greater awareness of their energy consumption and enable more efficient use of energy.

Key Assumptions

- ⦿ The provision of historical information is assumed to incur a one-off cost of £0.17 per bill per customer in the central case. This largely relates to the system and additional information requirements associated with provision of historical information, as well as production/paper costs. Sensitivities around this value have been tested (£0.10, £0.25). This is annuitised over a 5 year period, assuming a cost of capital of 10 per cent, corresponding to an annual cost of £0.04 per meter per year. No additional costs associated with customer services have been assumed, as it is assumed this will be derived through existing energy efficiency channels.

- ⊙ There is uncertainty over the potential change in customer behaviour resulting from this measure, and how long any change might persist. Therefore relatively small changes in energy saved have been assumed – 0.25 per cent in the central case, with sensitivities of 0.1 per cent and 0.5 per cent around this. These reductions are assumed to persist over 15 years in the central case with a low and high sensitivity of 10 and 20 years respectively.
- ⊙ The value of energy saved is in line with DTI energy price forecasts. The energy component of the electricity retail tariff is assumed to be 35 per cent and the basis for valuing electricity savings.
- ⊙ Carbon savings are based on assuming the marginal technology Combined Cycle Gas Turbine (CCGT) is displaced as a result of the reduction in consumption. Other assumptions – for example the Social Cost of Carbon (£87 in 2008, increasing by £1 pa) and the discount rate are in with HMT Green Book guidance, and the timescale the policy is considered over is 2008-2034, in order to adequately capture the benefits from consumption reduction over time.
- ⊙ The assumptions have been combined to give the biggest range of costs and benefits – so the low energy reduction assumptions are associated with the high supplier side costs and vice-versa.
- ⊙ It has been assumed that no changes to industry processes are required to support this policy i.e. no requirement to alter the Customer Transfer Process.

Assumptions on the reduction in energy saved are based on a literature review of metering, billing and direct display projects (Darby 2006¹). The literature reviewed highlighted potential energy reduction savings of between 0 and 10 per cent in the United States and a range of Scandinavian Countries. Although there were many studies included in this review, none is directly applicable to the introduction of better billing in the UK context. The studies often combine a number of other energy efficiency measures implemented at the same time as providing improved billing information and there are difficulties in singling out specific impacts of these measures. Differences in climates, problems of small trial sizes and self-selecting response groups add to the uncertainty. The assumptions adopted in this Cost Benefit Analysis (CBA) are relatively cautious in the context of this study.

1 Sarah Darby, 2006, 'The Effectiveness of Feedback on Energy Consumption', Defra

Results CBA

	Central %	Low %	High %
Carbon saved per annum (MtCe) in 2020	0.09	0.00	0.18
Total net benefit (£m present value over lifetime)	-315	-50	-840
Cost-effectiveness (£/tCe saved)	-155	-55	-160
Distribution of net benefit (£m present value over lifetime)			
Exchequer	-	-	-
Firms – through increased cost of bill production	35	55	20
Consumers - through reduced energy costs	-250	-75	-610

Note: (-) benefit (+) cost

'Low' refers to low energy reduction and high supplier cost

'High' refers to high energy reduction and low supplier cost.

The benefits were calculated using an estimated wholesale price, which is 35% of the electricity and 50% of the gas residential retail price respectively (these estimates represent the energy component of the consumer price). This could understate the benefits of the policy if the reduction in demand associated with energy efficiency policies also leads to cost savings on the distribution network. Based on a modification of this assumption, where energy benefits are assumed to be a function of the retail price, the calculated net benefit for this policy would be up to 3 times that with the current assumptions. We are reviewing what the appropriate price will be for calculating benefits in future analysis and hence how much benefit energy efficiency can achieve for Great Britain.

What are the other options?

Do Nothing - The Energy Review and Energy Services Directive committed the government to improving the information customers receive on their energy use. Doing nothing would risk losing potential cost effective energy and carbon saving opportunities and could risk infraction for failure to implement the Energy Services Directive.

Increase Billing / Meter Reading Frequency – Options to mandate quarterly or monthly billing were discussed. However, no evidence base was available to indicate that this measure alone would reduce consumption. These options would potentially improve bill quality but the additional cost of meter reading and bill production would incur significantly greater costs than the chosen policy option without additional CO₂ benefits.

Implement in a prescriptive fashion or allow energy Suppliers flexibility – These options were considered in terms of the best way to implement the selected policy. It is felt that implementing in a prescriptive manner may lead to sub optimal delivery as energy suppliers all have different bill styles and understand their own customers needs better than Government. As such a flexible approach to implementation will allow energy suppliers to implement the policy in the most cost effective way for them while selecting the format that they feel will maximise the impact on consumers.

2. Provision of Real Time Displays to Domestic Electricity Consumers

Introduction

Ensuring householders have direct access to information about their energy use within their homes will enable consumers to manage that use and reduce their carbon emissions. The Government believes that access to real time information about their usage can help customers reduce their energy consumption.

The policy set out in the EWP is two fold:

“from May 2008 and where technically feasible, every household having an electricity meter replaced and every newly built domestic property will be given a real-time electricity display, free of charge”; and

“from as soon as possible in 2008 to March 2010, any household requesting a real-time display for their electricity meter should be given one free of charge by their energy supplier.”

Description of Policy and Rationale for Government Intervention

This measure is to give all newly built domestic properties and all households that have their electricity meter replaced a real time display where it is technically feasible to do so. The display will be provided free of charge by the energy supplier. The display would show real-time information about electricity consumption and cost. In addition, from 2008 to 2010, any household requesting a display for their existing electricity meter will also be given one free of charge, where it is technically feasible to do so. The displays will provide customers with readily accessible information about their electricity usage, and facilitate more efficient use of energy by householders.

Assumptions

The analysis is driven by assumptions on the level of energy reduction we might expect from better use of energy by households with a Real Time Display (RTD). The assumptions adopted have been based on a literature review by Sarah Darby² which highlighted typical energy reduction savings of 10 per cent. There were relatively few studies on the impact of RTDs, with the most relevant study being run in Canada where savings of 6.5 per cent over a relatively short period of time were achieved. The programmes tended to be limited in length, with the longest one in the Darby review lasting 3 years. But a key finding was that behaviours became entrenched and people had difficulty remembering how they used energy before the study. This suggests that, once adopted, good practice could continue through time.

On the costs side, the capital and installation cost of the device are key drivers. These have been based on information from discussions with suppliers and Ofgem.

Detailed Assumptions

- ⊙ In line with discussions with Defra and Ofgem colleagues, it is assumed that it is technically feasible to install a RTD in 75 per cent of existing and new households.
- ⊙ It is also assumed that approximately 5 per cent of meter stock is replaced annually and that 35,000 new (non replacement) meters are installed per year.
- ⊙ Reductions in electricity consumption of 1 per cent, 3.5 per cent and 6 per cent were modelled. Those with prepayment meters were assumed to have half this effect as they were assumed to be pre-disposed to being energy conscious without intervention. The reductions in energy use were assumed to become established in the first year and to persist for 10, 15 or 20 years.
- ⊙ We assume that around a quarter of all households would request a display over the period (5m over the 2 years).
- ⊙ The benefits were calculated using an estimated wholesale price, which is 35% of the electricity residential retail price (this estimate represents the energy component of the consumer price).

² Sarah Darby, 2006, 'The Effectiveness of Feedback on Energy Consumption', Defra

- ⦿ The reduction in consumption will also reduce carbon emissions, assumed to be in line with the marginal technology (CCGT).
- ⦿ The cost of the displays is a function of the cost of capital, the cost of installation, and the assumed lifetime of the asset. The RTD is assumed to cost between £12 and £22, with installation costs of £11 per display for both the new and replacement policy and the customer request policy. This allows for some variety in the method of installation (professional or DIY installation).
- ⦿ We assume incremental supplier costs for ongoing service and maintenance of £2.71 per meter per year. This is distinct from the annual charge for the meter, which is derived from annuitised costs over 7 years per meter, during which the installation and capital costs are recouped. Also a cost of capital of 10 per cent is assumed.
- ⦿ Other assumptions – for example the Social Cost of Carbon and the discount rate are in line with HMT Green Book guidance.
- ⦿ Assumptions have been combined to give the biggest range of costs and benefits – so the low energy reduction assumptions are associated with the high supplier side costs and vice-versa, as in the table below.

Summary of Assumptions

Sensitivity	Central	Low	High
Energy reduction	3% (1.5% for prepayment)	1% (0.5% for prepayment)	6% (3% for prepayment)
Cost of RTD	£15	£22	£12
Installation cost	£11	£11	£11
Persistence of energy reduction	15 years	10 years	20 years

Results CBA

Estimate	Central	Low	High
Carbon saved per annum (MtCe) in 2020	0.15	0.02	0.26
Total net benefit (£m present value over lifetime)	-204	412	-940
Cost-effectiveness (£/tCe saved)	-65	783	-97
Distribution of net benefit (£m present value over lifetime)			
Exchequer	-	-	-
Firms – from increased installation costs	475	560	440
Consumers – from reduced energy consumption	-495	-110	-1005

Note: (-) benefit (+) cost.

The benefits were calculated using an estimated wholesale price, which is 35% of the electricity residential retail price (this estimate represents the energy component of the consumer price). This could understate the benefits of the policy if the reduction in demand associated with energy efficiency policies also leads to cost savings on the distribution networks. Based on a modification of this assumption, where energy benefits are assumed to be a function of the retail price, the calculated net benefit for this policy would be up to 5.5 times higher than in the central case. We are reviewing what the appropriate price will be for calculating benefits in future analysis and hence how much benefit energy efficiency can achieve for Great Britain.

What are the other options?

Do Nothing. The Energy Review and Energy Services Directive committed the government to improving the information customers receive on their energy use. Doing nothing would risk losing potential cost effective energy and carbon savings opportunities and could risk infraction for failure to implement the Energy Services Directive.

Provide information through other means – Own monitoring/provision of advice. Savings could be achieved if consumers proactively checked their own energy use and acted upon advice currently provided by energy suppliers and other sources such as advertising, although this would not allow them to see the costs of running different appliances in the home. Further advice could be given in various forms – for example, advice centres, helplines, or dedicated calls to customers' homes. There is no data available to undertake likely take-up rates or a cost benefit analysis of this.

Provide display devices to all domestic electricity customers over five years. This policy option was investigated and would provide significant carbon savings. However, significant concerns over the practicality of delivering this operationally and also the manufacturing capability to deliver this volume of devices in this timeframe were considered.

Increase Billing / Meter Reading Frequency. Options to mandate quarterly or monthly billing were discussed. However, no evidence base was available to indicate that this measure alone would reduce consumption. These options would potentially improve bill quality but the additional cost of meter reading and bill production would be likely to incur significantly greater costs than the chosen policy option without additional CO2 benefits.

3. Provision of Smart Meters for Business

Introduction

Ensuring businesses have direct access to information about their energy use will enable them to manage that use more effectively and reduce their carbon emissions. The Government believes that the benefits that Smart Metering brings can help businesses reduce their energy consumption.

The Government proposes that energy suppliers should extend to all but the smallest business users in Great Britain and those larger businesses not already subject to half hourly metering, advanced and smart metering services within the next five years.

Description of Policy and Rationale for Government Intervention

This measure would see Smart Meters provided to all but the smallest business users over five years from 2008. The meters would apply to both electricity and gas use. Smart Meters offer the opportunity to provide business with direct, continuous feedback on how much electricity they use and how much it costs by transmitting this information to a display device easily accessible by the business, for example through a portable display, TV or computer link. The aim of this measure is to enable business to make better decisions on their energy use and raise awareness of the costs of their actions.

Assumptions

The assumptions used in this analysis are based on the Carbon Trust Advanced Metering Field Trials, details of which can be obtained from www.carbontrust.org.uk. These trialled the use of Smart Meters in the business sector, beginning in 2004, to better understand the potential for more efficient energy use in this sector, the potential carbon savings involved and the barriers which exist to the broader uptake of this technology. The Trials suggested that Smart Metering would be cost effective for firms with profile class 5 electricity meters and above and for non-daily read gas meters with consumption greater than 732MWh p.a

The results from these trials, in terms of potential levels of energy reduction and costs, have formed the basis for the assumptions in this CBA.

Detailed Assumptions

- ⊙ It is assumed that Smart Meters, together with the provision of data, will lead to a reduction in energy consumption of between 2.8 per cent (electricity) and 4.5 per cent (gas) per meter in the central case. This is in line with the changes observed in the Carbon Trust Trials. Sensitivities around the behavioural response have also been undertaken, and are detailed below.
- ⊙ Smart Meters are rolled out to those businesses that do not have half hourly electricity metering or daily read gas metering, but excluding business electricity customers with profile class 3 and 4 meters and those gas customers whose consumption is less than 73.2MWh per year. This will cover approximately 200,000 meters.
- ⊙ Energy consumption information for the different profile classes is taken from Elexon and Carbon Trust data for 2006-7. This forms the basis of the future path of energy used in the analysis. But the projected profile of use has been adjusted to take account of past trends of energy use in this sector, particularly energy efficiency measures that could be expected to apply going forward. This has been based on business as usual calculations produced in cooperation with Defra, based on NERA consultancy work.
- ⊙ The persistence of consumption reductions have been modelled at 15 years in the central case with sensitivity around these of 10 and 20 years.
- ⊙ The Carbon Trust trial information included high and low costs of Smart Meters and on installation and maintenance. These have been used in our analysis, with the central assumption being the mid-point between these.
- ⊙ Smart Meters will reduce supplier costs in several respects – for example through avoided manual reads, lower disconnection charges, reduced losses and reduced contact centre time. These have been taken into account in the analysis.

- ⊗ Carbon savings from this measure are based on assuming the marginal generating technology (CCGT) is displaced for the electricity savings. Assumptions on the Social Cost of Carbon and the discount rate are in line with Defra assumptions and HMT Green Book guidance.
- ⊗ Assumptions have been combined to give the biggest range of costs and benefits – so that the low energy reduction scenario is associated with high supplier costs and vice-versa.

Overlaps with other policy measures

There are several measures aimed at Business that aim to address more efficient use of energy in this sector. Key among these are the Carbon Reduction Commitment (CRC) and the European Energy Performance of Buildings Directive (EPBD). There will be overlaps between these measures, and the CBA presents figures gross and net of these overlaps.

CBA Results

(i) Smart Meters for Business Sector – gross of other policy measures

Estimate	Central	Low	High
Carbon saved per annum (MtCe) in 2020	0.27	0.11	0.32
Total net benefit (£m present value over lifetime)	-1520	-840	-2230
Cost-effectiveness (£/tCe saved)	-350	-340	-470
Distribution of net benefit (£m present value over lifetime)			
Exchequer	-	-	-
Firms	-185	-40	-255
Consumers	-1055	-645	-1550

Note: Benefit (-) Cost (+)

(ii) Smart Meters for Business sector – net of other policy measures

Estimate	Central	Low	High
Carbon saved per annum (MtCe) in 2020	0.14	0.06	0.17
Total net benefit (£m present value over lifetime)	-915	-470	-1465
Cost-effectiveness (£/tCe saved)	-350	-340	-470
Distribution of net benefit (£m present value over lifetime)			
Exchequer	-	-	-
Firms	-185	-40	-255
Consumers	-580	-350	-950

Note: Benefit (-) Cost (+)

Whereas in the previous two policies, a distinction has been made between the wholesale price and the retail price paid by consumers, the assumption is that the price used here is the retail price paid by business. There is less difference between business retail and wholesale prices than the residential retail and wholesale prices.”

Specific Impact Tests: Checklist

Use the table below to demonstrate how broadly you have considered the potential impacts of your policy options.

Ensure that the results of any tests that impact on the cost-benefit analysis are contained within the main evidence base; other results may be annexed.

Type of testing undertaken	<i>Results in Evidence Base?</i>	Results annexed?
Competition Assessment	Yes	No
Small Firms Impact Test	Yes	No
Legal Aid	No	No
Sustainable Development	No	No
Carbon Assessment	Yes	Yes
Other Environment	Yes	Yes
Health Impact Assessment	N/A	No
Race Equality	N/A	No
Disability Equality	N/A	No
Gender Equality	N/A	No
Human Rights	N/A	No
Rural Proofing	N/A	No

Appendices to Impact Assessment

Impact to Small Firms in Great Britain

Government previously consulted on a range of metering and billing issues and their potential to change consumer behaviour towards energy use. This consultation elicited a range of views from several sectors of the UK economy. However, very few small businesses responded to the consultation. Subsequent to the November 2006 consultation the Government presented a range of metering and billing policies in the Energy White Paper (May 2007).

Governments initial views are that the impacts to small firms will not be significant and in many cases the policies presented will actually enable small firms to reduce their costs by being provided with the right tools to help them lower their expenditure on energy. However, these views must be tested more fully and as such we are now consulting on the implementation of the specific policies presented in the Energy White paper.

This second consultation will seek specific views on the how the presented policies may impact small firms. It is also Government's intention to engage directly with small firms through focus groups / workshops during the formal consultation process.

Competition Assessment

BERR has conducted a review of the effect that the metering and billing policies set out in the Energy White Paper and examined in this Impact Assessment may have on the competitive markets in energy supply and metering. On the basis of evidence available to us, BERR does not consider that these policies would have a material impact on competition.

In parallel, the Government is carrying out further consultation on the implementation of these policies. This further consultation seeks additional views on the impacts that these policies may have on small firms, which may also include small energy suppliers. We may review our competition assessment in light of responses to this further consultation.

2007 No. 0000

ELECTRICITY

The [Electricity Billing and Metering] Regulations 2007

<i>Made</i>	- - - -	*** 2007
<i>Laid before Parliament</i>		*** 2007
<i>Coming into force</i>	- -	*** 2007

The Secretary of State is designated for the purposes of section 2(2) of the European Communities Act 1972(a) in relation to measures relating to the regulation of the electricity sector(b).

He makes the following Regulations under powers conferred by that section:

Citation, commencement and extent

1.—(1) These Regulations may be cited as the [Electricity Billing and Metering] Regulations 2007 and shall come into force on [date] 2007.

(2) These Regulations do not extend to Northern Ireland.

Modification of electricity supply licences

2.—(1) The standard conditions of electricity supply licences are modified by—

- (a) the insertion of the standard conditions appearing in Schedules 1 to 3; and
- (b) the amendment set out in Schedule 4.

(2) The conditions which by virtue of section 33 of the Utilities Act 2000(c) are the standard conditions for the purposes of electricity supply licences granted after these Regulations come into force are modified by—

- (a) the insertion of the standard conditions appearing in Schedules 1 to 3; and
- (b) the amendment set out in Schedule 4.

(3) In this regulation, “electricity supply licence” means a licence granted under section 6(1)(d) of the Electricity Act 1989(d).

Date	<i>Name</i> Minister of State for Energy, Department for Business, Enterprise and Regulatory Reform
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(a) 1972 c.68.

(b) S.I. 1998/745.

(c) 2000 c.27, section 33 was amended by the Energy Act 2004 (c.20), Schedule 19, paragraph 20 and the Climate Change and Sustainable Energy Act 2006 (c.), section 7(7)(a) and (b).

(d) 1989 c.29, section 6 was substituted for the original by the Utilities Act (c.27), section 30.

SCHEDULE 1

Licence Condition W (Billing)

1. This condition applies on and from [date].
2. Subject to paragraph 5, the licensee shall provide the information contained in paragraph 3 on every Bill or statement of account sent to a Domestic Customer. The information shall be presented in a form which is clear and easy to understand.
3. The information provided for in paragraph 2 is a comparison of the Domestic Customer's electricity consumption for the period covered by the Bill or statement of account, with the Domestic Customer's electricity consumption for the corresponding period in the previous year ("corresponding period").
4. The licensee shall make it clear on the Bill or the statement of account where an estimate of the Domestic Consumer's electricity consumption has been used in producing the comparison.
5. The requirement in paragraph 2 shall not apply unless the licensee has been contracted to supply electricity to the same Domestic Customer at the same premises throughout the period:
 - (a) commencing with the start of the corresponding period; and
 - (b) ending with the end of the period to which the Bill or statement of account relates.

SCHEDULE 2

Licence Condition X (Real Time Displays)

1. This condition applies on and from [date].

2. In this condition:

“Display Device” means a device that is capable of providing to a Customer, information about the amount of that Customer’s electricity consumption and the cost of such consumption at the time at which such consumption occurs.

3. Subject to paragraph 4, where the licensee receives a request for a Display Device from one of its Domestic Customers before [date] 2010, it shall provide that Domestic Customer with a Display Device, free of charge and as soon as reasonably practicable after receipt of the request.

4. Where the licensee has already complied with the requirement in paragraph 3 in relation to a request from one of its Domestic Customers, it shall not be required to do so again in respect of a subsequent request for a Display Device from the same Domestic Customer in relation to the same Domestic Premises.

5. Where the licensee installs or arranges for the installation of an Electricity Meter in respect of a Domestic Premises it shall provide for use with that Electricity Meter and free of charge, a Display Device.

6. The licensee shall not be required to provide a Display Device pursuant to an obligation in paragraph 3 or 5, where:

- (a) any modification of the electrical arrangements within the premise is required; or
- (b) where the position of the Electricity Meter in relation to the Domestic Premises, means it is not technically possible for the Display Device to function without additional measures.

SCHEDULE 3

Licence Condition Y (Smart Meters for Business)

1. In this condition:

“Relevant Non-Domestic Customer” means a Non-Domestic Customer [metered for its electricity consumption within meter profile class 5, 6, 7 or 8].

“Smart Meter” means an Electricity Meter which, either on its own or with an ancillary device—

- (a) stores measured electricity consumption data for multiple time periods; and
- (b) allows remote access to this data by the licensee and either the Customer supplied by that meter or the Customer’s nominated agent.

2. On or from [date], where a licensee installs or arranges the installation of an Electricity Meter in respect of a Relevant Non-Domestic Customer, the meter that the licensee shall use shall be a Smart Meter.

3. As from [date] 2012, the licensee shall not supply any electricity to a Relevant Non-Domestic Customer other than through a Smart Meter.

SCHEDULE 4

Amendment to Licence Condition 31

1. For Condition 31.1 (information about Consumer Council) substitute the following text:

“**31.1** The licensee must inform each of its Domestic Customers:

(a) that the Consumer Council can assist in:

(i) resolving complaints that the licensee has not resolved to the Domestic Customer’s satisfaction; and

(ii) the provision of information relating to the efficient use of electricity; and

(b) how to contact the Consumer Council,

by providing that information on or with each Bill or statement of account sent to each Domestic Customer in relation to Charges for the Supply of Electricity or annually if the licensee has not sent such a Bill or statement of account to him.”

2007 No. 0000

GAS

The [Gas Billing and Metering] Regulations 2007

<i>Made</i>	- - - -	*** 2007
<i>Laid before Parliament</i>		*** 2007
<i>Coming into force</i>	- -	*** 2007

The Secretary of State is designated for the purposes of section 2(2) of the European Communities Act 1972(a) in relation to measures relating to natural gas and oil(b).

He makes the following Regulations under powers conferred by that section:

Citation, commencement and extent

1.—(1) These Regulations may be cited as the [Gas Billing and Metering] Regulations 2007 and shall come into force on [date] 2007.

(2) These Regulations do not extend to Northern Ireland.

Modification of gas supply licences

2.—(1) The standard conditions of gas supply licences are modified by—

- (a) the insertion of the standard conditions appearing in Schedules 1 and 2; and
- (b) the amendment set out in Schedule 3.

(2) The conditions which by virtue of section 33 of the Utilities Act 2000(c) are the standard conditions for the purposes of gas supply licences granted after these Regulations come into force are modified by—

- (a) the insertion of the standard conditions appearing in Schedules 1 and 2; and
- (b) the amendment set out in Schedule 3.

(3) In this regulation, “gas supply licence” means a licence granted under section 7A(1) of the Gas Act 1986(d).

Name
Minister of State for Energy,

Date Department for Business, Enterprise and Regulatory Reform

(a) 1972 c.68.

(b) S.I. 2000/738.

(c) 2000 c.27, section 33 was amended by the Energy Act 2004 (c.20), Schedule 19, paragraph 20 and the Climate Change and Sustainable Energy Act 2006 (c.), section 7(1)(a) and (b).

(d) 1986 c.44, section 7A was inserted by section 6(1) of the Gas Act 1995 (c.45) and subsequently amended by section 3(2) and Schedule 6, Part I, paragraphs 1 and 2(1) of the Utilities Act 2000 (c.27), and section 149(1) and (7) of the Energy Act 2004 (c.20).

SCHEDULE 1

Licence Condition X (Billing)

1. This condition applies on and from [date].
2. Subject to paragraph 5, the licensee shall provide the information contained in paragraph 3 on every Bill or statement of account sent to a Domestic Customer. The information shall be presented in a form which is clear and easy to understand.
3. The information provided for in paragraph 2 is a comparison of the Domestic Customer's gas consumption for the period covered by the Bill or statement of account, with the Domestic Customer's gas consumption for the corresponding period in the previous year ("corresponding period").
4. The licensee shall make it clear on the Bill or the statement of account where an estimate of the Domestic Consumer's gas consumption has been used in producing the comparison.
5. The requirement in paragraph 2 shall not apply unless the licensee has been contracted to supply gas to the same Domestic Customer at the same premises throughout the period:
 - (a) commencing with the start of the corresponding period; and
 - (b) ending with the end of the period to which the Bill or statement of account relates.

SCHEDULE 2

Licence Condition Y (Smart Meters for Business)

1. In this condition:

“Relevant Non-Domestic Customer” means a Non-Domestic Customer with an annual gas consumption of less than 2,196,000 kWh and more than 73,200 kWh.

“Smart Meter” means a Gas Meter which, either on its own or with an ancillary device—

- (a) stores measured gas consumption data for multiple time periods; and
- (b) allows remote access to this data by the licensee and either the Customer supplied by that meter or the Customer’s nominated agent.

2. On or from [date], where a licensee installs or arranges the installation of a Gas Meter in respect of a Relevant Non-Domestic Customer, the meter that the licensee shall use shall be a Smart Meter.

3. As from [date] 2012, the licensee shall not supply any gas to a Relevant Non-Domestic Customer other than through a Smart Meter.

SCHEDULE 3

Amendment to Licence Condition 31

1. For Condition 31.1 (information about Consumer Council) substitute the following text:

“**31.1** The licensee must inform each of its Domestic Customers:

- (a) that the Consumer Council can assist in:
 - (i) resolving complaints that the licensee has not resolved to the Domestic Customer’s satisfaction; and
 - (ii) the provision of information relating to the efficient use of gas; and
- (b) how to contact the Consumer Council,

by providing that information on or with each Bill or statement of account sent to each Domestic Customer in relation to Charges for the Supply of Gas or annually if the licensee has not sent such a Bill or statement of account to him.”

