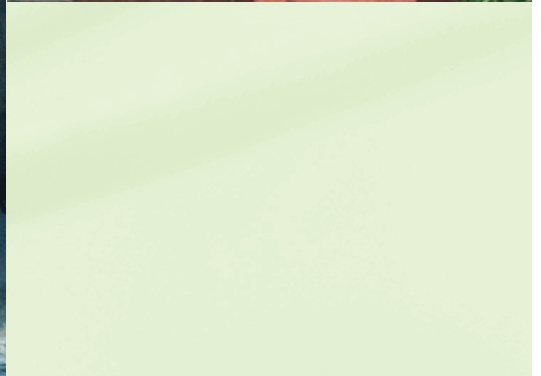
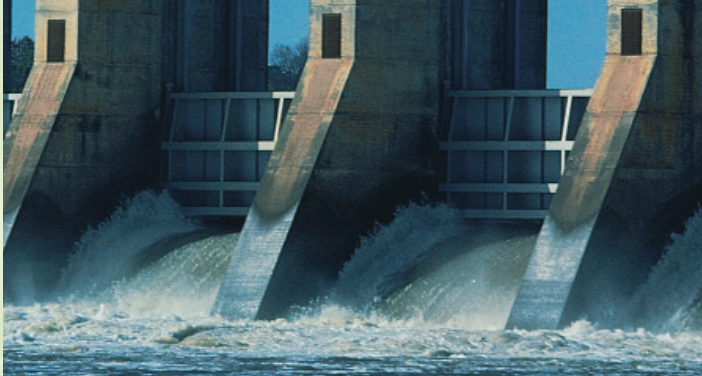
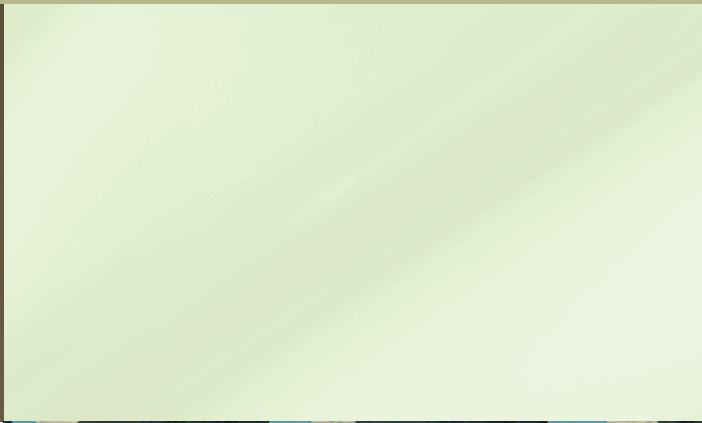




Sustainable Development Report 2006



Context

In 2004, the Energy Act added a duty on Ofgem to "carry out its functions in the manner best calculated to contribute to the achievement of sustainable development". Ofgem recognises that in carrying out our remit, we have an important role in shaping the future of the gas and electricity industries, which in turn are a major part of the economic, social and environmental fabric of the UK.

Ofgem's work

Ofgem regulates the gas and electricity industries in Great Britain. Our principal objective is to protect the interests of present and future consumers, where appropriate by promoting effective competition.

Ofgem's primary functions relate to:

- making markets work in those parts of the gas and electricity industries where there is competition; and
- regulating the prices and quality of service of the monopoly gas and electricity transmission and distribution networks.

In carrying out these functions, we also have duties to secure long term and diverse gas and electricity supplies, and to have regard to the interests of vulnerable customers and to the impact of the energy systems on the environment. We must also take into account social and environmental guidance issued by the Secretary of State.

Contents

Foreword	05
Ofgem statement on sustainable development	06
Introduction	07-08
Theme 1: Managing the transition to a low carbon economy	09-14
Theme 2: Eradicating fuel poverty and protecting vulnerable customers	15-20
Theme 3: Promoting energy saving	21-27
Theme 4: Ensuring a secure and reliable gas and electricity supply	28-34
Theme 5: Supporting improved environmental performance	35-38
Increasing openness, transparency and accountability	39-42

Appendix 1

Consultation response and questions

43**Appendix 2**

The Authority's powers and duties

44-45**Appendix 3**

Glossary

46-49

Foreword by the Chairman

Will today's market and regulatory frameworks deliver the needs of tomorrow's consumers? Are the arrangements for delivering energy services to those customers appropriate for the challenges of the 21st Century? If not, what should Ofgem be doing today to encourage the new technologies and approaches that will be needed to meet the climate change challenge and the changes in sources of energy supplies?

We are facing a future that involves increased geopolitical risks to energy security, potentially higher energy prices and the need to do much more to reduce greenhouse gas emissions while making sure that everyone can afford to adequately heat their homes. Such pressures may be expected to drive technological change, increase demand for energy efficiency and energy services, drive investment in new innovative low carbon generation technologies, and require new ways of thinking about our electricity networks – to give just a few examples. Where such measures involve increasing energy costs, this will put further pressure on fuel poverty.


In preparing this first publication of our annual Sustainable Development Report, we have highlighted some of these challenges and the actions that we think are required. An important role for Ofgem and Government is to remove barriers to innovation and to provide regulatory and policy frameworks that support long term investment. This will encourage companies to invest in new, innovative and effective solutions to the challenges of making the energy system more sustainable.

While the Authority has a role to play, many of the necessary actions to deliver on sustainability are not within our direct control. Nevertheless, we see it as our responsibility to continue to facilitate change by engaging in the debate, trying to persuade the relevant players to make changes where required and contributing information and expertise where we can. For example, we have been at the forefront of assessing the case for smarter meters for domestic energy consumers and we have recently made proposals, in our response to the Energy Review, on how the EU Emissions Trading scheme could be improved and how the Government could introduce carbon contracts alongside the scheme to reduce UK emissions further.

Making sure that electricity generators located far away from energy customers face the full costs of the transmission and distribution systems they use helps promote microgeneration and other technologies that can bring generation closer to demand and smaller, more local energy networks. We have provided special incentives to encourage network companies to innovate in connecting more local generation. We have also approved funding for more transmission investment to connect up new renewable sources of generation such as wind that cannot choose to locate closer to energy customers.

We have consulted widely before publication but now we would very much like feedback on this first report. We would like to know whether you think we are addressing the right issues. We are therefore particularly interested in whether and how you think we can take further action in our role as regulator of the gas and electricity markets to protect the interests of future generations of energy consumers. Your comments will be taken into account in preparing our Corporate Strategy and in future Sustainable Development Reports, and more importantly in how we take our work forward in the coming years.

We look forward to hearing from you.



Sir John Mogg

Chairman, Gas and Electricity Markets Authority

Ofgem statement on sustainable development

The UK government and devolved administrations launched a new strategy for sustainable development, *Securing The Future*, last year. Drawing on this framework, we have focused on five themes which we believe capture how the Gas and Electricity Markets Authority should contribute to the challenges of the 21st century:

- **Managing the transition to a low carbon economy**

We are responsible for the framework for the efficient functioning of gas and electricity markets. Our decisions on the industry rules for competitive markets and the regulation of monopoly networks facilitate the development of lower carbon technologies.

- **Eradicating fuel poverty and protecting vulnerable customers**

While the causes of fuel poverty go beyond energy markets, we are committed to working with Government to eradicate fuel poverty. Competitive markets can deliver lower prices and more innovative products than regulated markets but some regulation remains necessary to protect vulnerable energy customers.

- **Promoting energy saving**

Energy conservation and improved energy efficiency are critical elements in any sustainable development strategy. We recognise the huge range of benefits - environmental, social and economic - that energy saving can bring and are committed to playing our part to encourage all energy consumers to be more energy efficient.

- **Ensuring a secure and reliable gas and electricity supply**

Our regulation of the electricity and gas networks, and our commitment to sustaining a regulatory environment conducive to investment, underpin our goal to ensure that cost-effective, reliable energy supplies are always available to consumers.

- **Supporting improvement in all aspects of the environment**

Beyond the climate change agenda, the gas and electricity industries affect the environment through other emissions and their impacts on our countryside and communities. We are committed to working with all stakeholders to ensure that we take these wider considerations into account in all of our decisions.

Introduction

This is Ofgem's first publication of an annual Sustainable Development Report¹. As a result of the Energy Act 2004, Ofgem has a duty to promote sustainable development as part of its statutory duties.

Our report reflects our commitment to this new duty and is structured around a set of five themes and fourteen indicators we have developed to assess progress towards making the gas and electricity markets more sustainable. Collectively these indicators capture what we think are the key measurable indicators of performance in sustainable development in the domain in which Ofgem operates.

The themes

Theme I: Managing the transition to a low carbon economy

1. Greenhouse gas emissions from the gas and electricity sectors
2. Renewable electricity generation
3. Electrical capacity from combined heat and power

Theme II: Eradicating fuel poverty and protecting vulnerable customers

4. Total number of households in fuel poverty
5. Competition and vulnerable customers
6. Disconnection for debt

Theme III: Promoting energy saving

7. Energy intensity
8. Energy savings from the Energy Efficiency Commitment (EEC)
9. Gas and electricity losses

Theme IV: Ensuring a secure and reliable gas and electricity supply

10. Reliability of supply – network performance
11. Security and diversity of supply – market response
12. Quality of service - supply market performance

Theme V: Supporting improved environmental performance

13. Other impacts of electricity generation
14. Other impacts of gas and electricity networks

The indicators

A section is provided on each indicator. It includes a definition and description, a graphic presentation of the indicator and analysis of the current status and trends in the indicator. In addition we set out the contribution that Ofgem makes to the performance of the indicator. This describes the extent to which Ofgem has a direct influence on it, and summarises the work that Ofgem has undertaken in directly affecting the indicator or related areas. It also identifies the actions that we intend to take in the coming year.

For each indicator we also include a section on the broader context, "Meeting the challenge". This recognises that in many areas, the impact of our work is indirect and other bodies have primary responsibility and influence. It examines the issues from a broader perspective, summarising Ofgem's views of the roles of the various parties, including energy companies, central government and the devolved administrations, which have important environmental responsibilities, and European institutions.

In the final chapter, we set out the activities that we undertake to improve our internal practices, to build good working relationships with other organisations and improve understanding of social and environmental issues relating to the energy sector.

Your views

As this is our first annual Sustainable Development Report, it is an opportunity to consult with our stakeholders on the way we seek to meet our sustainable development duty, and on the usefulness of this report. Results of this consultation will be taken into account in producing next year's Sustainable Development Report, and more importantly it will also influence the way we work and will be reflected in our corporate planning. Details on how to provide feedback on the report are set out in Appendix 1.

¹ Ofgem first published a Social Action Plan in 2000, and an Environmental Action Plan in 2001 and has published annual reviews of these documents since then. This report builds on that work and will take the place of the Environmental Action Plan annual reviews in the future. Ofgem's five year Social Action Strategy, which was launched in October 2005 is an important complement to this Sustainable Development Report, providing stakeholders with further information on our planned programme of work on social issues for the coming year as well as enabling us to report on the action taken over the previous twelve months. We will continue to publish updates to the Social Action Strategy on an annual basis.

Managing the transition to a low carbon economy

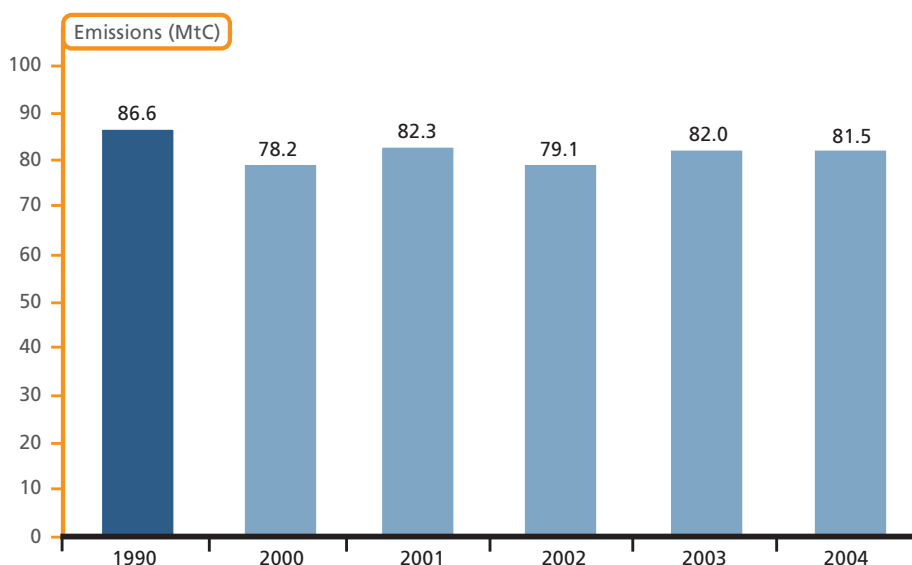
1.1 Climate change is the greatest long-term challenge facing the world today and the UK has already taken significant steps to meet this challenge. It is one of the few countries expected to meet its Kyoto Protocol commitment to reduce emissions of greenhouse gases (GHG) to 12.5 per cent below 1990 levels by 2008–2012 as a result of domestic action.

1.2 The Government's Climate Change Programme² (CCP) sets out policies and priorities for action in the UK and internationally. It includes a more

challenging domestic target to reduce carbon dioxide (CO₂) emissions to 20 per cent below 1990 levels by 2010, and a long-term goal to reduce CO₂ emissions by some 60 per cent by about 2050. Meeting these targets will require significant transformation of energy systems, including gas and electricity markets. The indicators in this section relate to overall emissions from the gas and electricity systems, and key areas of low carbon generation where Ofgem is involved in the administration of Government programmes.

Indicator 1. Greenhouse gas emissions from the gas and electricity sectors

Figure 1.1: GHG emissions from the gas and electricity sectors 2000-2004



Source: National Atmospheric Energy Inventory (NAEI) 2006, Digest of Environmental Statistics – DEFRA 2006, Digest of UK Energy Statistics (DUKES) – DTI 2005

1.3. The data for this indicator has been aggregated from the national emissions inventory and converted into tonnes of carbon equivalent (tC) using global warming potentials (GWP)³. It combines the total GHG emissions from the sectors that are regulated by Ofgem compared to a 1990 baseline including:

- emissions of CO₂ from the combustion of fuels (including gas) in power stations;
- emissions of CO₂ from the direct combustion of gas by households and industry;

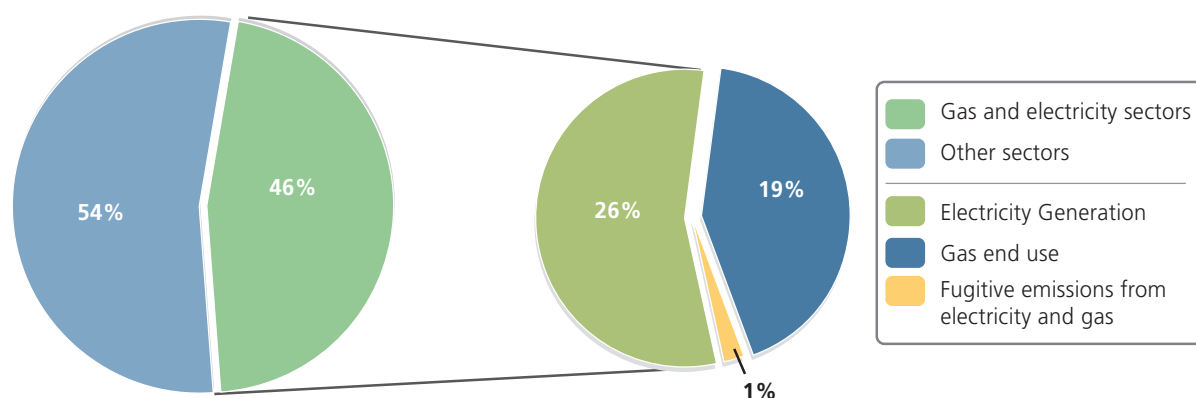
- minor emissions of nitrous oxide from combustion;
- fugitive emissions of methane from the gas transportation system as leakage; and
- fugitive emissions of sulphur hexafluoride (SF₆) from the electricity network.

1.4. Figure 1.2 shows the importance of emissions from the gas and electricity sectors in relation to the economy as a whole.

² Climate change: The UK programme 2006, Defra, March 2006

³ Global Warming Potentials (GWP) compares the relative effects of different greenhouse gases. For example, methane is 21 times more potent than CO₂ over a 100 year time horizon

Figure 1.2: Proportion of greenhouse gas emissions from UK gas and electricity sectors in 2004 broken down by source



Source: NAEI 2006, Digest of Environmental Statistics – DEFRA 2006, DUKES – DTI 2005.

Performance

- The gas and electricity sectors accounted for 46 per cent of total emissions of greenhouse gases in 2004. Total emissions from the gas and electricity sectors were 81.5 (Million tonnes of carbon equivalent) MtC, a small reduction on 2003, and 5 MtC below 1990 levels.
- The gas and electricity sectors accounted for 52 per cent of total emissions of CO₂ in 2004, a reduction on 2003. However, CO₂ emissions from power stations alone increased slightly from 2003 to 2004.
- In 2004 leakage from gas distribution networks (GDNs) accounted for 11 per cent of UK methane emissions
- Since 2002 the volume of emissions of SF₆ from the electricity system, (where it is used to insulate cables and other equipment) have been broadly static. However, decreased emissions from other sectors means the electricity sector now contributes a higher proportion of national SF₆ emissions.

Ofgem's contribution

- We oversee flexible and competitive energy markets that provide transparent price signals. Market participants can respond to signals from policies such as emissions trading.
- We have advised Government on aspects of the allocation methodology for Phase 1 and Phase 2 of the EU emissions trading scheme (EU ETS). This includes the allocation of allowances to major generators based on benchmarking; rules around the treatment of new entrants and closure; and the use of auctions.
- Ofgem administers a number of Government programmes that promote low carbon generation technologies. These are considered in the indicators on Renewables (Indicator 2), Combined Heat and Power (CHP) (indicator 3) and the Energy Efficiency Commitment (Indicator 8). We work closely with Government and the devolved administrations on the development of these programmes and new policies.
- As part of the last gas network price controls, we allowed significant expenditure by the GDNs for the Health and Safety Executive's (HSE's) Mains Replacement Programme⁴ (See Indicator 9).

⁴ The primary driver for the Main's Replacement Programme is safety but reducing leakage also has environmental benefits

1.5. In the coming year Ofgem will undertake the following:

- We will continue to work with Government on the EU ETS, including development of the national allocation plan (NAP) for Phase II. We will undertake research to contribute to discussions on the long-term future of the scheme both in the UK and as part of the European Commission's review of the EU ETS Directive.
- We will monitor the development of the allowance market and any impacts that this may have on the energy markets. We will organise a seminar considering the impact of the EU ETS on the electricity generation sector and consumers.
- We will work with Government to implement the CCP measures that affect energy markets, including work on billing, metering and microgeneration.
- As part of the transmission price control review (TPCR), we will consider introducing incentives for the companies to improve their management of SF₆.
- As part of the gas distribution price control review (GDPCR), we will review the incentives for the companies to manage the leakage of gas.

Meeting the challenge

1.6. Climate change policies should be strengthened to provide the long-term signals and stable regulatory framework needed to encourage investment in low carbon technologies. The core of the framework should be the EU ETS. However, while that scheme evolves, other policies that can be operated in parallel may be necessary.

1.7. The Commission's review of the EU ETS Directive is an opportunity for Government to improve the scheme's efficiency. The most important aspects are:

- the scheme should be expanded to cover all major GHG emitting sectors;

- future phases should be longer than five years to increase long-term certainty and be more consistent with the timescales for investment; and
- allocation of allowances should be through auctions. Full auctioning is the most efficient allocation method. Revenue could be recycled into further research and investment in low carbon technologies or measures to reduce fuel poverty.

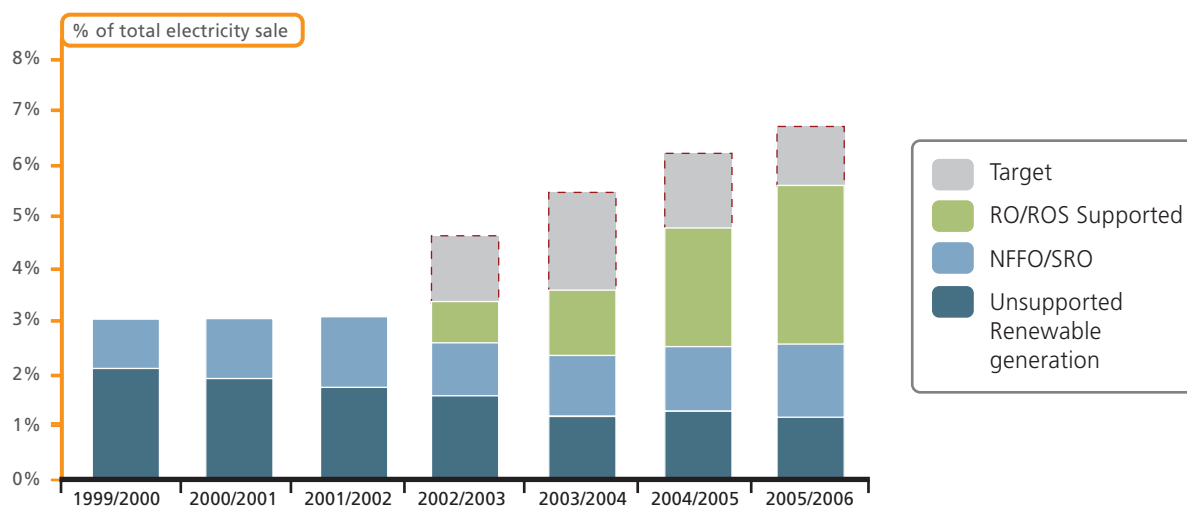
1.8. Changes to the EU ETS will require agreement across the EU which is likely to take some time. In the interim, Government could explore alternative policies, which would work alongside the EU ETS to provide long-term certainty. For example, long term carbon emission reduction contracts funded through auction revenues under the existing ETS⁵. We note that the Energy Review and the UK's draft national allocation plan for Phase 2 of the EU ETS have taken up many of these points.

1.9. Government should also continue to consider ways to reduce the impact of environmental measures on vulnerable customers, for example by recycling part of any revenues from auctioning EU ETS allowances.

Indicator 2. Renewable electricity generation

1.10. The UK has a target to increase the generation of electricity from renewable sources to 10 per cent by 2010, with an aspiration to double that contribution by 2020. Figure 1.3 shows the total renewable generation in Great Britain, consisting of unsupported generation (mainly the long-established large hydroelectric schemes); generation that has been put in place under the Non-Fossil Fuel Obligation (NFFO) and Scottish Renewables Obligation (SRO) schemes, which were used to encourage renewable generation prior to 2002; and generation supported by the Renewables Obligation (RO) and the Renewables Obligation (Scotland) (ROS), the Government's current main policies for promoting renewable generation in Great Britain.

⁵ Details can be found in our response to the Government's energy review consultation available at: http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/15081_8206.pdf?wtfrom=/ofgem/work/index.jsp§ion=/areasofwork/corporateplanning

Figure 1.3: Electricity from renewable generation as a proportion of sales


Source: DUKES - DTI 2005, Energy Trends - DTI 2006 and Ofgem

Performance

- Generation of electricity from all renewable sources increased to 5.6 per cent of sales in 2005/2006 from 3.0 per cent of sales in 2002/2003.
- Renewable output has grown more quickly under the RO and ROS.
- The proportion of electricity supplied from RO and ROS eligible generation remains behind target, although the gap has narrowed. The design of the RO and ROS mechanisms depend on supply being below the target provide support.
- Onshore wind and landfill gas make the largest contribution to renewable supply.

Ofgem's contribution

1.11. Ofgem helps to meet Government targets through administration of the support programmes. We also regulate the electricity networks and ensure that

these networks allow the connection of renewable generation.

- We administer the RO and ROS, including accrediting generators, issuing Renewable Obligation Certificates (ROCs) and managing suppliers' compliance.
- We participated in the Government's reviews of the RO and ROS and have implemented the outcomes of the 2005/2006 RO Review.
- We assist with the NFFO, SRO and Fossil Fuel Levy (FFL), including setting the rate of the FFL. This will continue to 2017.
- We accredit generators and issue Levy Exemption Certificates (LECs) under the scheme which exempts renewable output from the Climate Change Levy (CCL).
- We have worked with DTI on developing the regulatory framework for the offshore transmission network that will be required for offshore wind generation.
- Under the Distribution Price Control for 2005-2010, we introduced incentives for distribution

network operators (DNOs) to connect distributed generation⁶. We also introduced incentives to explore more innovative approaches to network management⁷.

- We reopened the price controls for the electricity transmission companies to allow extra investment to accommodate increased renewable generation.
- We facilitated the Access Reform Options Development Group (ARODG) which considers how arrangements to connect to the transmission network could be changed to make market entry easier, including for renewable generation.

1.12. In the coming year Ofgem will undertake the following.

- We will work with DTI, and the devolved administrations on changes to the RO and ROS, including measures to allow small generators to easily access ROCs.
- We will publish revised green supply guidelines and monitor the first year of fuel mix disclosure compliance.
- As part of the TPCR, we will ensure that the transmission companies can make efficient investments in the transmission network to meet the demands of new generation capacity, particularly renewable capacity.
- The Energy Review announced a major project to review the current regulatory framework and the influence it has on distributed generation. We are working closely with Government on this review and considering what changes to commercial arrangements may be required to accommodate this developing industry.

Meeting the challenge

1.13. We think that broad market-based measures (such as the EU ETS) are likely to be the most cost-effective way for the UK to meet the climate change goals. However, investments made under the current renewables support mechanism should continue to receive support, although the level of support should be regularly reviewed. Policies such as the EU ETS may eventually remove the need for specific support for renewables.

Indicator 3. Electrical capacity from combined heat and power

1.14. The Government has set a target of 10 GW of electrical capacity to be good quality combined heat and power (CHP) by 2010⁸. CHP can be a very efficient form of generation. It also has the potential to reduce losses since CHP is usually located close to demand.

Performance

1.15. Figure 1.4 shows CHP capacity in the UK and the 2010 target (shown in yellow). There was a decrease of 71 MW between 2002 and 2003 and an increase of 829 MWe between 2003 and 2004. There was little change in CHP capacity from 2000 to 2003 and capacity is only around half of the 2010 target. This is due largely to adverse economic and market conditions, particularly relatively high gas prices.

Ofgem's contribution

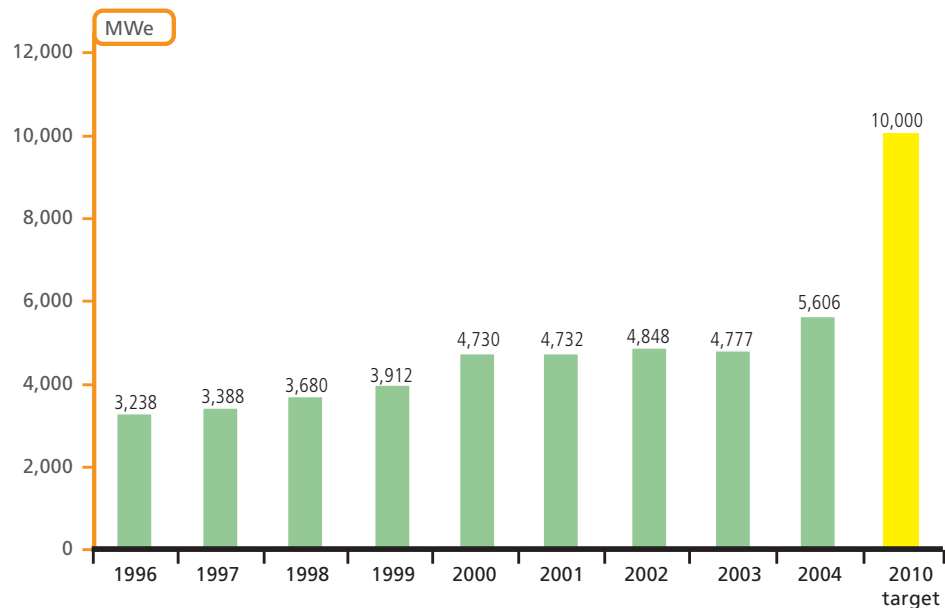
- Actions discussed in regard to distributed generation in Indicator 2 apply to CHP connected to the distribution systems as well as renewables.
- We administer the exemption from the CCL for CHP generation.

⁶ This refers to generation that is connected to the distribution network rather than the high-voltage transmission system; most renewable generation is connected in this way.

⁷ These are Registered Power Zones (RPZs) to support innovation in the connection of generation to distribution network and the Innovation Funding Incentive (IFI) for technical research and development.

⁸ UK Climate Change Programme 2000 - Department for Environment, Transport and Regions 2000

**Figure 1.4: CHP Capacity
1995-2004 (and 2010
target)**



Source: DUKES - DTI 2005

- The Balancing and Settlement Code (BSC) has been revised to make participation in the market easier for smaller generators. For example, gate closure is now one hour ahead of the half hour trading period.
- We have consulted on the regulatory issues around domestic-scale microgeneration, including small renewable and CHP installations.

1.16. In the coming year Ofgem will undertake the following.

- We will continue to administer the exemption from the CCL for CHP generation.
- We will publish a decision document covering the different issues affecting microgeneration and have set-up an industry forum to make sure that any regulatory barriers to microgeneration are identified and removed.
- We will continue to work with Government to manage any policy developments arising from the Climate Change and Sustainable Energy Act 2006.

Meeting the challenge

- 1.17. As business and domestic customers respond to higher prices that include the cost of carbon they will look for ways of being more energy efficient. This may make investment in more efficient technologies like CHP more attractive. Ofgem will work to remove barriers to the participation of CHP generators in the energy markets.
- 1.18. The Government is discussing with industry options for improving support for CHP. Further support, if it is required to achieve the 2010 target, is a matter for Government policy.

Eradicating fuel poverty and protecting vulnerable customers

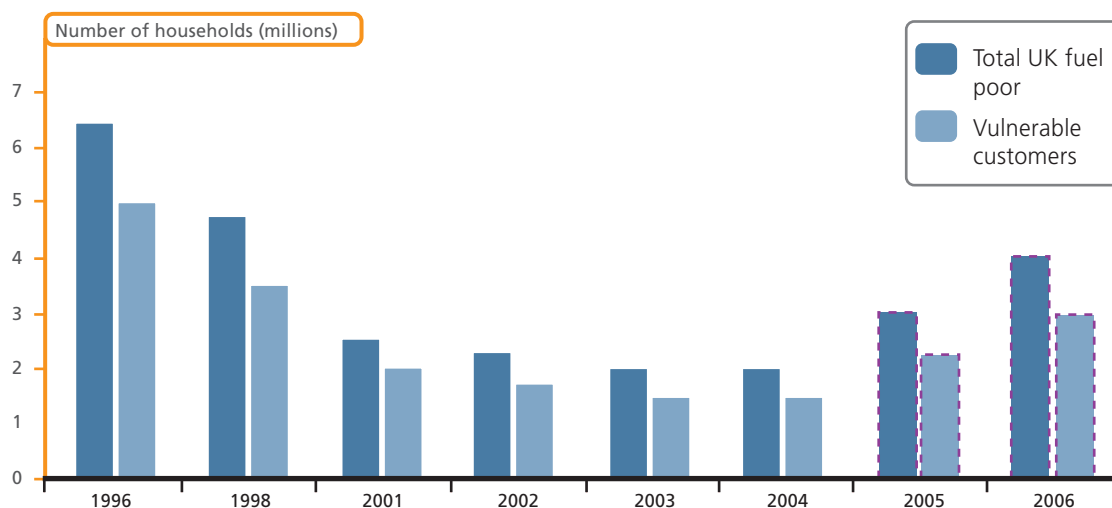
- 2.1. One of Government's key principles for sustainable development is the need to ensure a 'strong, healthy and just society' in which issues of social exclusion are addressed, personal wellbeing is promoted and where there is equal opportunity for all. Ofgem also has specific statutory obligations in relation to vulnerable customers.
 - ensure that more vulnerable customers can (and do) access the lower prices and better services and products available to them; and
 - ensure that customers who are having difficulty paying their bills are given help to manage their debt and prevent their energy supply being disconnected.

- 2.2. A lack of affordable energy can have a significant impact upon the lives of individuals, raising health issues and having implications for general wellbeing and economic prosperity. Ofgem works, through implementing its Social Action Strategy⁹, to meet its social objectives and to help Government to meet its targets for eradicating fuel poverty. Our aim is to:
 - improve the ability of all households to adequately heat their homes;

- 2.3. Government defines fuel poverty as where a household needs to spend more than 10 per cent of its income on energy to maintain a satisfactorily warm home. The Government and the Devolved Administrations have committed to eliminating fuel poverty and have set targets to achieve this goal¹⁰.

Indicator 4. Total number of households in fuel poverty

Figure 2.1: Estimated number of UK households living in fuel poverty 1996-2006



Sources: 4th Annual Report on the Fuel Poverty Strategy - May 2006 (actual figures for 1996 - 2004), Ofgem estimates based on Government's Energy Review Report - July 2006 (projected figures for 2005 and 2006)

⁹ Ofgem's Social Action Strategy was launched in October 2005
¹⁰ In England, the Government's target is to eliminate fuel poverty for vulnerable households by 2010 and 2016 for all households. For the Devolved Administrations the target is for overall elimination, for Scotland by 2016, and for Wales by 2018.

Performance

- The number of customers living in fuel poverty declined steadily between 1996 and 2003, with little movement in overall figures in 2004. These reductions have resulted from a combination of improvements to income (such as the new pension credit arrangements), improved energy efficiency (primarily through the Energy Efficiency Commitment (EEC) and government funded fuel poverty schemes such as the Warm Front which operates in England) and through reductions in energy prices.
- The government estimates, that over 60 per cent of past reductions in fuel poverty numbers have been as a result of improvements to incomes¹¹.
- It is recognised that the number of households in fuel poverty has risen as a result of electricity and gas price increases. Current estimates suggest that there will be over 3 million vulnerable¹² households in fuel poverty in the UK (4 million households overall) once these price rises have fully taken effect.

Ofgem's contribution

- Within the context of a competitive energy market our main contribution is to help keep pressure on energy prices by ensuring that markets operate effectively and by regulating monopoly network companies to get the best value for customers.
- In addition, our research, guidance and encouragement have been key in supply companies developing a range of corporate social responsibility schemes, including social tariffs. Our research shows that suppliers spent over £110 million on corporate social responsibility activity in 2004 and we recognise that this contribution is likely to have increased further since that time.

- We also play an important facilitative role in encouraging best practice across the industry and promoting a more holistic approach, across Government, agencies and industry, to identify and target help to those who are most in need. This role includes leading a new initiative to better target existing help to pensioners for winter 2006/2007¹³.
- We are working to alleviate the impact of high prices on fuel poor and low income customers by helping improve access to better energy deals. For example, through the EnergySmart campaign we raise awareness of ways to reduce energy costs through changing tariff and payment method, and by taking up energy efficiency measures.

2.4. In the coming year Ofgem will undertake the following.

- Continue to support the initiative to improve targeting of support for older customers this winter.
- Continue our best practice work with suppliers, looking at how they can most effectively target available help at those most in need of assistance.
- Continue our work to remove regulatory barriers to the development of smarter metering, which could help tackle fuel poverty through increased energy efficiency and lower cost prepayment meters.
- Continue to work with other Government Departments and key stakeholders on the design and development of the next (third) phase of the EEC, which will apply from 2008-2011, to try to ensure that resources are targeted effectively.
- We will also continue to work with Government, as part of its financial inclusion agenda, to promote wider choice in payment methods which can help vulnerable customers

¹¹ 4th Annual Report on fuel poverty, May 2006 <http://www.defra.gov.uk/environment/energy/fuelpov/index.htm>

¹² A vulnerable household in this context is one containing children, or those who are elderly, sick or disabled.

¹³ In its report on the Energy Review the Government proposed that Government departments, suppliers and consumer bodies work together to target available help on low income pensioners over the winter 2006/2007. A key feature of this new initiative is the participation of the Pension Service which will enable the offer of help to be made directly to the target audience.

access better energy deals. Ofgem's new Pre-payment Meter Regulations¹⁴ help to deliver against this objective, by allowing greater flexibility in the payments that suppliers can collect through a pre-payment meter. These Regulations will be finalised and introduced in 2006, removing existing barriers to innovation in this area.

- We will also be looking at barriers to the further expansion of the gas network that could help to reduce energy charges for households in non-gas communities and at barriers to the development of microgeneration.

Meeting the challenge

- 2.5. Fuel poverty is part of a wider problem of poverty and social exclusion and is caused by a combination of high energy prices, low incomes and poor housing conditions. There is an important and continuing role for Ofgem and industry to help ensure prices are no higher than necessary and to promote energy efficiency but there will be a limit to the role of the market and we believe that the focus should be on raising incomes and improving housing - a role primarily for Government.
- 2.6. One of the main challenges faced by all parties involved in tackling this issue is to identify the fuel poor and then to deliver comprehensive solutions. There is a clear role for the Department of Work and Pensions, and other Government agencies with front-line staff, in helping to identify and target the fuel poor. Work to develop and deliver a package of help to older customers this winter could provide a useful model for a more joined up approach to targeting measures to fuel poor households.
- 2.7. Even when short term supply issues are addressed, reducing greenhouse gas and other emissions will continue to put upward pressure on prices. Therefore, efforts to tackle fuel poverty need to continue to focus on increasing incomes and improving housing. In particular:

- Further well-targeted improvements in income will be needed to meet the 2010 and 2016 targets; and
- Government, scheme managers and suppliers should continue to look to bring together available help such as Warm Front and EEC so that comprehensive solutions can be delivered where fuel poor customers are identified.

- 2.8. Liberalisation in the European markets could also help to drive down energy prices in Great Britain and must remain a key goal of Government and the European Union.
- 2.9. Action on environmental measures may provide additional revenue streams to help tackle fuel poverty. For example, revenue from the auction of allowances under the EU ETS could also be directed towards fuel poverty programmes.

Indicator 5. Competition and vulnerable customers

- 2.10. This indicator shows the proportion of customers who have changed electricity and gas suppliers across different customer groups, including more vulnerable customers¹⁵. The levels of switching within these groups, and their comparison to the national average, are a good indication of the extent to which vulnerable customers are taking up the benefits of competition. The indicator covers the period since the introduction of competition and includes customers who may have changed supplier more than once over the period.

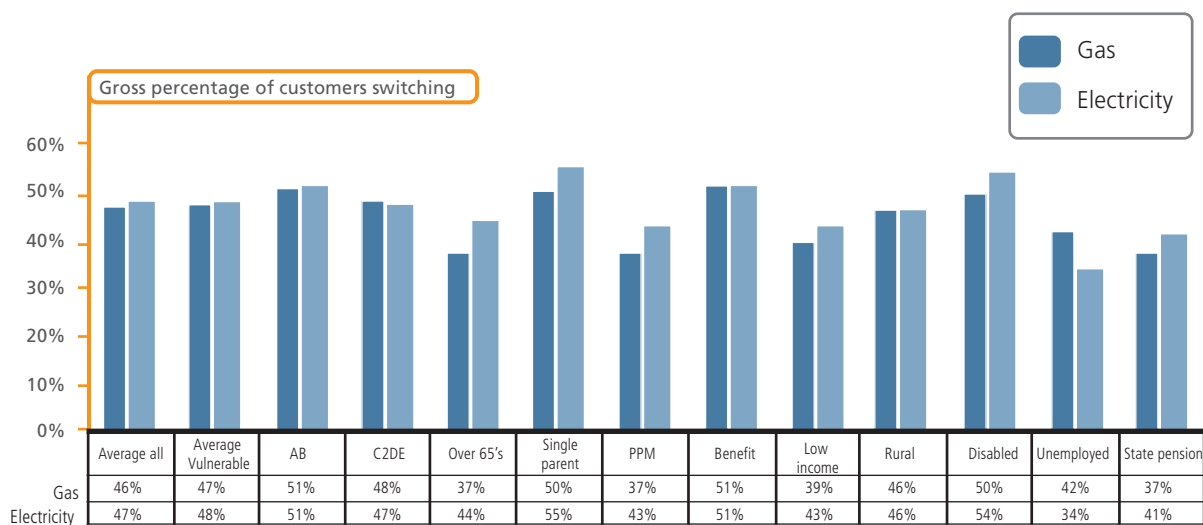
Performance

- All customer segments are participating in the competitive market; however some vulnerable customer groups do not appear to be accessing the benefits of competition to quite the same extent as other customer groups, with rates below the national average.

¹⁴ The Electricity (Prepayment Meter) Regulations 2006 (SI No. 2010) and The Gas (Prepayment Meter) Regulations 2006 (SI No. 2011).

¹⁵ Over 90 per cent of customers surveyed were aware that they could switch supplier. Data in Figure 2.2 relates only to those customers and does not include those customers who were unaware that they could switch.

Figure 2.2: Percentage of customers who have switched their energy supplier



Source: Accent June 2005

- In some instances vulnerable customer groups are changing supplier at rates above the national average; for example, switching rates for customers on benefits are at 51 per cent.
- However, some groups do not appear to be taking advantage of the potential to lower their energy costs by switching supplier. Only 39 per cent of low income customers and 37 per cent of over 65s have switched gas supplier, with just 34 per cent of unemployed customers having switched electricity supplier.
- We will carry out further research into the levels of switching among more vulnerable customer groups.
- We will continue to identify and tackle barriers to switching. We will also look more closely at how we can help customers to take advantage of better energy deals through switching their payment method.
- Under the EnergySmart campaign, we will continue to promote choice and encourage customers to take advantage of the benefits of competition.

Ofgem’s contribution

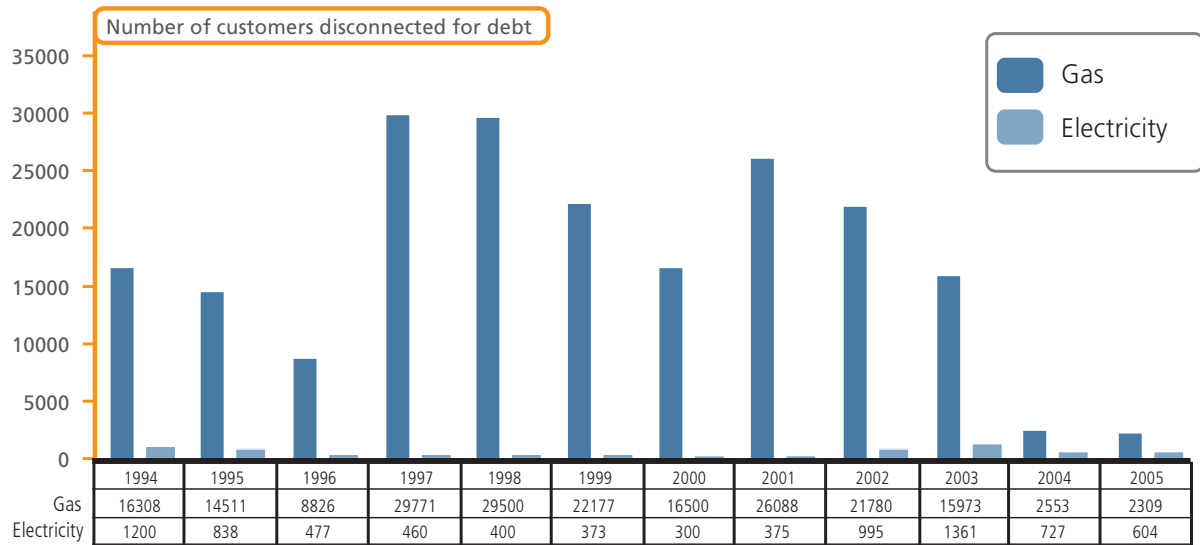
- We work to ensure that there are no unreasonable barriers to customers exercising choice in the competitive market.
- Under the EnergySmart programme, we have worked with energywatch to promote the choices available to customers to help reduce energy costs.

2.11. In the coming year Ofgem will undertake the following

Meeting the challenge

- 2.12. While competition is working well within the retail market, research shows that some categories of vulnerable customers are less likely to have changed supplier.
- 2.13. Customers who are socially and financially excluded are less likely to be in a position to take advantage of competitive tariffs and alternative payment methods, such as direct debit. In addition to wider Government work on social and financial inclusion, focus needs to be given to

Figure 2.3: Percentage of customers disconnected for non payment of debt: 1994-2005



Source: Ofgem annual monitoring of supplier performance

improving awareness of, and confidence in, the benefits of competition among more vulnerable customers. Ofgem, energy suppliers and key stakeholders such as energywatch all have a role to play in this area.

Indicator 6. Disconnection for debt

2.14. This indicator considers the number of gas and electricity customers who are disconnected each year due to their failure to repay a debt. While accumulation of debt, and the threat of disconnection, may arise for reasons other than fuel poverty, in many instances customers who persistently fail to meet their energy bills do so due to financial constraints rather than a wilful refusal to pay.

Performance

- Overall the number of customers disconnected for non-payment of debt has fallen significantly over the last four years, although in recent years there has been a slight rise in the number of electricity disconnections. Improved self-regulation, through the introduction, in 2004, of the Energy Retailers Association (ERA) safety net has made an important contribution¹⁶.
- Reductions in gas disconnections followed Centrica's adoption (in 2004) of a more proactive policy of installing pre-payment meters instead of withdrawing customer's supply. In addition, all suppliers have adopted tighter processes to avoid disconnecting vulnerable customers.

¹⁶ The six main suppliers have committed to not disconnecting vulnerable customers and the safety net establishes processes designed to ensure that such disconnections do not occur.

- Reductions in disconnection have occurred against a backdrop of steady debt rates, increasing repayment rates and increases in the number of pre-payment meters installed as a means of recovering debt.

Ofgem's contribution

- Continuous supplies of energy are important, in particular in ensuring people's health and general wellbeing. Suppliers are not prohibited from disconnecting customers who do not pay their bills but work to minimise the number of disconnections for non-payment of debt in particular by ensuring that all viable options to recover the debt are exhausted before the disconnection is made.
- Through regulation Ofgem requires that, where possible, suppliers install pre-payment meters as an alternative to disconnection. While we recognise that pre-payment is a relatively expensive form of payment, we consider this preferable to disconnection and we are working to help drive down the costs of all metering.
- We continue to monitor suppliers' performance and promote best practice, for example through support for the development of the ERA safety net on disconnecting vulnerable customers.

2.15. In the coming year Ofgem will undertake the following:

- We will continue to monitor suppliers' compliance with regulatory and voluntary obligations (including the ERA safety net) and will work to promote customer awareness and best practice in debt management and prevention.

- We will drive forward supplier progress in preventing debt accumulation, through support for improved billing via the new supplier Billing Code and Energy Supply Ombudsman, and through plans for the continued replacement of token meters.

- We will continue work to review the supply licence obligations which relate to debt and disconnection with a view to introducing revised licences in 2007.

Meeting the challenge

- 2.16. In the current climate of rising energy costs it is especially important that customers who are struggling to meet their energy costs are given appropriate support and protection.
- 2.17. Debt and fuel poverty are intrinsically linked. Measures designed to tackle fuel poverty can help customers manage their finances and reduce the risk of debt and thus disconnection. Action under Government's financial inclusion agenda has a key part to play, for example by helping improve access to cheaper tariffs and through improved debt advice and management services.
- 2.18. The installation of prepayment meters is widely recognised as being preferable to disconnection. However increased use of prepayment meters raises concerns about the extent of self-disconnection due to inability to pay. While we have not identified specific actions for this year we remain committed to working with suppliers, consumer organisations and others to keep this issue under review.

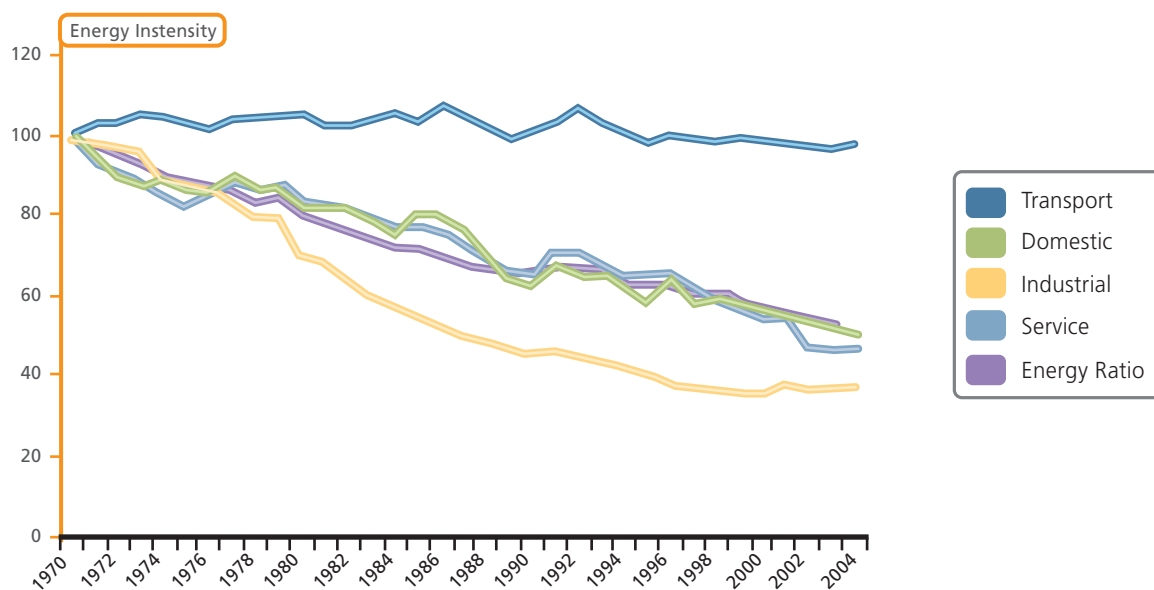
3.1. Energy conservation has the potential to deliver environmental, social and economic benefits simultaneously. There is scope for improving the efficiency of all stages of the electricity and gas industry through:

- using the most efficient generation technologies, such as CHP;

- more efficient networks, which use less energy and minimise losses;
- better appliances and better-insulated buildings; and
- changes in behaviour to eliminate waste and change the time of use ¹⁷.

Indicator 7. Energy intensity

Figure 3.1: Energy intensity by sector 1970-2004



Source: Energy Consumption - DTI 2005, Building Research Establishment, Department for Environment, Food and Rural Affairs, Office of National Statistics

Performance

3.2. The energy intensity indicator provides an indication of the relative energy efficiency of the different sectors. It has been developed from DTI data on energy consumption and shows energy consumption per unit output relative to 1970 for the transport, industrial and service sectors and per household for the domestic sector.

- The energy intensity in the domestic, industrial and service sectors has fallen since 1970, although transport has remained relatively energy intensive.
- The largest fall has been in the industrial sector. However since 2000 this has flattened out, largely due to changes to industrial structure.

¹⁷ Changing the time of use of energy can reduce the need for expensive and less efficient stand-by generation and can reduce network investment for peak capacity

- There has been a more gradual decrease in the energy intensity of the domestic and service sectors.

Ofgem's contribution

- Price signals provide an incentive for organisations to take up cost effective energy efficiency measures. We oversee the market rules which govern wholesale and retail markets and consider modifications to industry codes. Effective markets ensure that market participants receive the correct price signals and promote efficient behaviour.
- We work to ensure that network regulation and charging does not create a barrier to reducing energy consumption and increasing efficiency.
- We administer the Energy Efficiency Commitment (EEC) for electricity and gas suppliers to improve energy efficiency in the domestic sector (see next section).

3.3. In the coming year Ofgem will undertake the following

- We will work with all agencies across Government to support initiatives to reduce the energy intensity of the economy, ensuring as far as we can that the market rewards investment in energy saving on an equivalent basis to energy consumption. This entails work in network regulation, as well as in supply markets.
- We support innovation and choice in the market so that a range of energy service offerings to both domestic and business consumers can be expanded, working in partnership with Defra and DTI in implementation of the EU Energy End Use Efficiency and Energy Services Directive
- We will establish with industry a framework for the interoperability of smart meters.
- We will work with and advise Government on the development of new regulatory schemes to reduce energy intensity.

- We will work to remove barriers to the deployment of technologies, such as microgeneration, that could reduce the energy intensity of some sectors.

Meeting the challenge

3.4. Despite the decline in energy intensity of the economy over recent years documented in this indicator, energy consumption continues to increase in absolute terms. Decoupling wealth from energy consumption to the extent that this increase is actually reversed is perhaps the greatest challenge in energy policy. Achievement of this objective will require major technological and market innovation; especially if it is to be long-lasting, and widespread.

3.5. From a policy point of view, this means Government will need to develop policies that address the use rather than the production of energy, including:

- the provision of better information on energy consumption, through appliance labelling, home energy performance certificates, better metering and billing;
- regulatory measures such as building regulation, and minimum efficiency standards for electronic products etc
- price signals though fiscal incentives such as the CCL; or the EU ETS;
- education, awareness and promotional campaigns;
- specifically targeted programmes which create obligations on certain market participants; and
- innovative market initiatives including energy services.

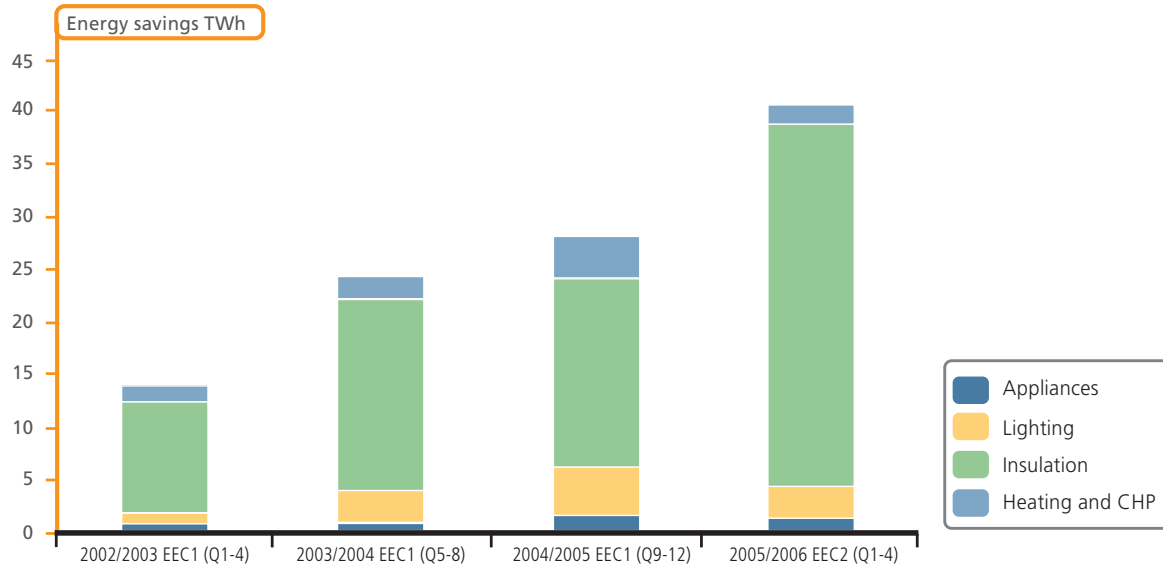
3.6. Government has already introduced a range of measures targeted at reducing energy demand. For example, the CCL on gas and electricity bills for business customers and the associated Climate Change Agreements. The Carbon Trust has been set up to advise business on cutting emissions through energy efficiency, which will mean lower costs and a more secure supply of energy in the future.

- 3.7. The EU ETS provides an incentive either directly (through large gas consumers surrendering allowances) or indirectly through the impact on electricity prices, for businesses to consider energy efficiency. We believe the ETS should be expanded further to cover all major greenhouse gas emitting sectors of the economy. As the allowance price becomes established in energy prices, we expect more customers to invest in energy efficiency measures. The broader the coverage of the scheme, the more likely it is that these energy savings will be made at least cost to the economy as a whole.
- 3.8. However, other factors, such as the information available to businesses about reducing their energy use may affect investment and removing these barriers is also important if Government is to meet its energy efficiency targets. Different sectors may

need different solutions to improve energy efficiency.

- 3.9. In the longer term Government may wish to consider a more radical intervention such as a supplier cap and trade scheme, or carbon trading on an individual basis. Any programmes need to be based on evidence supporting the need for the scheme that shows that the proposed policy scheme is cheaper than using other instruments such as the EU ETS. This will involve rigorous analysis of existing measures and of proposals for future measures.

Figure 3.2 – Energy savings, by measure type, achieved annually from the EEC



Source: Ofgem

Indicator 8. Energy Savings from the Energy Efficiency Commitment (EEC)

3.10. This indicator shows the energy savings achieved from the Energy Efficiency Commitment (EEC). It places an obligation on electricity and gas suppliers to install energy efficiency measures in consumers' homes and 50 per cent of the energy savings must be in Priority Group households¹⁸. The first phase of EEC (EEC1) ran from 2002 to 2005. Government extended the programme until 2008 and has published an initial consultation paper on proposals for 2008-2011. Each phase has had a progressively more stringent target.

Performance

- During EEC1 all suppliers active in the market achieved their targets and the measures installed achieved a saving of 86.8 TWh, exceeding the overall target by 40 per cent allowing these savings to be carried forward to the next phase¹⁹.
- 48 per cent of the energy savings were in the Priority Group, with over 400,000 Priority Group households receiving cavity wall insulation and 480,000 receiving loft insulation.
- Suppliers were able to carry over any additional work carried out during the EEC1 period for compliance in EEC 2.
- During the first year of EEC2 suppliers have delivered sufficient measures to save 40 TWh. They carried over around 35 TWh of measures from EEC1 period, so that in total, suppliers have achieved around 60 per cent of the total target for EEC2.
- By the end of the first year of EEC2, 46 per cent of the energy savings achieved have been in the Priority Group households.

Ofgem's contribution

- We administer EEC on behalf of Government.
- Energy efficiency is a major strand of the EnergySmart campaign run jointly by Ofgem and energywatch aimed at helping consumers, especially vulnerable consumers, reduce their energy bills.
- Our work on innovative metering may also encourage energy efficiency. We held a "Powering the smart meter debate" event in February 2006, coinciding with the publication of a consultation on domestic metering innovation.

3.11. In the coming year, Ofgem will undertake the following.

- We will administer the EEC and work with Defra on future approaches to energy efficiency in both the household and non-domestic sectors
- We will work with Government on the development of the next phase of EEC (2008–2011), including exploring options for including microgeneration and implementing any changes required under the Climate Change and Sustainable Energy Act.
- We will manage the Government funded energy demand reduction trial, which will test the effectiveness of innovative metering and billing options
- We will continue other work with suppliers on the testing and evaluation of consumption information and smart metering and consider qualification for EEC accreditation
- In the context the EU Directive on Energy End-use Efficiency and Energy Services, we will work with Government on developing and implementing instruments to improve the efficiency of energy use.

¹⁸The Priority Group are households in receipt of income or disability related benefits

¹⁹The sustained level of activity at end of ECC1 demonstrates the value of the carry forward provision in ensuring suppliers did not reduce delivery rates between EEC1 and EEC2

Meeting the challenge

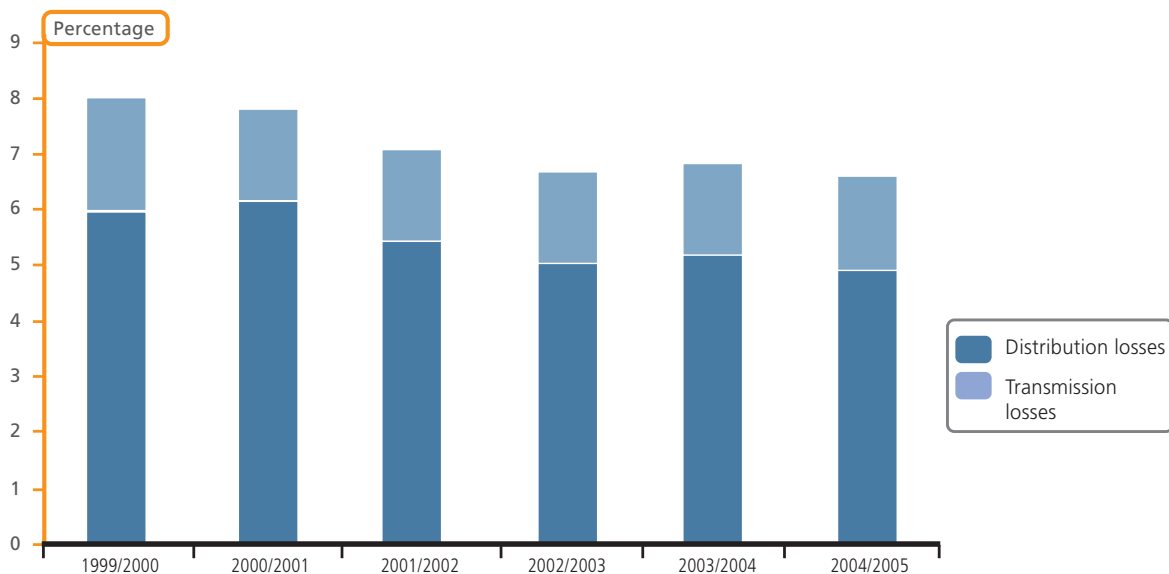
- 3.12. There is evidence that significant further cost-effective energy savings exist. There are a range of different reasons why consumers are not taking up energy efficiency measures and these will need to be addressed if emission reductions are to be achieved. Appropriate support measures could include fiscal, minimum regulatory standards or EEC type incentives.
- 3.13. Where action may have an impact on customers in fuel poverty Government will need to consider ways to ensure equity across consumers as well as additional measures to reduce fuel poverty. There is likely to be an increasingly important role for better information to customers through metering and billing in helping customers to improve their energy efficiency. There is also potentially a role for innovative market initiatives and energy services.
- 3.14. However, household CO₂ emissions have risen since 1990, despite the gains from EEC and other measures. Analysis carried out by the Energy Saving

Trust suggests that these programmes have curbed the growth in energy demand in the domestic sector rather than reduced it. As consumers have become wealthier, they have increased their demand for energy consuming products. This has undermined further energy saving that could have been achieved. This is a major policy challenge facing Government. In the Energy Review, Government announced a fundamental review of the form of EEC after 2011, including a possible obligation on suppliers to cap growth of emissions from the domestic sector.

Indicator 9. Gas and electricity losses

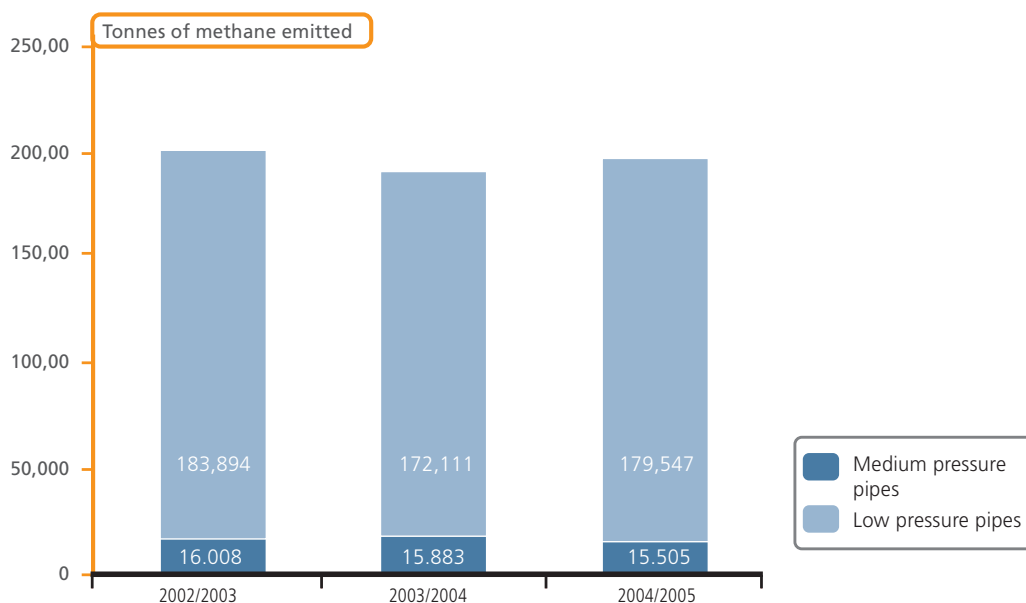
- 3.15. Electricity is lost as heat, noise, or theft on networks as it is transported. There is both a financial and environmental cost from these losses, as much of the electricity generated is produced by power stations burning fossil fuels. The electricity that is lost during transportation therefore increases emissions of greenhouse gases and other pollutants. Electrical losses are to some extent an unavoidable consequence of transporting electricity.

Figure 3.3 – Electricity transmission and distribution losses



Source: Ofgem

Figure 3.4 – Methane emitted from medium and low pressure gas pipe networks due to leakage



Source: Ofgem

However, there are several measures that can be taken to manage losses to an efficient level, including investment in low loss equipment, more effective network configuration, and management of peak loads.

- 3.16. Gas lost from transmission and distribution systems is a direct pollutant as methane, the principal component of natural gas, is a greenhouse gas 21 times more potent than CO₂. Gas is also used in compression stations which provide the energy to transport gas within the network. Measures that can be taken to manage gas losses include replacement of mains to reduce leaks as well as more efficient compressions stations and more efficient pressure management.
- 3.17. Figures 3.3 and 3.4 are based on information provided to Ofgem under price control arrangements. We regulate the prices and quality of service of networks to protect the interests of consumers. The environmental performance of networks is an important part of their service and quality.

Performance

- Figure 3.3 shows that the equivalent of 6.6 per cent of the electricity entering the distribution networks was lost in 2003/2004; made up of 5 per cent from the distribution network and 1.5-2 per cent from the transmission network.
- Electricity losses, particularly from the distribution networks, have been declining in recent years as the companies respond to incentives in the price controls to manage losses.
- On the medium pressure gas networks, methane emissions decreased in 2004/2005 compared to emissions in 2003/2004 and 2002/2003.
- On the low pressure network there has been an increase in methane emissions in 2004/2005 compared to 2003/2004²⁰.

²⁰GDNs noted that the decrease in emissions on the medium pressure network resulted from the Mains Replacement Programme. A number of reasons were provided for the increase in emissions on the low pressure network, including higher operating pressures, a reduction in the use of gas conditioning and changes in how mains diameters were factored into leakage calculations.

Ofgem's contribution

- Under the electricity distribution price control, DNOs have incentives to manage losses effectively by being rewarded for loss reductions and penalised for loss increases relative to a target level. The target level is fixed for a five year period and each unit of electrical loss is valued as 4.8p/kWh.
- The electricity system operator faces an incentive (the Transmission Losses Adjustment) to manage transmission losses.
- The structure of electricity distribution charges set by Ofgem provides incentives for the reduction of losses in reactive power. DNOs are allowed to treat income from power factor penalties as excluded income for the purposes of the price controls. This should encourage improvement in power factors, which in turn should also reduce electrical losses on distribution networks.
- The current gas transmission and distribution price control arrangements allow considerable investment in a mains replacement programme. The primary driver for this work is improving safety. However, it also has the benefit of reducing gas leakage.
- GDNs are required to buy leakage gas and receive a fixed allowance for this under the price control. This provides GDNs with an incentive to reduce gas leakage volumes.

3.18. In the coming year Ofgem will undertake the following

- The gas transmission and distribution price control reviews currently underway will provide an opportunity to consider the treatment of losses from all of the gas network, particularly on the gas distribution network and review the impact of the continuing mains replacement programme on leakage
- We will consider proposed changes to the way users of the electricity transmission system are charged to cover losses. Industry participants have proposed that these charges should vary according to location.

Meeting the challenge

3.19. The management of the electricity and gas networks to minimise inefficient losses is an area where Ofgem has direct influence. We must ensure that the appropriate incentives are in place for the construction, maintenance and operation of the networks to target losses. There are a number of areas where action could be taken in the longer term to minimise losses from networks involving Ofgem, acting in partnership with other relevant agencies. These include stronger locational signals, incorporating methane lost from gas networks in the EU ETS and targeting of incentives on those that are in the position to act.

Ensuring a secure and reliable gas and electricity supply

4.1. Ensuring reliable gas and electricity supplies for consumers at the point of use depends on a number of separate factors: the adequacy of the generation capacity and the availability of the fuels they use; the availability of gas from various domestic and imported sources; the ability of the

physical networks to deliver energy supplies as well as the management of the systems. It also depends on high quality service from suppliers and good relationships with their customers.

Indicator 10. Reliability of supply – network performance

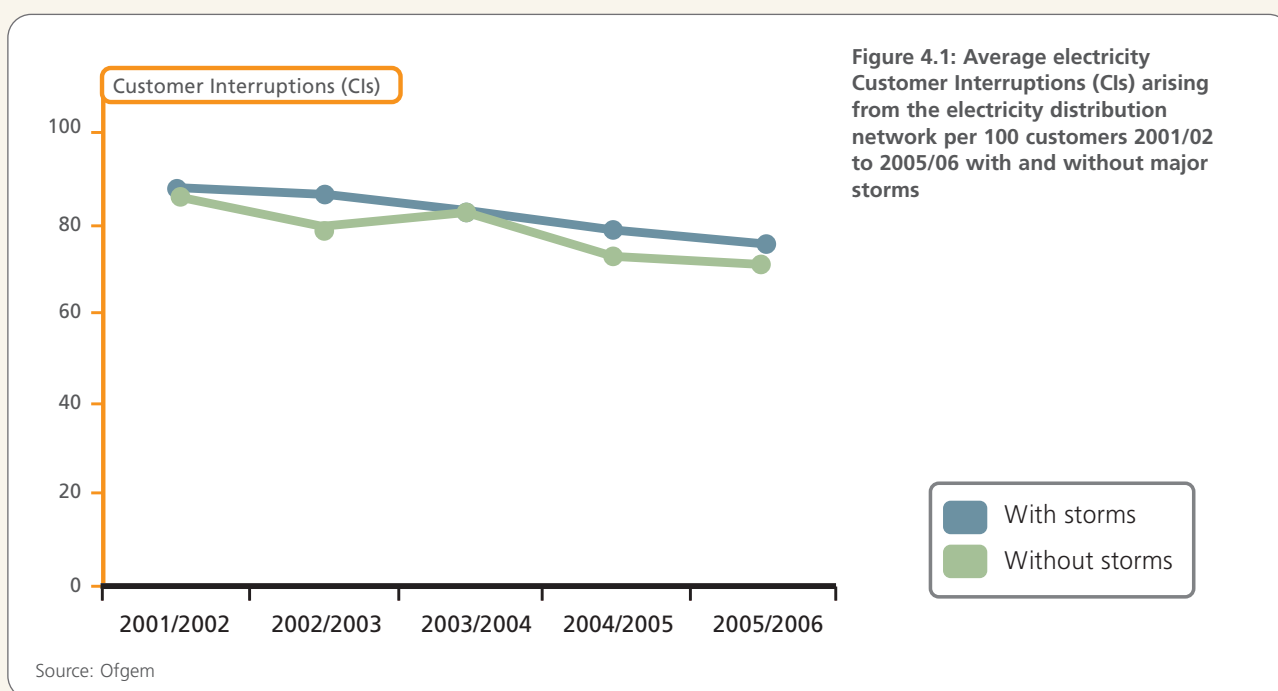
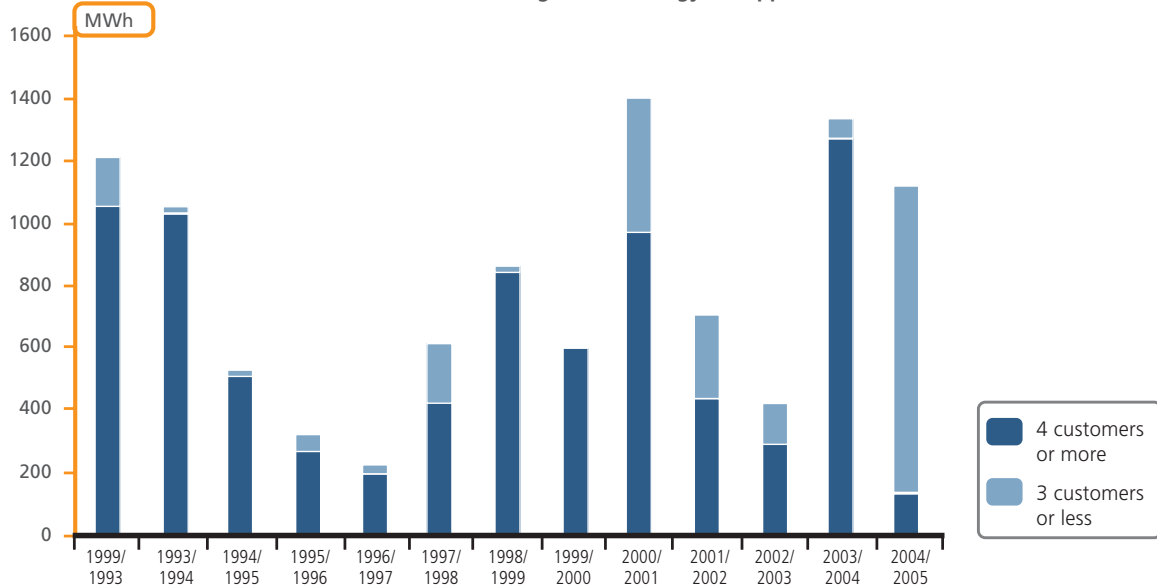


Table 4.1: Reported number of non-contractual interruptions of gas supply arising from the gas distribution network

Type of interruption	Reported number of interruptions per 100 customers	
	2003/2004	2004/2005
Planned interruptions	0.79	1.04
Unplanned interruptions	0.14	0.25
Total	0.92	1.29

Source: Ofgem

Figure 4.2: Energy unsupplied due to transmission network faults



Source: Ofgem

4.2. This indicator looks at the reliability of the gas and electricity networks by considering the number of interruptions of supply to gas or electricity that consumers experience as a result of network issues (either planned maintenance or unplanned failures).

4.3. For gas, the data has been compiled by Ofgem on the basis of information reported by the gas distribution network operators as part of the regulatory requirements. Similar data is not presented for the gas transmission network as it is highly reliable and interruptions for planned maintenance are managed through the capacity buyback arrangements.

4.4. For electricity distribution, the data only includes power cuts that last longer than three minutes but covers both planned and unplanned interruptions. For electricity transmission, the data includes unplanned interruptions only.

Performance

- There has been a general decline in the number of customer interruptions arising from the electricity distribution network.

- Over three quarters of interruptions in gas distribution networks are accounted for by planned work. A major reason for the large proportion of planned interruptions on the gas distribution networks is the mains replacement programme. As work under this programme is expected to increase until 2007, increases in the number of planned interruptions are expected.
- Unplanned interruptions on the gas network also appear to have increased between 2003/2004 and 2004/2005. However, this is largely due to improvements in the reporting of interruptions data.

Ofgem’s contribution

- As part of the electricity distribution price control, DNOs have incentives to minimise the number of interruptions experienced by customers.
- As part of the transmission price control review process Ofgem places incentives on National Grid Gas (NGG) to make efficient trade-offs between delivering entry capacity to shippers who have purchased it and not providing the

capacity in order to maintain the network. This buyback regime incentivises NGG to carry out system maintenance in a way that minimises the inconvenience to consumers.

- We monitor the number of transmission system interruptions and require the companies to report on their performance on an annual basis.
- We have participated in the European Commission's SmartGrids research programme which aims to stimulate innovation in network development.

4.5. In the coming year Ofgem will undertake the following

- We will consult on the issues surrounding electricity transmission system reliability and performance reporting as part of the TPCR;
- We will consider the buyback regime as part of the gas TPCR process and look to introduce a similar regime for holders of gas exit capacity;
- We will review the regulatory arrangements on gas quality of service, including interruptions, as part of the GDPCR; in particular, we will consult on:
 - the appropriate scope and coverage of the arrangements;
 - whether there are any gaps or room for improvement in the existing arrangements; and
 - which outputs should be measured, audited and incentivised
- We will work with electricity DNOs to promote best practice in dealing with vulnerable customers when there are interruptions to electricity supply.

Meeting the challenge

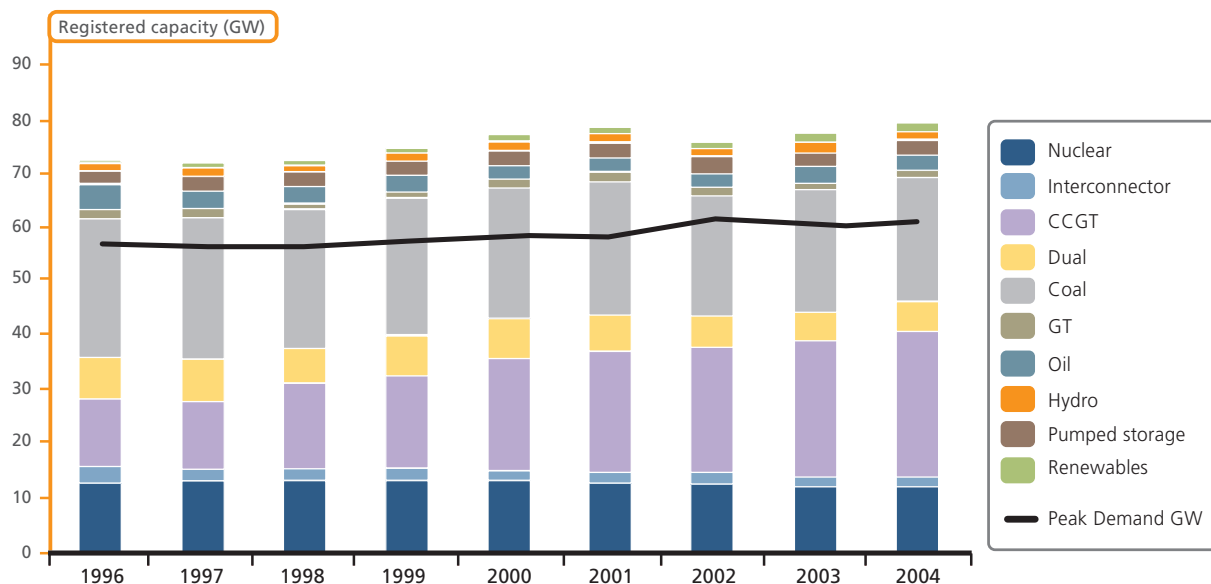
4.6. Ofgem has a leading responsibility in this area and we will continue to monitor the performance of the energy network operators and ensure the appropriate incentives are in place to provide a high quality and secure gas and electricity supply.

Indicator 11. Security and diversity of supply - market response

4.7. Figure 4.3 shows the proportion of electricity generated from different fuels, while figure 4.4

shows the potential UK gas supply, by source, against annual demand.

Figure 4.3: The UK electricity generation mix



Source: DUKES - DTI 2005

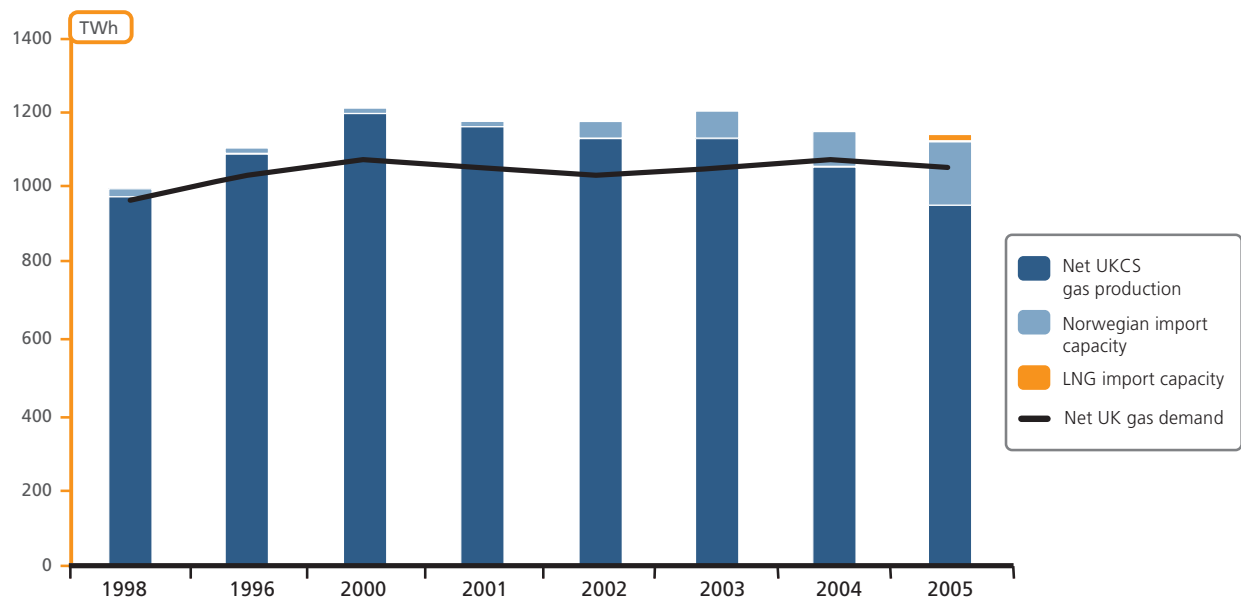
Performance

- In electricity, there has been a substantial increase in the capacity of gas-fired generation (both CHP and CCGT) and a decrease in the capacity of coal and oil-fired generation since 1996. This has improved the diversity of the generation fuel mix.
- In gas, Great Britain has historically relied on supplies from the UK continental shelf, although a small proportion of gas has been imported from Norway. More recently, continental imports have been making a more significant contribution and imports of Liquefied Natural Gas (LNG) have allowed access to gas from a much wider range of countries.

Ofgem's contribution

- We have a statutory duty to have regard to the need to secure a diverse and viable long-term energy supply and to secure that all reasonable demands for gas and electricity are met.
- We regulate the monopoly companies and set incentives to deliver security of supply. In particular, National Grid, as electricity and gas system operator (SO), plays a major role in delivering security of supply by ensuring that supply and demand are balanced. We have put in place commercial incentives to ensure that NG responds efficiently to market signals and to ensure that its actions send appropriate signals to the market.

Figure 4.4: Gas supply capacity in the UK



Source: Joint Energy Security of Supply Working Group (JESS), DTI 2006

- We have facilitated improvements to the short-term information available to gas customers through the development of a daily reports page on the National Grid website. We also held a seminar series to help customers understand the options available to them in the market including demand management.
- In consultation with stakeholders, we developed a gas balancing alert (GBA) which enables National Grid to signal when physical increase in supply or reduction in demand is needed to balance the gas network.

4.8. In the coming year, Ofgem will undertake the following.

- We will review the incentives on National Grid as SO. We intend to implement incentives to improve the quality of information that they publish and the accuracy of their demand forecasts.
- We will participate in the Joint Energy Security of Supply (JESS) group.

- We will continue to work in Europe to achieve greater information transparency across Europe as a whole.
- We facilitate the debate on the role of the demand side in contributing to security of supply.

Meeting the challenge

4.9. Well-designed environmental instruments and effective market oversight will allow markets to cost-effectively deliver secure and sustainable energy. Government and Ofgem should continue to monitor both investment and the supply-demand balance in the UK gas and electricity markets to make sure that energy markets are bringing forward the investment and innovation when it is required to meet environmental targets.

Indicator 12. Quality of service - supply market performance

4.10. For most consumers, their main interaction with the energy market is with the supply companies. This section is about the quality of service that customers receive from suppliers. Against a backdrop of growing climate change concerns and rising retail prices, Ofgem expects suppliers to be offering their customers products that enable them to effectively manage their consumption and their energy costs. Assessing suppliers quality of service has many dimensions. It can include many elements such as quality and accuracy of billing, as well as the availability of energy service products or other services which enable consumers to actively manage their own energy consumption.

4.11. Ofgem licenses supply companies and has a statutory role in ensuring that licensees do not breach the terms of their licence. We are committed to the principles of better regulation and encouraging energy suppliers to deliver improvements through self-regulation. This section is a qualitative discussion of Ofgem's role in regulating the supply market.

Ofgem's contribution

4.12. In 2004, Ofgem allowed a trial suspension of the 28-day rule²¹, subject to certain conditions, in order to determine whether the rule is a barrier to energy service offers. Experience with the trial has shown limited take-up and the trial has been extended.

4.13. In April 2005, energywatch submitted a supercomplaint to Ofgem that contended that the billing processes of gas and electricity suppliers were harming the interests of domestic consumers. In response to the supercomplaint, we asked energy suppliers to:

- establish and finance an independent dispute resolution body, by July 2006, to address account and billing disputes the customer is unable to resolve with the supplier;

- by July 2006, not to ask customers for payment for any energy supplied where the supplier has not billed the customer for more than two years. From July 2007, the two years is reduced to one year; and

- review the terms and conditions in their supply contracts, and change them where necessary by July 2006, to ensure that contracts are as simple as possible, comply with consumer rights' legislation and are not biased in the suppliers' favour.

4.14. Suppliers have complied with these requirements. In particular, the members of the Energy Retailers Association have established an Energy Supply Ombudsman.

4.15. In the coming year Ofgem will undertake the following.

- As part of the supply licence review, we will consider whether there are any barriers to the introduction of more innovative supply arrangements, including energy service offerings, and will seek to remove these barriers.

- We will form an industry-wide group to set interoperability standards for smart meters and remove the regulatory barriers suppliers face in installing smart meters in customers' homes.

- We will work with Government in managing the planned trial of smart metering and other consumption feedback options.

- Ofgem will monitor the Ombudsman in the coming year to establish whether it develops into an effective and well-publicised scheme for consumers to resolve complaints that they are unable to resolve with their supplier.

²¹ The 28-day rule requires that domestic customers should not need to give more than 28 days notice of termination when changing suppliers.

Meeting the challenge

4.16. The Energy Review report and the Energy End Use Efficiency and Energy Services Directives include provisions relating to the metering and billing practices of energy companies. We will participate in the on-going debate as to how these provisions should be applied, and assist Government in coming to an informed view of how the directive

should be applied in the UK. Any mandatory measures on increasing the accuracy of billing or providing improved metering should reflect the principles of better regulation. Implementation should be through self-regulation, if possible, to facilitate flexible solutions reflecting the fact that customers respond differently to different sorts of information.

Theme

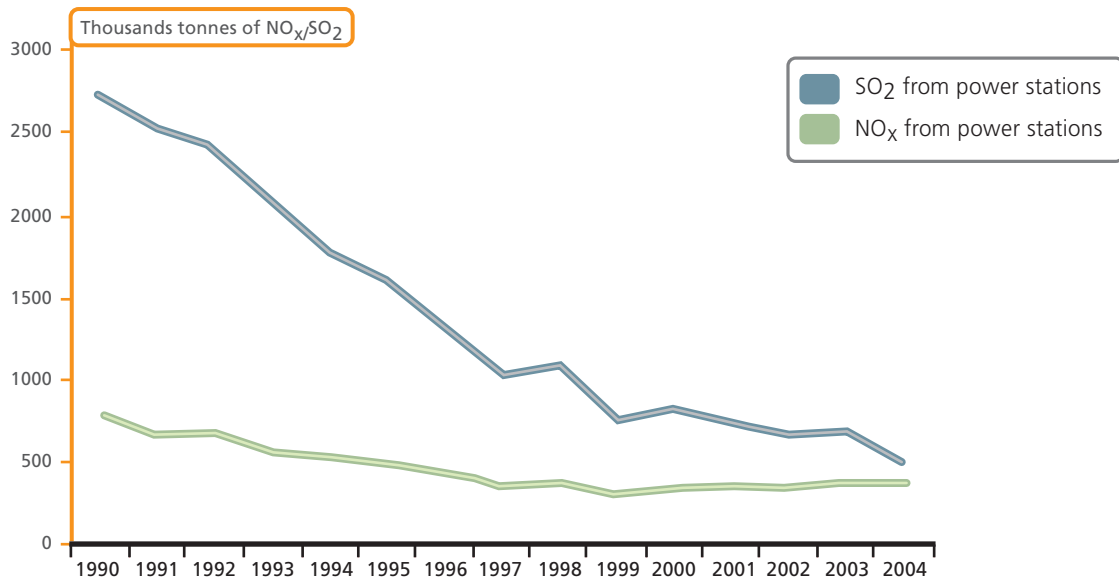
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Supporting improved environmental performance

- 5.1. In addition to the impacts relating to climate change discussed in Theme 1, the generation, transportation and use of electricity and gas have a number of other impacts.

Indicator 13. Impacts of electricity generation

Figure 5.1: NO_x and SO₂ emissions from power stations 1990-2004



Source: Source: e-digest of Environmental Statistics - DEFRA 2006

- 5.2. Sulphur dioxide (SO₂) and oxides of nitrogen (NO_x) are major air pollutants that affect air quality and acidification. One of the main sources of these emissions is from the electricity generation sector.

Table 5.1: Volume of radioactive wastes in stock, 1 April 2004

Level of Waste	2001 Inventory (Volume in m ³)	2004 Inventory (Volume in m ³)	Change (Volume in m ³)
Low-level waste	14,700	20,900	+6,200
Intermediate – level waste	75,400	82,500	+7,100
High-level waste	1,960	1,890	-70
Total	92,060	105,290	+13,230

Source: NIREX 2005

- 5.3. Most of the civil nuclear waste in the UK is produced by the nuclear power industry. This includes waste from the enrichment of uranium, the fabrication of nuclear fuel, reactor operations, spent fuel reprocessing and related research and development activities. Nirex publishes the UK Radioactive Waste Inventory every four years; they have reported on the wastes in stock on 1 April 2001 and 1 April 2004.
- 5.4. We recognise that electricity generation also have a number of other impacts on the environment. Coal-fired power stations produce large quantities of bottom and fly ash. Some of the ash can be re-used for other purposes, however the remainder must be disposed of. The generation of electricity can have significant impact on rivers and estuaries which are used as source of cooling water and certain permitted liquid wastes. Most Flue Gas Desulphurisation (FGD) processes also produce liquid effluent.

Performance

- Figure 5.1 shows the historical trend of both NO_x and SO₂ emissions from power stations between 1990 and 2004. Total SO₂ emissions fell by 74 per cent and total NO_x emissions by 45 per cent between 1990 and 2004; this has mainly been through the reduction in coal generation, but is also related to increasing environmental standards.
- The UK Radioactive Waste Inventory reported in April 2004 that there was an estimated 105,290 m³ of radioactive stock in the UK, an increase of 13,230 m³ since the previous inventory in 2001.

Ofgem's contribution

- Ofgem has worked closely with Defra and environmental regulators on implementation of the revised Large Combustion Plant Directive (LCPD), which will take effect from 2008. This directive imposes stricter standards on emissions and gives Member States flexibility in implementation.
- 5.5. In the coming year Ofgem will undertake the following.
- We will continue our work with Defra on the implementation of the LCPD and other measures to regulate the emissions of pollutants affecting air quality and acidification.
 - More generally, we will support actions by Defra, the devolved administrations, and the environmental regulators to design and implement economic instruments to meet environmental objectives, including possible schemes for SO₂ and NO_x.
 - We will continue to monitor progress on the implementation of the LCPD and assess the impact on many aspects of the energy system including generation, transmission, wholesale markets and security of supply.
 - Following on from the Government's energy review, we will participate in the development of regulatory framework surrounding any new arrangements for the development for new nuclear facilities.
 - We will consider whether we should report on fly ash and water issues in future editions of this report.

Meeting the challenge

- 5.6. The electricity industry has already made substantial progress in reducing emissions of acidifying gases. Any further reductions are likely to be more costly and it is essential that flexible mechanisms, such as tradable allowances, are put in place to ensure that abatement costs are minimised. This type of flexible approach is also more compatible with liberalised markets than more traditional command and control type regulation.
- 5.7. The long-term management of nuclear waste is a continuing challenge and uncertainty around the long-term regime would make investment in any new nuclear designs riskier and hence more costly. The Government should put in place clear arrangements for licensing new nuclear designs and should review the planning process and arrangements for managing nuclear waste and decommissioning.

Indicator 14. Impacts of electricity and gas networks

- 5.8. Electricity networks are large structures and have environmental impacts on the land on which they are sited in addition to the climate change impacts discussed in theme 1. The indicators here capture the visual intrusion of overhead lines in designated areas and the use of fluid-filled cables (cables usually contain mineral oil) which can contaminate ground water if the cables start to leak. SF₆ is widely used as an insulator in transmission and distribution equipment. We recognise that networks can also have impacts on wildlife.

Performance

- Ofgem has only recently started collecting information from companies on overhead power lines in environmentally sensitive areas and management of fluid-filled cables.

Table 5.2: Length of overhead electricity power lines in natural parks and areas of outstanding natural beauty 2005/2006

Network type	Total km of overhead lines in national parks and AONB *
Distribution	42,687
Transmission	440
Total	42,727

* This includes National Scenic Areas (NSAs) in Scotland

Table 5.3: Use of insulating oil in fluid-filled cables 2005/2006

Network type	Fluid-filled cables in use (km)	Volume of fluid used to top-up cables (l)	Number of reportable incidents
Distribution	6,640	409,329	87
Transmission	1,140 ²³	50,000	-
Total	7,780	459,329	-

²³ Length of underground cable is being used as a proxy for length of fluid-filled cable for the transmission network

Therefore it is not possible at this stage to assess trends in performance.

Ofgem's contribution

- Ofgem regulates the monopoly network companies and in setting the price controls, we take account of the environmental performance requirements placed on the network companies by the relevant regulators.
- In the current price control period for the distribution network operators, Ofgem agreed to a small allowance for undergrounding of distribution networks in areas of outstanding natural beauty (AONB) and national parks.
- As part of the Transmission Price Control Review, we have commissioned research reviewing the valuation of visual amenity impacts associated with overhead transmission lines.
- We are working with stakeholders to promote sustainable asset management in the network industries.
- We are participating in discussions with Government on measures to ensure that all known effects from electric and magnetic fields from power lines are avoided. We are also participating in a wider stakeholder group which is considering what precautionary measures might be appropriate in relation to suggested, but unproven, health effects from power frequency electric and magnetic fields.
- We are ensuring companies are allowed sufficient funds to comply with European legislation²⁴, which require large scale energy infrastructure projects such as transmission lines to assess their impact on protected areas, species and the wider biodiversity. Consideration of the environmental and wildlife

impacts, and using opportunities for enhancement should ensure the impacts are minimised.

5.9. In the coming year Ofgem will undertake the following.

- As part of the transmission price control review, we will consider whether it is appropriate for transmission companies to receive an allowance for undergrounding of the network similar to that in place for the distribution companies.
- We will also consider how the transmission companies can receive an allowance which could be used for research and development projects, which may include projects with an environmental objective (eg, research into different tower designs or alternative insulating material for underground cables).
- We will commission research to evaluate how we could report on wildlife impacts in future publications of this report.

Meeting the challenge

5.10. As mentioned under previous indicators, the planning system needs to be as consistent and transparent as possible so that appropriate and timely investment can be made in the electricity networks. Any move to put a greater proportion of network underground or deliver more rapid replacement of fluid-filled cables would involve a significant cost to consumers.

²⁴ The European Directive on Environmental Impact Assessment, The Strategic Environment Assessment Directive, and The EU Habitats and Birds Directive

Increasing openness, transparency and accountability

- 6.1. This chapter describes the activities Ofgem has undertaken to promote the understanding of the environmental and social agenda relating to energy, to build relationships with other organisations and to improve our internal practices. We are committed to improving openness and transparency in all areas of our work. For example, minutes of Authority meetings are published on Ofgem's website and in February 2006, the Authority held its first public meeting.
- 6.2. In 2005 the Authority established a sub-committee to advise it on the delivery of its environmental and sustainable development duties. This subcommittee is chaired by Dr Robin Bidwell and includes Sarah Harrison, Judith Hanratty, Steve Smith and John Wybrew.

Impact Assessments

- 6.3. Ofgem has a statutory duty to produce and publish an impact assessment (IA) on important proposals. If Ofgem considers it unnecessary to carry out an IA then it must publish a statement setting out the reasons why it considers that this is the case.
- 6.4. We issued a consultation document²⁵ on draft guidelines for conducting IAs in July 2004. This was followed by final guidance²⁶ in September 2004. This document sets out: the legal framework within which Ofgem will conduct IAs, the procedures to be followed when conducting IAs including arrangements for consultation, the times when Ofgem will conduct an IA; the scope of IAs and the particular arrangements for code modifications. It also sets out how Ofgem will assess environmental impacts.
- 6.5. An environmental appraisal is specifically required to be included in an IA. Ofgem has produced internal guidance on carrying out environmental appraisals which builds on the guidance mentioned above.
- 6.6. The IA must also, where appropriate, consider whether the policy gives rise to any material issues

relating to unequal distribution of benefits or costs between groups of customers, or within a group of customers.

Joint Working Group on Energy and the Environment

- 6.7. DTI, Defra and Ofgem established the Joint Working Group on Energy and the Environment in 2003. The Group also includes the Environment Agency, HM Treasury and the devolved administrations. It has discussed a very wide range of environmental issues relating to the gas and electricity industries and, through providing a forum for discussion of high-level issues of this nature, has made an important contribution to the Sustainable Energy Policy Network and the development of policies. The Group has adopted an open way of working and a full set of its papers and discussions are available on the DTI website²⁷.

Environmental Consultants' Panel

- 6.8. Ofgem has appointed a panel of consultants in the field of environmental economics to provide advice on the interaction between energy provision and environmental impacts. The Panel can be called upon to comment on specific pieces of work or advise on particular items of policy. The panel will be helpful in informing the Authority of relevant research results and other developments in environmental economics.
- 6.9. Panel members were commissioned to produce a research paper on the value of the visual impacts from electricity transmission for the TPCR. This paper is available on Ofgem's website.

Environmental Advisory Group

- 6.10. Ofgem's high-level Environmental Advisory Group (EAG) advises Ofgem on the priorities for its work in relation to the environment. The Group is chaired by Sir John Mogg and comprises of members from a variety of backgrounds appointed

²⁵ Ofgem (2004) Draft guidance on impact assessments 172/04

²⁶ Ofgem (2004) Guidance on impact assessments 229a/04

²⁷ <http://www.dti.gov.uk/energy/environment/jwgee/page19873.html>

on a personal basis for their expertise in their area. Further details of the EAG, including minutes of meetings and a list of members, are published on Ofgem's website.

6.11. The EAG advises Ofgem and the Authority on a number of issues, in particular:

- developing its work on the environment;
- reviewing achievements under the Environmental Action Plan;
- identifying areas of future research on environmental issues; and
- considering the role that Ofgem's executive functions play in meeting Government environmental targets.

Bilateral work with environmental regulators

6.12. Ofgem and the Environment Agency (EA) have a Memorandum of Understanding which allows the two regulators to have a formal structure for the joint work that they undertake. It also provides for annual bi-lateral meetings to be held at a high level with the aim of discussing joint matters of interest.

6.13. Ofgem has also maintained contacts with the equivalent regulator in Scotland, the Scottish Environment Protection Agency (SEPA), and attended a workshop run by the Agency in February 2005 to foster further understanding of the two organisations' roles.

High Level Group on Energy, Environment and Competitiveness

6.14. The European Commission has established a High Level Group on Energy, Environment and Competitiveness to look at ways to integrate competitiveness, energy and environmental policies and will look for gains in sustainable development and competitiveness. It will also provide expert advice to the Commission on creating a coherent European Energy Policy. The group includes two members of the Gas and Electricity Markets

Authority, Sir John Mogg, who is also the Chair of the Council for European Energy Regulators (CEER), and Dr Robin Bidwell. Members of the group are invited on a personal basis.

Environmental Task Force

6.15. Ofgem chairs and plays a key role in the CEER and participates in various working groups, one of which is the Environmental Task Force. This group undertakes work to assist CEER on environmental matters, including advice and submissions to the European Commission on renewables, energy efficiency, fuel mix disclosure and emissions trading.

Ofgem's Social Action Strategy and the Social Action Plan Review Group

6.16. Ofgem launched its Social Action Strategy in 2005²⁸ which replaced the five year Social Action Plan that we launched in 2000. The Strategy describes how we will meet our statutory obligation to protect the interests of certain vulnerable customers and how we will contribute to Government targets to eliminate fuel poverty, working around four key themes:

- Compliance with regulatory obligations;
- Encouraging best practice among energy suppliers;
- Influencing debate about measures to tackle fuel poverty; and
- Informing customers about ways to lower their energy bills.

6.17. Through the annual Social Action Strategy Update we will report on progress under these themes and set out our detailed workplan for the coming year.

6.18. Ofgem's Social Action Plan Review Group (the Review Group) was established in 2000 to help Ofgem take forward its work on social issues. The Review Group is chaired by Sir John Mogg and its members are senior industry and consumer representatives as well as DTI.

²⁸ http://www.ofgem.gov.uk/temp/ofgem.cache/cmsattach/12605_222_05.pdf

6.19. The Review Group plays an important role in assisting Ofgem in identifying future areas of work and in reviewing Ofgem's progress against its Social Action Strategy goals. We consider that the development of a more holistic approach to tackling fuel poverty and wider debate on the issues affecting vulnerable customers are key to making progress in these areas and the Review Group makes an important contribution in this area.

Other groups

6.20. Ofgem is also a member of, or participates in a number of other groups including:

- Renewables Advisory Board (RAB) - provides advice to Government on a wide range of renewable energy issues and brings together Government departments, the renewables industry and the unions. It aims to develop mutual understanding of the key issues for the industry.
- Electricity Networks Strategy Group (ENSG) - the aim of the ENSG is to identify and co-ordinate work to address the technical, commercial, regulatory and other issues that affect the transition of electricity transmission and distribution networks to a low carbon future.
- Energy Efficiency Partnership for Homes - an independent network of over 300 organisations working together to promote energy efficiency and eradicate fuel poverty. The partnership brings together major stakeholders in home energy efficiency from private, public and voluntary sectors.
- Public Utilities Access Forum - an informal association of organisations which seeks to facilitate the exchange of information and opinion between bodies concerned with the provision of electricity, gas, communications and water sources in England and Wales to consumers with low incomes or special service needs, such as the elderly and people with mental and physical disabilities.

- Fuel Poverty Advisory Group (for England) - an advisory non-departmental public body sponsored by DEFRA/DTI whose primary task is to report on the progress of delivery of the Government's Fuel Poverty Strategy in England and to propose and implement improvements to regional or local mechanisms for delivery.
- Scottish Fuel Poverty Forum - run by the Scottish Executive, the primary task of the Forum is to work collectively towards eradicating fuel poverty so that from 2016 no person should have to live in fuel poverty in Scotland.

Internal Environmental Management

ISO 14001

6.21. Ofgem has again passed the annual audit of its ISO 14001 environmental management system. This is the fourth year that Ofgem has successfully held accreditation under this scheme. The system has specific policies on:

- building management;
- information technology;
- procurement;
- the building's CHP unit;
- recycling; and
- other issues including business travel and cycling to work. (Ofgem provides an interest-free loan to any member of staff who wishes to purchase a bicycle).

6.22. Ofgem has an ongoing policy to examine the impact of the building that it occupies and, when essential maintenance is undertaken, thought is given to improving the environmental footprint of the building.

6.23. As part of this process we have set up an internal Environment Team that is responsible for defining and reviewing our internal environmental impacts, objectives and targets. The team is responsible for ensuring that the environmental targets set in respect of the ISO14001 standard are met.

6.24. Our energy saving initiatives include:

- our combined CHP unit, installed in 2003, which has saved 829 tonnes of carbon dioxide;
- replacing four boilers this has provided a 35 per cent improvement in domestic heating efficiency;
- sensors are being installed to switch off all non-emergency lighting in unoccupied office areas;
- 10 per cent of externally supplied electricity is generated from renewable sources; and
- recycling paper, cardboard, glass, cans and plastic results in an indirect reduction in power generation.

These energy saving initiatives are continuing, and a programme of water saving measures is also being rolled out in 2006.

Appendix 1

Consultation Response

- 1.1. Ofgem would like to hear the views of interested parties in relation to any of the issues set out in this document. Responses should be received by 1 February 2007 and should be sent to

John Costyn
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- 1.2. Unless marked confidential, all responses will be published by placing them in Ofgem's library and on its website www.ofgem.gov.uk. Respondents may request that their response is kept confidential. Ofgem shall respect this request, subject to any obligations to disclose information, for example, under the Freedom of Information Act 2000 or the Environmental Information Regulations 2004.
- 1.3. Respondents who wish to have their responses remain confidential should clearly mark the document/s to that effect and include the reasons for confidentiality. It would be helpful if responses could be submitted both electronically and in writing. Respondents are asked to put any confidential material in the appendices to their responses.

Appendix 2 - The Authority's powers and Duties

- 1.1. Ofgem is the Office of Gas and Electricity Markets which supports the Gas and Electricity Markets Authority (“the Authority”), the regulator of the gas and electricity industries in Great Britain. This Appendix summarises the primary powers and duties of the Authority. It is not comprehensive and is not a substitute to reference to the relevant legal instruments (including, but not limited to, those referred to below).
- 1.2. The Authority's powers and duties are largely provided for in statute, principally the Gas Act 1986, the Electricity Act 1989, the Utilities Act 2000, the Competition Act 1998, the Enterprise Act 2002 and the Energy Act 2004, as well as arising from directly effective European Community legislation. References to the Gas Act and the Electricity Act in this Appendix are to Part 1 of each of those Acts²⁹.
- 1.3. Duties and functions relating to gas are set out in the Gas Act and those relating to electricity are set out in the Electricity Act. This Appendix must be read accordingly³⁰.
- 1.4. The Authority's principal objective when carrying out certain of its functions under each of the Gas Act and the Electricity Act is to protect the interests of consumers, present and future, wherever appropriate by promoting effective competition between persons engaged in, or in commercial activities connected with, the shipping, transportation or supply of gas conveyed through pipes, and the generation, transmission, distribution or supply of electricity or the provision or use of electricity interconnectors.
- 1.5. The Authority must when carrying out those functions have regard to:
 - The need to secure that, so far as it is economical to meet them, all reasonable demands in Great Britain for gas conveyed through pipes are met;
 - The need to secure that all reasonable demands for electricity are met;
 - The need to secure that licence holders are able to finance the activities which are the subject of obligations on them³¹; and
 - The interests of individuals who are disabled or chronically sick, of pensionable age, with low incomes, or residing in rural areas³².
- 1.6. Subject to the above, the Authority is required to carry out the functions referred to in the manner which it considers is best calculated to:
 - Promote efficiency and economy on the part of those licensed³³ under the relevant Act and the efficient use of gas conveyed through pipes and electricity conveyed by distribution systems or transmission systems;
 - Protect the public from dangers arising from the conveyance of gas through pipes or the use of gas conveyed through pipes and from the generation, transmission, distribution or supply of electricity;
 - Contribute to the achievement of sustainable development; and
 - Secure a diverse and viable long-term energy supply.
- 1.7. In carrying out the functions referred to, the Authority must also have regard, to:
 - The effect on the environment of activities connected with the conveyance of gas through pipes or with the generation, transmission, distribution or supply of electricity;
 - The principles under which regulatory activities should be transparent, accountable, proportionate, consistent and targeted only at

²⁹ entitled “Gas Supply” and “Electricity Supply” respectively

³⁰ However, in exercising a function under the Electricity Act the Authority may have regard to the interests of consumers in relation to gas conveyed through pipes and vice versa in the case of it exercising a function under the Gas Act.

³¹ under the Gas Act and the Utilities Act, in the case of Gas Act functions, or the Electricity Act, the Utilities Act and certain parts of the Energy Act in the case of Electricity Act functions.

³² The Authority may have regard to other descriptions of consumers.

³³ or persons authorised by exemptions to carry on any activity.

cases in which action is needed and any other principles that appear to it to represent the best regulatory practice; and

- Certain statutory guidance on social and environmental matters issued by the Secretary of State.

- 1.8. The Authority has powers under the Competition Act to investigate suspected anti-competitive activity and take action for breaches of the prohibitions in the legislation in respect of the gas and electricity sectors in Great Britain and is a designated National Competition Authority under the EC Modernisation Regulation³⁴ and therefore part of the European Competition Network. The Authority also has concurrent powers with the Office of Fair Trading in respect of market investigation references to the Competition Commission.

³⁴ Council Regulation (EC) 1/2003

Appendix 3

Glossary

A

Areas of Outstanding Natural Beauty (AONB³⁵)

An AONB is an area of countryside with significant landscape value that has been designated by the Countryside Agency. The purpose of the designation is to conserve and enhance the natural beauty of the landscape; AONBs rely on planning controls and practical countryside management.

B

Balancing and Settlement Code (BSC)

The legal document setting out the rules and governance arrangements for electricity and settlement in Great Britain. All licensed electricity generators and suppliers must sign up to the BSC and other interested parties may also choose to do so. The BSC is overseen by ELEXON.

Bottom Ash

The ash and unburnt coal left in the furnace after combustion of the coal in a coal-fired power station.

C

Carbon Trust

The Carbon Trust is an independent company funded by Government. Its role is to help the UK move to a low carbon economy by helping business and the public sector reduce carbon emissions and capture the commercial opportunities of low carbon technologies.

Climate Change Levy (CCL)

The Climate Change Levy (CCL) was introduced on 1 April 2001, with the aim of encouraging improvements in energy efficiency and reductions in greenhouse emissions. It applies to energy used in the domestic sector (industry, commerce and the public sector). Renewable source electricity is exempt from the CCL.

Climate Change Agreements (CCA)

CCAs provide an 80 per cent discount from the Climate Change Levy for those sectors that agree challenging targets for improving their energy efficiency or reducing carbon emissions.

Combined Cycle Gas Turbine (CCGT)

Uses both gas and steam turbine cycles in a single plant to produce electricity with high conversion efficiencies and low emissions.

Combined Heat and Power (CHP)

The simultaneous generation of useful heat and power in a single process

Customer Interruptions (CIs)

CIs are a standard measure of network reliability and quality of service. It is the number of interruptions per 100 customers and is calculated as: (total customers affected / total customers connected to the network) *100.

Council of European Energy Regulators (CEER)

CEER brings together the independent national energy regulators from EU Member States and the European Economic Area (EEA). CEER acts as a focal point for contacts between national energy regulators is their primary interface at a European level. Its overall aim is to facilitate the creation of a single competitive, efficient and sustainable internal market for gas and electricity in Europe.

D

Distributed Generation

Distributed generation, sometimes called embedded generation, is electricity generation which is connected to the distribution network rather than the high voltage transmission network.

Distribution Network Operators (DNOs)

DNOs are ex-Public Electricity Suppliers who came into existence on 1 October 2001. There are 14 DNOs each covering a discrete geographical region of Great Britain. They take electricity off the high voltage transmission system and distribute this over low voltage networks to industrial complexes, offices and homes. DNOs must hold a licence and comply with all distribution licence conditions for networks which they own and operate within their own distribution services area.

E

ELEXON

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

³⁵ See also National Scenic Areas

Energy Efficiency Commitment (EEC)

The EEC places an obligation on electricity and gas suppliers to install measures in customers' homes to improve energy efficiency.

Energy Retailers Association (ERA)

The ERA is a trade association for the major UK energy suppliers: British Gas, Scottish & Southern Energy, npower, Powergen, EDF Energy and ScottishPower.

EnergySmart

EnergySmart is a joint Ofgem and Energywatch campaign which highlights the benefits of switching supplier, changing to a cheaper payment method and being more energy efficient. The campaign is aimed at all customers, but there has been a strong focus on vulnerable customers.

Energy Supply Ombudsman

An independent body that resolves disputes between a customer and their energy supplier associated with billing and transfer issues. Ombudsmen are an independent and impartial means of resolving disputes outside the courts.

EU ETS (EU Emissions Trading scheme)

A cap and trade scheme in which EU Member State Governments are required to set emissions limits for all installations in their country covered by the scheme. It is an approach used to reduce the cost of pollution control by providing economic incentives for achieving reductions in the emissions of pollutants.

F**Fly Ash**

A by-product after combustion of coal in a coal-fired power station. It consists of primarily silicon, aluminium, and calcium oxides.

Fossil Fuel Levy (FFL)

The FFL is a tax charged on domestic and industrial bills, the levy effectively funds the difference between the contract prices payable to the renewable generators and the market price of electricity.

Fuel Mix Disclosure (FMD)

On 18 March 2005 a new standard licence condition was introduced into electricity supply licences by The Electricity (Fuel Mix Disclosure) Regulations 2005 (SI No. 391). The new licence condition obliges electricity suppliers to provide customers with details of the mix of fuels used to produce the electricity supplied to them along with certain environmental information on or with their bills.

G**Gas Balancing Alert (GBA)**

The purpose of the Gas Balancing Alert (GBA) is to indicate a potential requirement for demand response. It is based on a combination of the absolute supply & demand level and the impact of a potential breach of a Safety Storage Monitor.

Gas Distribution Networks (GDNs)

Gas is piped from the gas transmission network into each of the eight regional gas distribution networks, which in turn distribute gas to consumers. The eight gas distribution networks are owned by four companies - National Grid Gas (NGG), Northern Gas Networks, Scotia Gas Networks, and Wales and West Utilities.

Gas Distribution Price Control Review (GDPCR)

A price control limits the amount of revenue that a GDN can collect from customers. This encourages companies to look for efficiency gains in order to improve profits and customers benefit from these improvements in subsequent reviews. GDN price controls are set every five years following a review.

Global Warming Potentials (GWP)

The warming influence of a gas over a set period of time relative to that of carbon dioxide. The GWP values used are the "1995 IPCC GWP values" from the IPCC's Second Assessment Report.

I**Impact Assessments (IA)**

IAs are studies of the potential future effects of resource development on other resources and on social, economic and/or environmental conditions.

Innovative Funding Initiative (IFI)

The IFI is intended to provide funding for projects focussed on the technical development of distribution networks to deliver value (i.e. financial, supply/quality, environmental, safety) to end consumers. IFI projects can embrace any aspect of distribution system management from design through to construction, commissioning, operation, maintenance and decommissioning.

InterGovernmental Panel on Climate Change (IPCC)

The role of the IPCC is to assess on a comprehensive, objective, open and transparent basis the scientific, technical and socio-economic information relevant to understanding the scientific basis of the risk of human-induced climate change, its potential impacts and options for adaptation and mitigation.

ISO 14001

ISO 14001 is an internationally recognised standard for Environmental Management Systems. An Environmental Management System provides a framework for managing environmental responsibilities so they become more efficient and more integrated into overall business operations.

J**Joint Energy Security of Supply group (JESS)**

In July 2001, the DTI and Ofgem agreed to set up a joint Working Group to assess risks to the UK's future gas and electricity supplies.

K**KVA_r**

Kilovolt-ampere reactive is a measure of the reactive power (used to control system voltage).

KVA_h

Kilovolt-ampere hour is a measure of total energy (real and reactive).

L**Large Combustion Plant Directive (LCPD)**

The LCPD aims to reduce acidification, ground level ozone and particles throughout Europe by controlling emissions of sulphur dioxide (SO₂), nitrogen oxides (NO_x) and dust (particulate matter) from large combustion plants. These include plants in power stations, petroleum refineries, steelworks and other industrial processes running on solid, liquid or gaseous fuel.

Levy Exemption Certificates (LECS)

Electricity from specified renewable generation is exempt from the CCL, and LECs are the electronic certificates which are issued to accredited generating stations for each MegaWatt-hour (MWh) of renewable source electricity.

Liquefied Natural Gas (LNG)

LNG is natural gas that has been condensed into a liquid at atmospheric pressure by cooling it to approximately -163 Celsius. LNG is transported by specifically designed vessels and stored in specially designed tanks. LNG is about 1/600th the volume of natural gas, making it much more cost-efficient to transport over long distances where pipelines do not exist.

M**Microgeneration**

The small-scale generation of heat and/or electricity from a low carbon source, for example solar panels, micro-wind, micro combined heat and power and heat pumps.

N**National Grid Company (NGC)**

National Grid owns and maintains the high-voltage electricity transmission system in England and Wales, together with operating the system across Great Britain, balancing supply with demand on a minute by minute basis.

National Grid Gas (NGG)

The licensed gas transporter responsible for the gas transmission system and for four of the regional gas distribution companies.

National Scenic Areas (NSAs)

Areas of land in Scotland considered of national significance on basis of their outstanding scenic value which must be conserved as part of the country's natural heritage. They are designated by Scottish National Heritage and are similar to AONB's.

Non-Fossil Fuel Obligation (NFFO)/ Scottish Renewable Obligation (SRO)

Before the introduction of the Renewables Obligation NFFO contracts were the primary means used by the Government to implement its renewable energy policy. They required the purchase of electricity from renewable generators and provided for this electricity to be purchased at fixed prices for long term contract periods (typically for 15 years). The last NFFO/SRO contracts will expire in 2019.

P**Prepayment meters (PPM)**

With this type of meter you pay for the electricity as you use it, with an electronic key or card. The customer therefore needs to be provided with a network of outlets where tokens can be purchased, or cards or keys can be charged up. This network of outlets needs to be linked to a payment settlement system for suppliers.

R**Registered Power Zones (RPZs)**

RPZs are focused specifically on the connection of generation to distribution systems. RPZs are intended to encourage DNOs to develop and demonstrate new, more cost effective ways of connecting and operating generation that will deliver specific benefits to new distributed generators and broader benefits to consumers generally.

Renewables Obligation (RO) and Renewables Obligation Scotland (ROS)

The RO places an obligation on licensed electricity suppliers in the United Kingdom to source an increasing proportion of electricity from renewable sources. Suppliers meet their obligations by presenting Renewables Obligation Certificates (ROCs) or payment into the buy-out fund.

Renewables Obligation Certificates (ROCs)

A transferable certificate received by eligible renewable generators for each MWh of electricity generated. ROCs are traded separately from power and are used by suppliers to fulfil their Renewables Obligations under the Utilities Act 2000.

S**Self Disconnection**

Self-disconnection occurs where a prepayment customer does not have sufficient credit on their meter which results in their energy supply being discontinued.

Smart Metering

Advanced gas and electricity metering technology that offers customers more information about, and control over, their energy use (such as providing information on total energy consumption in terms of value, not only volume), or allows automated and remote measurement.

Sulphur hexafluoride (SF₆)

A potent greenhouse gas widely used in transmission and distribution equipment.

Super-complaint

Section 11 of the Enterprise Act 2002 enables designated consumer bodies such as energywatch to make a complaint to the Office of Fair Trading or a relevant economic regulator that any feature, or combination of features, of a market in the UK for goods and services is or appears to be significantly harming the interests of consumers. These complaints are called supercomplaints.

System Operator (SO)

National Grid is the electricity and gas system operator, responsible for managing the operation of the electricity transmission system and the gas transmission network. They balance supply and demand, in gas maintaining satisfactory system pressures and ensuring gas quality standards are met, and for electricity ensuring the stability and security of the power system and the maintenance of satisfactory voltage and frequency.

T**Tonnes of Carbon Equivalent (tC)**

Mass of greenhouse gas emissions measured in tonnes which has the equivalent impact as 1 tonne of carbon emissions. 3.7 tonnes of carbon dioxide is equivalent to 1 tonne of carbon. Emissions of other gases are converted to carbon equivalent using GWPs.

W**Warm Front**

Warm Front is the Government's grant-funded programme in England for tackling fuel poverty. The scheme was launched in June 2000 and before its name changed to Warm Front, it was called the Home Efficiency Scheme. Equivalent schemes operate in Scotland (Scottish Central Heating and Warm Deal) and in Wales (Home Energy Efficiency Scheme) which are funded by the respective Devolved Administrations.



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