Environmental Action Plan

Annual review 2003/04

June 2004

Foreword

The publication of the Energy White Paper last year established a new context for Ofgem's work on the environment. Central to this was the UK's commitment to achieving a low carbon economy, accepting in principle the Royal Commission on Environmental Pollution's recommendation to reduce carbon dioxide emissions by 60% by 2050. This is a challenging agenda which must not jeopardise security of supply or the ability of those on low incomes to heat their homes adequately.

Ofgem recognises that the impact of the energy sector on the environment is large, and that we have an important role to play in setting the framework within which the companies we regulate can reduce their carbon emissions in total. This wider political context was set out clearly in the revised social and environmental guidance issued to Ofgem by the Secretary of State in February this year. The guidance sits alongside our other statutory duties, and we take it seriously.

An important aspect of our work is therefore to ensure that, in the decisions we take, we satisfy our principal objective and our secondary duties. Where these duties cannot easily be reconciled, we must make trade offs between them, and arrive at a solution that promotes the interests of consumers. Put another way, we look for solutions that achieve social and environmental as well as economic objectives. For example, this year we have worked hard to ensure that the distribution price control proposals achieve a balance between ensuring quality and security of supply, reducing unnecessary losses from the system and enabling the distribution network operators to connect more renewable generation, all in a way that achieves best value for money for consumers.

In this regard we have worked to make our decision-making process more transparent by including Regulatory Impact Assessments in all important new policy documents. These include environmental appraisals which set out clearly the environmental costs and benefits of the various policy options. These are in turn weighed up against other costs and benefits before a decision is taken. In this way we hope that the choices we make, and the reasons for them, are better understood by our stakeholders.

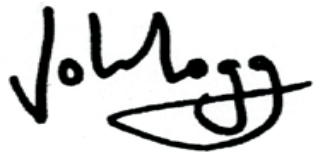
Ofgem favours market-based solutions as the most economically efficient and best value way of achieving environmental improvements. The EU's trading scheme for carbon dioxide emissions is a good example of this. Depending on the details of how it is implemented across Europe, we consider that it should deliver carbon reductions at a reasonable cost to consumers. It will allow the structural changes to be made where

they are most cost-effective. This is why Ofgem has been working closely with Defra and DTI throughout the year on aspects of implementing the scheme in the energy sector. Providing advice and analysis on the energy sector to other Government departments in this way is another important part of Ofgem's work on the environment.

Ofgem, on behalf of Government, administers a range of programmes which are part of the Climate Change Programme. Principal among these are the Renewables Obligation and the Energy Efficiency Commitment, which both take the form of obligations on licensed electricity and gas suppliers: all suppliers in the case of renewables; only domestic suppliers in the case of energy efficiency. Work on these and other programmes is complex and involves a combination of technical, legal, IT and administrative skills. As in all our work, Ofgem seeks to administer these programmes as efficiently and cost-effectively as possible.

Ofgem's work on the environment has benefited from the high level advisory group set up two years ago. This provides a useful forum in which we can explore a range of views on different policy areas. We have been fortunate to have the expert advice from the members of our environmental economists' panel. We have also taken the opportunity to consult widely on our corporate strategy. As part of this, in February this year, we hosted a meeting for interested parties to look particularly at our environmental agenda. Participants made many useful comments and suggestions.

This third annual review of Ofgem's Environmental Action Plan, launched in 2001, describes the work we have done over the past year, and sets out our plans on this key work priority for the coming years. I hope you will find the report informative and useful.



Sir John Mogg
Chairman, Gas and Electricity Markets Authority
June 2004

Summary

Ofgem published its Environmental Action Plan (EAP) in 2001. It set out Ofgem's role and responsibilities and a programme of work in relation to the environment within the context of its statutory duties. It also recognised the growing political importance of meeting environmental commitments, national and international. Ofgem reports each year on progress in this area. This report covers the period 1 April 2003–31 March 2004.

Principal achievements in 2003/04

During the year, Ofgem has tackled a substantial amount in the environmental area. An important context has been the Energy White Paper published in February 2003.

As part of its work on the next distribution price control review, Ofgem has announced its intention to reform the structure of charges for generators connecting to the distribution system and to include incentives for distribution companies to connect and use electricity from small generators within the distribution network. This is relevant to the Government's targets for renewables and CHP generation.

Ofgem has also announced enhanced arrangements to encourage distribution companies to invest in the development and deployment of innovative technologies. Ofgem is consulting on various other aspects of the price control review that will mean that distribution companies are incentivised to integrate environmental policies into their business strategies going forward, including the management of losses. Ofgem has also co-chaired the Distributed Generation Coordinating Group.

In October 2003, Ofgem consulted on proposals from transmission licensees to reinforce transmission networks to facilitate the connection of additional renewable generation in Scotland. The intention is to add an incentive mechanism on to the existing price controls to ensure that transmission licensees have incentives to make necessary transmission investment for new generation, which in practice will be largely renewable, in a timely and efficient manner. Final decisions will be published later in the year.

As part of its preparations to implement the BETTA project in 2005, Ofgem has been working with generators in Scotland to understand their concerns. Ofgem has also

announced arrangements to overcome the difficulties caused by the different definitions of transmission and distribution in England and Wales with those in Scotland.

Ofgem has also worked with DTI and suppliers to consider the different options for implementing the requirements of the new EU Directive on Common Rules for the Internal Market in Electricity that suppliers should make plain to their customers the fuel source of their supply. DTI has issued an initial consultation document on this, and will shortly be announcing its detailed plans. Ofgem has also taken forward its project to assess the feasibility and effectiveness of providing consumption data to domestic consumers via their energy bills.

Ofgem continues to administer a number of environmental programmes on behalf of the Government. These include:

- the Renewables Obligation, including suppliers' compliance with the first year of the Renewables Obligation;
- the exemption from the Climate Change Levy for renewables;
- the exemption from the Climate Change Levy for CHP generation;
- Renewable Energy Guarantees of Origin;
- the Energy Efficiency Commitment;
- ongoing activity in relation to the Non-Fossil Fuel Obligation (NFFO) and Scottish Renewable Obligation (SRO); and
- the CHP database.

To fulfil its obligations under the Sustainable Energy Act, and to increase transparency and openness in the policy-making process, Ofgem now produces Regulatory Impact Assessments, including environmental appraisals, for important proposals.

During the year Ofgem has been part of several cross-Government groups advising on environmental policy. These include overarching and co-ordinating groups such as the Sustainable Energy Policy Network and the Joint Working Group on Energy and the Environment as well as groups aimed at the design and implementation of specific policies and programmes. The latter includes implementation of the EU emissions trading scheme, and in particular advice on the implications of alternative approaches for the efficiency and effectiveness of the scheme.

Work programme for 2004/05

In the coming year Ofgem will continue to encourage the delivery of future environmental policy in ways that are compatible with competitive energy markets and effective regulation. It will encourage environmental improvements that secure the best value for money for present and future consumers. Specific initiatives include the following:

- Ofgem will continue to improve the environmental analysis that informs its own and other policy decisions.
- It will continue to advise ministers on the design and implementation of economic instruments to meet environmental objectives.
- Ofgem will work to finalise the new incentive framework for distributed generation to take effect from 1 April 2005; and will also work on the other elements of the Distribution Price Control review including an enhanced incentive to reduce losses on the distribution system; and a duty to report environmental outputs as part of the regulatory process.
- Ofgem will continue the work to put in place an incentive mechanism to ensure transmission investment for renewable generation in a timely and efficient manner. In addition, it will, with the DTI, develop a licensing scheme for offshore transmission cables to connect off-shore renewable generation to the on-shore transmission network.
- Ofgem will continue to administer Government environmental programmes in the energy sector as efficiently and effectively as possible.
- During the year, Ofgem will take forward several significant initiatives to improve consumer awareness of the environmental consequences of their energy use. The coming year will see:
    - the implementation of the EU fuel mix disclosure provisions,
    - further work on the feasibility of providing better consumption information to consumers
    - revision and reissuing of Ofgem guidelines for green supply offerings.

- Ofgem will monitor progress of the major pilot project in which suppliers are permitted to offer domestic consumers energy service packages linked to longer term supply contracts than are possible under the normal 28-day rule arrangements. In the longer term, Ofgem will evaluate the benefits of the project.

- More generally, Ofgem will explore the potential for improving the ease with which consumers can benefit from responding to prices, for example, by reducing their use of electricity during peak periods when prices are high. The potential for reducing losses from the electricity transmission and distribution networks through encouraging demand-side measures will also be further investigated.

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1. Introduction

Purpose of this document

1.1 Ofgem published its Environmental Action Plan (EAP) in 2001. It set out Ofgem's role and responsibilities in relation to the environment, within the context of its statutory duties. It also recognised the growing political importance of meeting environmental commitments, national and international.

1.2 In June 2002 Ofgem published the first Annual Review of the EAP. As well as assessing the progress made over the previous year to deliver the commitments made in the EAP, it set out a number of new initiatives including the setting up of the high-level Environmental Advisory Group and a panel of environmental economists. In June 2003 Ofgem published the second Annual Review of the EAP, looking at progress in the light of important political developments. The most significant of these was the publication of the Energy White Paper in February 2003.

1.3 This third Annual Review assesses Ofgem's work over the past year in the context of the White Paper, and sets out the work programme going forward. During the year, Ofgem has received revised social and environmental guidance from the Secretary of State, and this report outlines the ways in which it has had regard to the guidance alongside its other duties in carrying out its work.

Ofgem's statutory duties

1.4 The Environmental Action Plan explains the legislative context for Ofgem's duties and functions in full. In summary, Ofgem's principal objective is to protect the interests of consumers, including future consumers, wherever appropriate by promoting effective competition; secondary duties require Ofgem to take account of the effects of its policies on certain disadvantaged consumer groups and on the environment, and to promote the efficient use of electricity and gas. The combination of these duties provides Ofgem with a framework for supporting a sustainable energy policy, comprising as it does a combination of economic, social and environmental duties.

1.5 Ofgem is required to have regard to social and environmental guidance from the Secretary of State for Trade and Industry in carrying out its functions. In February this year the Secretary of State issued revised Social and Environmental Guidance. This sets Ofgem's work in the context of the Government's broader environmental and social policy. This includes, in particular, the Energy White Paper objectives, the Climate Change Programme which includes the UK's targets for reducing the emission of carbon dioxide and other greenhouse gases, and the Sustainable Development Strategy.

1.6 Ofgem also has an important role to play in administering major Government programmes designed to achieve these targets and to improve domestic energy efficiency.

The Energy White Paper

1.7 The 2003 Energy White Paper outlined the Government's four objectives for energy policy and set the UK on a course to reduce carbon dioxide emissions by 60 per cent by 2050. In April 2004 the Government published the first annual report on implementation of the Energy White Paper, setting out the Government's progress towards meeting the commitments in the White Paper, against the four objectives of energy policy identified.

1.8 One of the most important developments has been the detailed preparations for the introduction of the EU Emissions Trading Scheme (EU-ETS), due to begin on 1 January 2005. Ofgem has worked closely with other Government departments to implement this.

1.9 The White Paper also established a role for Ofgem in several policy-making groups. These include a new joint working group on environmental issues, comprising DTI, Defra and other agencies as required. Further details are set out later in the document. The White Paper also committed Ofgem to participate in an energy services working group to consider how to facilitate an effective market in energy services. This group has now completed its work, and a pilot project has been set up. Further details are reported later in the report.

1.10 The White Paper also drew attention to Ofgem's participation in review groups on energy efficiency and renewables. During the year Ofgem has participated in

the high level advisory committee on the development of the next Energy Efficiency Commitment from 2005, and in the technical review of the Renewables Obligation. Both of these activities are outlined in more detail in the report.

Ofgem's work on the environment

1.11 Ofgem's work on the environment is being taken forward within the new Corporate Strategy division. The Environmental Affairs directorate consists of four sections:

- Environmental Issues
- Renewables and CHP
- Energy Efficiency, and
- Distributed Generation.

1.12 A cross-divisional forum meets monthly in recognition of the fact that environmental work cuts across all of Ofgem's policy areas. As outlined above, a high-level Environmental Advisory Group provides advice on Ofgem's environmental priorities. Its members include senior industry figures, representatives of green groups and academics. Ofgem also has access to advice from a panel of environmental economists.

1.13 Ofgem's work on the environment falls into various different categories:

- firstly, the work as a result of its specific statutory duties which relate to the environment; this includes work to reduce losses from the gas and electricity networks, for example, to remove barriers to the connection and use of distributed generation; and to create incentives to reduce energy consumption;
- secondly, the work to monitor and enforce companies' compliance with particular licence conditions; for example, the obligations on supply companies to provide energy efficiency advice to their customers, and the obligations on network operators to report on certain environmental outputs;

- thirdly, the work to administer Government programmes such as the Renewables Obligation, the Climate Change Levy exemptions and the Energy Efficiency Commitment;

- fourthly, the work to improve its understanding of the environmental impacts of its policies and to inform its policy choices; in particular this includes the environmental appraisals that are now produced for all significant new policies; and

- lastly, the work it does to advise other Government departments and regulators in their work; this includes analysis of the effects of environmental regulation on energy markets and in the design of effective and efficient environmental programmes, for example.

2. Generation

2.1 Electricity generation accounts for about a third of the UK's greenhouse gas emissions. The industry also has other important environmental impacts. Retaining the benefits of a secure and affordable electricity supply as we move towards a low carbon economy was identified in the Energy White Paper as one of the greatest challenges the UK faces.

2.2 Liberalisation of the markets in electricity generation and trading in Great Britain has delivered great benefits to consumers and to the economy as a whole. Liberalised markets also provide an important opportunity for the design of new regulatory structures for meeting environmental objectives – through flexible market-based instruments such as environmental taxes and trading schemes.

2.3 The introduction of British Electricity Trading and Transmission Arrangements (BETTA) will extend the trading arrangements established in England and Wales in 2001 to Scotland and will bring many benefits for renewable generators. It will bring access to a wider market (i.e. Great Britain). Barriers to entry will also be reduced, which is particularly important for small, independent generators.

2.4 Ofgem is responsible for administering a number of the UK's programmes to promote low carbon generation technologies, and is participating in the development and application of other new policies and programmes.

2.5 The following sections demonstrate the specific aspects of Ofgem's environmental work over the past year in relation to its work on electricity generation.

Greenhouse gas emissions trading

2.6 The EU Emissions Trading Scheme (EU-ETS) is due to start on 1 January 2005. The first phase of the scheme will run from 2005 to 2007, with the second phase running 2008–2012 to coincide with the first Kyoto commitment period. In the first phase, the scheme will cover all large industrial emitters of carbon dioxide (CO_2), including all power plants with a capacity of over 20 MW thermal input.

2.7 The Government has identified this scheme as central to meeting its climate change policy objectives. The intention is that the scheme will deliver significant emissions reductions, as well as providing a framework within which other climate change policies will operate. From January 2005, all major CO_2 emitters in 23 EU member states (Malta and Cyprus are excluded) will need to take account of the allowance cost associated with emissions in all their investment and operating decisions. This is likely to have a profound effect on energy markets. However, a single broad scheme, covering a very large proportion of the EU's emissions and a Europe-wide market in allowances should ensure that the emission targets are met at least cost to consumers.

2.8 All member states have been required to provide the European Commission with National Allocation Plans covering the first phase. The UK Government submitted its plan on 30 April 2004 following extensive consultation with affected parties and the broader community. This included:

- A first consultation (12 August – 2 October 2003) on principles for allocation under the National Allocation Plan
- A second consultation (19 January – 12 March 2004) setting out the methodology to be used along with a provisional indication of the allocation to the UK installations covered by the scheme.

2.9 Ofgem provided responses to both these consultations. Ofgem's response to the consultation in January 2004 emphasised support for the use of emissions trading as the central element of emissions reduction policy. It also emphasised the need for the detailed design to maintain appropriate incentives, so that the market can function as efficiently as possible.

2.10 In addition, Ofgem has been participating in cross-departmental groups considering options for implementation of the scheme in the UK. In particular, Ofgem is providing advice on the use of auctions and possible impacts on the electricity market. The success of the scheme, and the impact that it has on energy markets, depends on an effective and liquid allowance market developing early.

Air quality

2.11 Emissions of pollutants that affect air quality (sulphur dioxide, oxides of nitrogen and particulates) from major combustion plants, including large electricity generating stations are regulated under the European Large Combustion Plant Directive (LCPD). A revised LCPD became law in October 2001 and its requirements for plant built before 1987 will take effect from 2008. These existing plants may either be regulated individually and required to meet rate-based emission limit values, or collectively under a National Emissions Reduction Plan (national plan) which would set a limit on the overall level of emissions from the plants covered.

2.12 Defra published a consultation in October 2003 which tentatively proposed implementation through a national plan and set out a draft of the plan. Ofgem's response to this consultation reiterated our support for a national plan. Within the national plan framework, an emissions trading scheme would allow costs to be minimised across all participants and is most compatible with existing markets. In Ofgem's view, this approach would provide greater certainty of environmental improvement, would be less likely to distort energy markets and would stimulate innovation from companies to explore different technologies to deliver environmental benefits at least cost to consumers. A draft plan has been submitted to the Commission, but the Government has stated that it may still choose a different implementation approach.

2.13 The Directive includes a provision which exempts plant operators from the requirements of the Directive if operating hours are limited to no more than 20,000 after 1 January 2008 and the plant is closed no later that 31 December 2015. Plant operators must make a declaration to their environmental regulator by 30 June 2004 if they wish to make use of this option. However, a letter published by Defra in March 2004 appears to allow plant operators to withdraw their declaration at a later date but before 1 January 2008.

2.14 Ofgem is continuing to monitor the development of implementation proposals, and is working to ensure that implementation does not have an adverse effect on the competitive market in electricity, or create distortions that may risk security of supply. Ofgem is also liaising with the Environment Agency and the Scottish Environment Protection Agency on the development of proposals for the

regulation of sulphur emissions from coal- and oil-fired power stations in the period 2005–2007.

Low carbon generation support programmes

2.15 As part of its Climate Change Programme, and in order to meet other environmental, social and economic objectives, the Government has put in place a number of policies and programmes that promote the greater use of lower carbon generation technologies, specifically generation of electricity from renewable sources, and combined heat and power (CHP). Ofgem is responsible for administering aspects of a number of the Government's existing market-based and fiscal instruments in this area.

2.16 Over the past year Ofgem has performed these executive functions and is participating in the future development and application of other new policies and programmes.

Renewables

Climate Change Levy exemption for renewables

2.17 The Climate Change Levy (CCL) came into effect on 1 April 2001 and applies to energy used in the non-domestic sector (industry, commerce, and the public sector). The aim of the levy is to encourage these sectors to improve energy efficiency and reduce emissions of greenhouse gases. The levy payable on electricity is £4.30 per MWh, with discounts available for various sectors.

2.18 Electricity from specified renewable generation is exempt from the CCL. To qualify for the exemption, renewable electricity must be consumed or intended to be consumed by customers in the UK. Ofgem is responsible for monitoring the exemption in Great Britain; and the Northern Ireland Authority for Energy Regulation (Ofreg) has a similar role in respect of Northern Ireland.

2.19 Part of the evidence required by HM Customs and Excise (HMCE) for this exemption is provided by Levy Exemption Certificates (LECs) which are issued by Ofgem on a monthly basis. There are currently approximately 950 generating stations accredited under the CCL exemption for renewables with an installed generating capacity of 3.9 GW. One LEC is issued for each qualifying megawatt-

hour produced. Following the issue of LECs, final suppliers are required to notify Ofgem of the quantity and serial numbers of the certificates acquired from generators and used against renewable source customer contracts. Ofgem then validates this information.

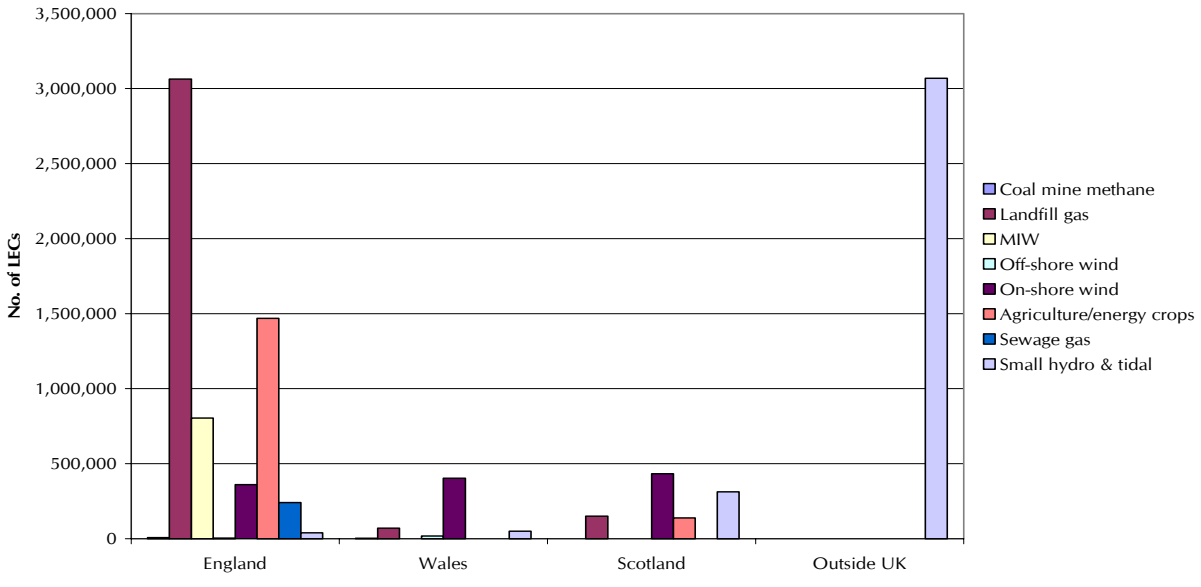
2.20 Table 1 below shows the numbers of LECs issued by month and technologies (hydro, on- and offshore wind, 'other' includes landfill gas, sewage gas, energy crops, waste and biomass).

Table 1 Number of LECs issues by month (thousands of LECs)

Month	Hydro	Wind	Other
January 2003	342	140	442
February	262	103	406
March	275	90	444
April	266	80	462
May	340	108	430
June	243	70	425
July	184	66	449
August	192	41	441
September	181	48	472
October	240	94	502
November	281	109	486
December	321	119	530
January 2004	344	150	456

Source: Ofgem

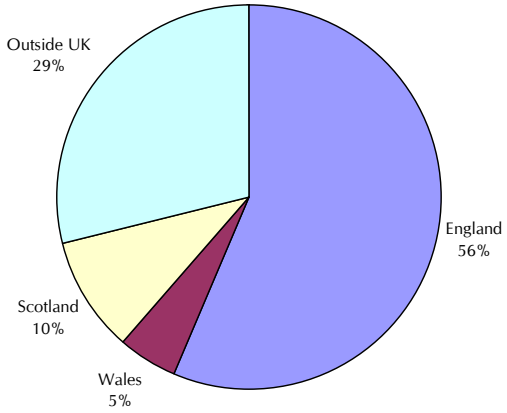
Chart 1 - LECs issued by country and technology Jan 03 - Jan 04



Source: Ofgem

2.21 Chart 1 above shows numbers of LECs issued by country and by technology. Landfill gas in England and small hydro and tidal outside the UK had the largest amount of LECs issued at just over 3 million. The next largest amount of LECs was issued to agriculture/energy crops in England at just under 1.5 million LECs.

Chart 2 - LECs issued by country Jan 03 - Jan 04



Source: Ofgem

2.22 Chart 2 shows the percentage of LECs issued by Ofgem to generators in Great Britain and outside the UK. LECs may be issued to generators who are located outside the UK but who supply to the UK through the interconnector.

Renewables Obligation

2.23 The Renewables Obligation (RO) and Renewables Obligation (Scotland) (ROS)[1], which came into force in April 2002, require licensed electricity suppliers to source at least part of their electricity from renewable generation. The amount of the obligation started at 3% of total electricity supplied to customers in Great Britain in 2002/03 and will reach 10.4% in 2010/11. Under the current order, the percentage will stay at that level until 2026/27. The percentage for 2003/04 was 4.3% and for 2004/05 is 4.9%.

[1] Hereafter the two obligations are referred to together as the "Renewables Obligation"

2.24 The Energy White Paper endorsed the importance of the Renewables Obligation as the Government's main policy measure to encourage the development of renewable forms of energy. The Government has reinforced its commitment to the scheme by announcing in December 2003 an intention to consult on an increase in the level of the Renewables Obligation for the years between 2010/11 and 2015/16 and on extension of the scheme to Northern Ireland.

2.25 The 2003/04 year was the second full year of administration of the Renewables Obligation. This period also included the management of the compliance process for the first year (2002/03) and the publication of the first annual report by Ofgem on the administration of the scheme.

2.26 The Renewables Obligation is complex and its administration has involved considerable resource within Ofgem. Ofgem has administered the scheme as efficiently and effectively as possible. In February 2004, Ofgem published its first annual report to the Government on the administration of the scheme[2]. The report provides information on:

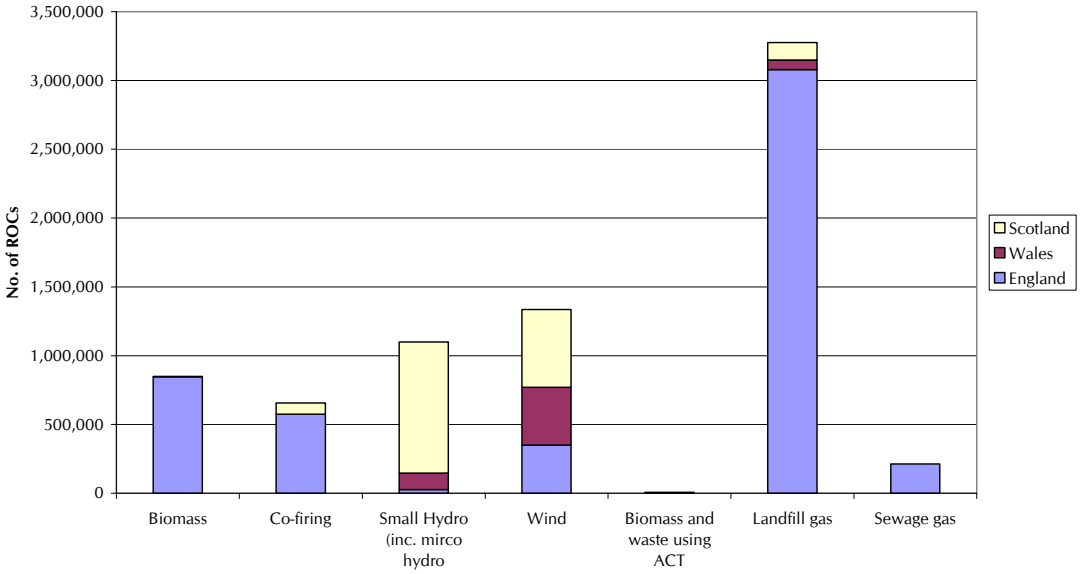
- compliance by operators of generating stations;
- certificates issued in 2002/03;
- compliance by suppliers; and
- a number of operational issues that arose during the administration of the scheme.

2.27 Chart 3 below shows Renewables Obligation Certificates (ROCs) issued by country and by technology type. As with the trend in the LEC data, landfill gas dominates with over three million ROCs issued between England, Wales and Scotland with the vast majority issued in England. Wind power was issued almost 1.5 million ROCs. The third largest source was small hydro with just over one million ROCs issued mainly to generators in Scotland.

[2] *The Renewables Obligation: Ofgem's first annual report February 2004 45/04*. Available on www.ofgem.gov.uk

Issue of Renewables Obligation Certificates in 2003

Chart 3 - ROCs issued by country and technology Jan 03 - Jan 04



Source: Ofgem

Review of the Renewables Obligation

2.28 A number of amendments to the Orders were consulted on and agreed in the past year. The Renewables Obligation (Amendment) Order 2004 includes, among others, provisions to:

- allow Ofgem to accept late payments into the buy-out fund;
- clarify the definitions of micro hydro generating stations and fuel used by a generating station;
- enable ROCs to be issued to small generators including domestic microgeneration; and
- provide more flexibility to Ofgem as to the timescales in which it deals with transfer requests.

2.29 Similar amendments are contained in the Renewables Obligation (Scotland) Order 2004 relating to the ROS. Both of these Statutory Instruments took effect from 1 April 2004.

2.30 Under the current form of the Orders, the target increases yearly until it reaches 10.4% in 2010 and then remains at this level until 2027 when the scheme ends. However, in December 2003 the Government announced its intention to increase the targets by one percentage point each year from 10.4% in 2010/11 to 15.4% in 2015-16. It will shortly be consulting on this proposal.

2.31 The Government is also currently considering creating a UK-wide Renewables Obligation to take effect from 1 April 2005. It intends to enact this through an Order under the Energy (Northern Ireland) Order 2003 and amendments to the existing RO Orders.

2.32 The Energy Bill currently before Parliament contains provisions which will allow the existing RO Orders for England & Wales and Scotland to be amended to provide that Northern Ireland Renewables Obligation Certificates may be used to discharge a supplier's Obligation under the RO and ROS.

2.33 The Government has committed to carrying out a full review of the Renewables Obligation in 2005/06. Ofgem will play its part in that process and will continue to work closely with DTI and the Scottish Executive to ensure that the Renewables Obligation continues to work as effectively and efficiently as possible.

Non-Fossil Fuel Obligation and Scottish Renewable Obligation

2.34 Between 1990 and 1998 the principal instruments for supporting renewable energy in Great Britain were the Non Fossil Fuel Obligation (NFFO) in England and Wales, and the Scottish Renewable Obligation (SRO) in Scotland. Orders made under these schemes (five NFFO orders and three SRO orders) required the former Public Electricity Suppliers (PESs) to purchase a specified amount of electricity from renewable sources. The aim of the orders was to create an initial market for established renewable technologies. Ofgem has ongoing responsibilities in regard to these programmes in setting the amount of the Fossil Fuel Levy (FFL) and in oversight of certain aspects of the contracts.

2.35 In England and Wales the contracts, for which suppliers currently bid in six-monthly auctions conducted by the Non-Fossil Purchasing Agency (NFPA), will last for up to another 14 years. The last contract is due to terminate in 2018.

Fossil Fuel Levy

2.36 Suppliers' additional costs in purchasing electricity from renewable sources under these contracts have been met by means of the FFL and the FFL (Scotland), which are payable on almost all electricity. The purpose of the Levies is to fund the difference between the contract prices payable to the renewable generators and the market price of electricity. Ofgem is responsible for setting the rate of the levies.

2.37 Within the framework set by the Fossil Fuel Levy Regulations 1990, the Fossil Fuel Levy (Scotland) Regulations 1996 (both of which have been amended) and the NFFO auction arrangements, Ofgem must review the levy rate annually in England and Wales and from time to time in Scotland. Ofgem now reviews all levy rates annually.

2.38 In December 2003 Ofgem announced that the Fossil Fuel Levy rate in England and Wales, and in Scotland, would remain at zero for the coming year (starting on 1 April 2004). The Levy has been set at zero percent in England and Wales because the prices currently being secured at auction for the rights to the output of the renewable generators in question, including the benefit of any CCL exemption and RO certificates, exceeds the prices guaranteed under the scheme.

2.39 Under the present arrangements in Scotland, ROCs are auctioned. The expected proceeds of the auction, together with the existing surplus of Levy funds, are such that it is possible to maintain the levy rate at zero.

2.40 As a result of the Sustainable Energy Act 2003, the Government may now use any surplus in the Levy funds to promote renewables. This amount is limited to £60 million and currently applies only to the England and Wales fund. A similar provision is contained in the Energy Bill, currently before Parliament, which will allow surpluses in the Scottish fund to be used in a similar way.

Renewable Energy Guarantees of Origin (REGOs)

2.41 Article 5 of EU Directive 2001/77/EC on the promotion of electricity from renewable sources in the internal electricity market requires that Member States ensure that a Guarantee of Origin is issued, on request, in respect of electricity generated from renewable energy sources.

2.42 The Electricity (Guarantees of Origin of Electricity Produced from Renewable Energy Sources) Regulations 2003[3] implement Article 5 of the Directive. The Regulations came into force on 27 October 2003. Ofgem is responsible for issuing Renewable Energy Guarantees of Origin (REGOs) on request and has been given certain functions under the provisions of the Regulations.

2.43 Ofgem's functions under the Regulations include:

- establishing and maintaining a register of REGOs;
- issuing REGOs on request providing certain information has been provided;
- recognising REGOs issued by other Member States and Northern Ireland; and
- making certain information publicly available.

2.44 Ofgem has been working to put systems and procedures in place. A new web-based system to manage the data handling and issuing of REGOs has been designed for Ofgem. It allows Ofgem to issue, recognise, delete and transfer REGOs. Suppliers and generators will be able to log onto the system. Ofgem will soon be publishing administrative procedures and a user guide for the REGO Register.

CHP

Climate Change Levy exemption for good quality CHP

2.45 In addition to its responsibilities under the CCL exemption for renewables, Ofgem also administers aspects of the CCL exemption for good quality Combined Heat and Power (CHP).

2.46 On 1 April 2003, the exemption from the CCL for direct supplies of CHP was extended to include indirect supplies (those supplies exported to the grid) of qualifying CHP electricity. CHP Levy Exemption Certificates (CHP LECs) are used as part of the evidence to prove that electricity sold by a licensed supplier

[3] Statutory Instrument 2003 No. 2562

to its non-domestic customers is qualifying output. CHP LECs can only be issued to CHP operators that have obtained a CHPQA[4] certificate and a Secretary of State certificate from Defra. Qualifying CHP electricity will attract one LEC for each MWh of electricity generated. Ofgem and Ofreg are the relevant Authorities for issuing CHP LECs in the UK.

2.47 Ofgem worked closely with HMCE and Defra to introduce the revised scheme in order to issue CHP LECs successfully. To date Ofgem has issued approximately 13.5 million CHP LECs to 170 complying CHP schemes. Ofgem uses an interactive web-based database to issue CHP LECs, to allow generators to transfer CHP LECs to suppliers and to allow suppliers to allocate CHP LECs to a CHP declaration contract. There have been some problems, mainly to do with the transfer facility for CHP LECs (which is not a requirement for Ofgem). The system has now been modified and these problems have been rectified. To date over 3 million CHP LECs have been successfully been transferred.

CHP database

2.48 Ofgem is committed to holding and publishing accurate data on CHP and its CHP database is available on the Ofgem website. Last year a significant agreement was reached with Future Energy Solutions which run the CHPQA scheme on behalf of Defra. This enables Ofgem to publish information on CHP schemes that are part of the CHPQA programme if they agree.

2.49 Ofgem will review the data that it holds on CHP and will be consulting with interested parties on the most useful way of presenting the data that is held.

[4] The CHP quality assurance programme run by Defra.

3. Networks

3.1 The transportation of gas and electricity through transmission and distribution networks is the only remaining area of monopoly in the industries regulated by Ofgem. Ofgem is required to regulate prices and quality of service of these networks in the interests of consumers. It is increasingly being recognised that the environmental performance of these networks is an important part of their service quality. It is therefore appropriate for Ofgem to consider the environmental performance of networks, for example the scale of losses and other impacts, in line with its statutory duties.

3.2 More important perhaps is the role of the regulation of these monopoly networks in allowing the government to meet its targets for renewables. The current review of the price controls of the distribution networks to take effect from 2005, and the need to make adjustments to existing arrangements for transmission are major areas of work for Ofgem.

3.3 The following sections identify the principal actions taken in 2003/04 by Ofgem in this area.

Electricity distribution

Distribution Price Control Review (DPCR)

3.4 The review of the price control arrangements that apply to the fourteen regional Distribution Network Operators (DNOs) has been a major area of work over the past year. The new arrangements will take effect from 1 April 2005. How the distribution networks are developed and managed has significant effects on the environment. The most important of these impacts are:

- actions by DNOs to reduce electricity losses could lead to substantial savings in carbon dioxide and other emissions, and
- the ability of DNOs to connect and make use of small scale generation will impact on the success of the Government's renewables and CHP policies.

3.5 Other areas in which DNOs have environmental impacts is through the amenity, waste and land pollution impacts of distribution networks, the management of sulphur hexafluoride (SF_6), a potent greenhouse gas used as an electrical insulant, and the actions to incentivise power factor correction. All of these issues are under consideration as part of the distribution price control review.

The DPCR and distributed generation

3.6 Ofgem has issued a number of consultation documents for the current DPCR. The most recent were published in March, April and June 2004[5]. They announced a number of important incentive mechanisms. These include:

- an incentive mechanism for distributed generation
- incentives for innovation (Registered Power Zones and the Innovation Funding Incentive), and
- proposed changes to the structure of distribution charges for generators

Distributed generation incentive mechanism

3.7 A hybrid incentive scheme for DNOs in relation to the connection of distributed generation is proposed. Its broad characteristics are that:

- the costs incurred by the DNOs to provide network access to distributed generation would be given a partial pass-through treatment, and
- the DNOs would be given a further supplementary amount per megawatt revenue driver (or incentive rate) to incentivise the connection of distributed generation to the network.

3.8 The objectives of the scheme are to encourage DNOs to undertake the investment required to facilitate distributed generation connections (and generally be proactive and positive in responding to connection requests), and encourage them to undertake that investment efficiently and economically.

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[5] *Electricity Distribution Price Control Review – policy document* Ofgem March 2004 62/04, *Structure of electricity distribution charges – Update document and licence modifications*, April 2004 76/04 and *Electricity Distribution Price Control Review* – initial proposals Ofgem June 2004 145/04

3.9 In addition to the incentive for relevant investment in their networks, Ofgem has also proposed that the DNOs are incentivised to provide on going network access to distributed generation.

Registered Power Zones

3.10 The Registered Power Zones (RPZs) initiative is designed to develop a mechanism to encourage DNOs to develop and demonstrate new, more cost effective ways of connecting and operating generation to deliver specific benefits to new distributed generators, and broader benefits to consumers. DNOs will be incentivised to develop RPZs by providing an additional revenue income where they are managing the risks of innovative technology on their networks.

3.11 Where a DNO sees an opportunity to develop an RPZ it will seek Ofgem's approval to register it as such. It is proposed that an independent advisory panel will review applications for RPZ status against agreed criteria. If the panel judges that an RPZ proposal demonstrates genuine technical innovation and customer benefit then it will advise Ofgem that it should be registered. Registration will remain at Ofgem's discretion. However, Ofgem will not assess the technical merits of the proposals.

Innovation Funding Incentive

3.12 The aim of the Innovation Funding Incentive (IFI) is to develop a mechanism that will encourage DNOs to invest in appropriate research and development (R&D) activities that focus on the technical aspects of network design, operation and maintenance. The principal objective of the IFI is to deliver benefits to consumers by enhancing efficiency in operating costs and capital efficiency.

3.13 Under the terms of the IFI, a DNO will be allowed to allocate funds for R&D activities to lay the foundations for cost effective future network developments. IFI funding will be capped at 0.5% of the licensee's turnover and will only be allowable if it is used to fund research and development activities that meet pre-defined criteria. The company will be able to pass through to its customers a proportion of the cost of the IFI funding.

3.14 As a condition of allowing this expenditure, the company will be required to develop a good practice guide to innovation management. It is likely that the

companies will do this on an industry-wide basis. They will also be required to produce an annual report on their IFI activities which is to be available to the public.

3.15 A review of the IFI will be carried out by Ofgem after the publication of the second annual report, in 2007. The level of IFI funding will be reviewed for each company and it may be appropriate to make a decision then as to whether the IFI will be supported under the following distribution price control. This would allow DNOs to take a longer-term view about their R&D activities than has been possible in the past.

Structure of distribution charges

3.16 In June 2003, Ofgem's published the conclusions of its review of the structure of electricity distribution charges[6]. It built on a previous consultation in October 2002 and discussions at an open workshop in February 2003.

3.17 Recovery of network reinforcement costs disproportionately from new connections could act as a barrier to entry and potentially restrict competition in generation. It is proposed to introduce shallower connection charges which will retain a locational cost signal along with on going use of system charges. In April 2004, Ofgem published an update on its views on the structure of distribution charges which provides further information.

Distribution losses

3.18 Approximately 6 to 7 per cent of electricity is lost as it is transported across distribution networks (this includes theft). Electrical losses on distribution systems impose a cost on society, both financial and environmental. This cost has four main components:

- the cost of purchasing lost electrical units
- the use of the transmission system in transporting additional units

[6] Structure of electricity distribution charges – Initial conclusions, June 2003 43/03

- the cost of financing additional distribution assets to accommodate the additional electricity purchased for a given level of electricity supplied, and

- the environmental costs associated with producing and transporting additional units of energy.

3.19 The existing distribution price controls include an incentive on DNOs to manage losses, with an incentive payment/penalty of approximately 3p/kWh applied to the difference between the level of recorded losses and an allowed level based on a historic benchmark.

3.20 Following on from consultation during 2003 on distribution losses, Ofgem set out in the March 2004 price control document, further thoughts regarding proposals to put in place revised losses incentive arrangements from 1 April 2005. The revised scheme will have the following features:

- DNO performance will be measured against a target level that is fixed for the period of the price control,

- a rolling retention mechanism will be introduced to address problems of periodicity in achieving loss reductions, and

- a revised incentive rate will be set based on an estimate of the cost of electrical losses on society.

3.21 Ofgem is currently finalising proposals for the level of the incentive. Initial proposals are included in the June price control document.

Power factor charges

3.22 Power factor is the share of the electric current that can be used as actual, active, power. The residual is called reactive power and is needed to energise electric and magnetic fields in certain types of network and customer equipment. Maximising the power factor reduces the current required to transport the same amount of active power and therefore reduces losses. Equipment exists that corrects for low power factors and therefore increases available capacity. Power factor correcting equipment can be installed both on customers' premises and on the network itself.

3.23 Ofgem considers that it is important that DNOs' charging arrangements reflect the costs that low power factors impose on the networks. Competition in supply would then mean that it would be in suppliers' interest to give the appropriate signals to their customers. The April 2004 proposals on the structure of distribution charges stated that Ofgem expects DNOs to include charges for low power factors for large customers as part of a revised charging methodology. DNO charging methodologies are now being developed.

3.24 Ofgem is also working to ensure that any incentives provided by charging in this way can be acted on by suppliers and customers.

Environmental reporting by DNOs

3.25 In addition to the reporting of environmental outputs that are specifically subject to the price control, such as losses and connection of distributed generation, Ofgem has proposed the inclusion of a small number of environmental reporting requirements. These include:

- SF_6 use;
- use of insulating oils; and
- scope of environmental management systems.

3.26 These proposals have been consulted on and responses are being considered. An update of the proposed reporting requirements will be set out in the draft Regulatory Instructions and Guidance document to be published shortly.

Distributed Generation Co-ordinating Group

3.27 The Distributed Generation Co-ordination Group (DGCG) was formed on the recommendation of the Embedded Generation Working Group in January 2001, and is co-chaired by Ofgem and the DTI. It provides advice to the DTI, Ofgem, Defra, and the Scottish Executive on the development of generation connected to electricity distribution systems.

3.28 The DGCG has created a Technical Steering Group (TSG), which draws on a wide range of expertise from the electricity industry and associated organisations. Its terms of reference are to steer and report on work programmes

necessary to support the objectives set by the DGCG. Its six workstreams are addressing a considerable number of technical and technical/commercial issues likely to arise from increased connection of distributed generation.

3.29 The DGCG website (www.distributed-generation.org.uk) makes information on the DGCG's work available to a wide audience and contains information sheets, papers and summaries of meetings. Details of TSG projects are also to be found there. The second annual report of the group was published on 30 March 2004.

3.30 The focus of the DGCG has been the identification of unwarranted barriers to the development and connection of distributed generation. Removing barriers to, and paving the way for, increased connection of distributed generation has necessitated a large amount of detailed work.

3.31 During 2003, the DGCG and TSG:

- produced a revised connection process guide for distributed generation
- published *Solutions for the Connection and Operation of Distributed Generation*
- developed a new methodology for recognising the contribution of modern types of distributed generation to network security
- completed a directory of the current, and projected, status of distributed generation connections
- contributed to the first system cost estimate for 20% renewable generation by 2020 (compared with a conventional generation scenario)
- promoted a common, published methodology for handling multiple applications for connection of generation to the same piece of distribution network
- developed a model for DNOs to analyse the impact of small-scale distributed generation on their low voltage networks
- contributed to new engineering recommendations on the connection of domestic-scale generation to distribution networks, and

- completed an assessment of the skills and human resource required for DNOs to meet the challenge of increased volumes of distributed generation.

Electricity transmission

Transmission charging

3.32 The creation of a single non-discriminatory cost-reflective GB transmission charging regime (BETTA) will allow for the promotion of effective competition and therefore for environmental goals to be met in the most efficient way possible.

3.33 Ofgem and the DTI recently published document called S*mall Generator Issues under BETTA: An Ofgem/DTI conclusions document*[7]. This was after the issuing of a consultation document specifically on small generator issues in November 2003[8]. A separate consultation was undertaken as it was acknowledged that changes as a result of BETTA would be most noticeable to generators in Scotland. This is because the proposed GB documents and codes are based on those that prevail in England and Wales currently. The focus of this consultation strand was, therefore, the position of small, transmission connected generators in Scotland.

3.34 A key factor in the considerations has been the different statutory definition of transmission in Scotland, where the transmission system includes the network of lines at 132kV (which form part of the distribution network in England and Wales), and the consequence that smaller generators in Scotland are more likely to be connected directly to the transmission system. The objective of the measures is to ensure that small transmission connected generators are not unduly disadvantaged in the GB market.

[7] May 2004 96/04
[8] *Small Generator Issues under BETTA: An Ofgem/DTI Consultation Document* Ofgem/DTI November 2003 145/03

3.35 In summary, the key measures are:

- to provide generators connected to transmission at 132kV in Scotland with a discount against transmission use of system charges for an interim period of three years; the discount is expected to be in the range of £2.50 - £3.50 per kilowatt; in the longer term work is required to address the wider question of the interactions between transmission and distribution charging arrangements, in order to ensure more coherent and consistent signals for investment, and

- to amend the GB connection and use of system code (CUSC) to relieve, in certain circumstances, the obligation on small transmission connected generators to be a party to the GB Balancing and Settlement Code (BSC).

Transmission losses

3.36 On 21 January 2004 the Gas and Electricity Markets Authority (which governs Ofgem) stated that it was of the opinion that it is not legally possible for it to approve the Modification Proposal to the Balancing and Settlement Code to implement zonal transmission losses (P82). No further Authority decision is therefore possible in relation to P82, and the proposal cannot and will not be implemented.

3.37 If any new Modification Proposal is advanced that deals with the issue of locational charging for transmission losses, it would be subject to the usual industry procedures including a consultation process before being sent to the Authority for a decision. In such circumstances, the Authority would take into account all relevant factors at the time of its decision.

3.38 In terms of its overall regulatory approach, Ofgem continues to regard the adoption of cost-reflective charging as economically and environmentally beneficial in protecting the interests of consumers.

Transmission infrastructure in relation to renewables

3.39 Increases in the amount of renewable generation will affect grid infrastructure at transmission level as well distribution level. It is difficult to assess with any precision exactly how much renewable plant will be connected and where.

However, the relative abundance of wind generation opportunities in Scotland will almost certainly lead to significant developments there. These issues were identified by the DTI Transmission Issues Working Group (TIWG) and the Renewable Energy Transmission Study (RETS)

3.40 Developments in Scotland are likely to have particular transmission system impacts because the transmission connections between England and Scotland have finite capacity, and this may not be sufficient in the future.

3.41 In October 2003 Ofgem published consultation on proposals from the three transmission licensees to reinforce transmission networks to facilitate the connection of additional renewable generation on Scotland. Ofgem has proposed to add an incentive mechanism on to the existing price controls to ensure that transmission licensees have incentives to make transmission investment for renewable generation in a timely and efficient manner.

3.42 In May 2004 Ofgem announced the next steps in this work and has appointed expert independent consultants to assist with analysis. Draft proposals will be published in July 2004 and new incentive arrangements introduced shortly afterwards.

Gas transmission and distribution

Transco environmental output measures

3.43 The environmental performance of Transco's networks is an important area for gas consumers and other interested parties. Under special licence conditions 35 and 36, Transco is required to submit an annual environmental report on the medium-term performance of its National Transmission System and each of its Local Distribution Zone (LDZ) networks.

3.44 The measures are set out in the Regulatory Instructions and Guidance and include emissions of methane (losses), CO_2 and oxides of nitrogen (NOx) (which arise from combustion activity in compression stations), and loss of gas containment[9]. This data forms part of the gas quality of supply document that

[9] Defined as incidents involving the release of gas reported under COMAH. There were no such incidents in 2002/03

was published in April 2004 and is reprinted below. It is planned to publish the 2003/04 gas distribution quality of supply report in December 2004 and every December thereafter.

Table 2 Methane emitted from pipe networks due to leakage 2002/03

	Tonnes of methane	
	Medium pressure	**Low pressure**
Scotland	1,667	17,568
North of England	3,300	28,707
North West	1,730	30,547
East of England	4,497	36,501
West Midlands	2,058	24,428
Wales and the West	3,243	29,314
South of England	3,277	46,355
London	795	22,958
Total Networks	**20,577**	**236,378**

Table 3 Emissions from plant and compressors 2002/03

	CH_4 from plant	**CO_2 from compressors**	**NOx from compressors**
NTS	1.21 kg/GWh	1,721 kg/GWh	2.40 kg/GWh

Extension of the gas network

3.45 Increasing access to the gas network has positive social and environmental benefits, particularly for customers who are relatively close to the existing gas network. On average, carbon dioxide emissions from gas-heated homes are around a third of those from households with oil-fired heating and annual savings of between £200 and £400 can be expected compared to other fuel types.

3.46 In July 2003, Ofgem published final proposals for the regulation of independent gas transporter charges in July 2003. Most infill of the gas network (i.e., extension of the gas network to existing properties) and connection to new developments are undertaken by independent transporters. Transportation of gas is a monopoly activity and the review of charges was motivated by concerns that the charges of some transporters were unnecessarily high.

3.47 The final proposals were:

- for extensions to new developments, a relative price cap will limit the transportation charges levied by IGTs to broadly the same level as Transco's charges
- for infill, a supplement over and above the Transco charge will be allowed, to reflect the higher costs associated with connections to existing properties.

3.48 This approach will allow social and environmental benefits of infill to be realised, while also protecting consumers from monopoly power. These measures have now been formally implemented through modifications of the gas transporters licence conditions.

4. Retail markets

4.1 The Energy White Paper identified energy efficiency and other demand-side measures as key contributors to moving towards a low carbon economy. The gas and electricity supply businesses have an important role in the delivery of these objectives. Suppliers have been instrumental in delivering existing efficiency measures and will have key roles to play in the future including in the delivery of energy services.

4.2 Liberalising the supply market in Great Britain has allowed all consumers to choose their suppliers. Good information on various aspects of supply can facilitate consumers making choices on environmental or other issues, as well as price.

Consumer information

Fuel mix disclosure

4.3 Ofgem considers that informed customers are a pre-requisite for the efficient operation of a competitive market. The European Directive on Common Rules for the Internal Market in Electricity[10], which comes into force in July 2004, includes a requirement that all suppliers must indicate the proportion of fuels that are used to generate their electricity. They must also provide at least a reference to existing sources where information on the environmental impact of the electricity produced by the overall fuel mix is available.

4.4 Ofgem has undertaken research in this area, as well as holding a seminar on 10 June 2003 and has met with suppliers on a number of occasions.

4.5 Responsibility for implementing this requirement rests with the DTI which has consulted on how to implement this provision[11]. Ofgem is assisting this work as the DTI intends to implement this via a new condition in electricity supply licences.

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[10] Directive 2003/54/EC

[11] *Implementation of EU Directive 2003/54 concerning common rules for the internal market in electricity* DTI March 2004

Consumption information

4.6 Ofgem is investigating options for improving consumption information to consumers and is working through a programme of research in this area. The first phase[12] examined the existing work on billing from other countries and whether energy savings were achieved as a result of this information. The second phase is underway and is being conducted by the Centre for Sustainable Energy. This phase will develop options for presenting consumption information on bills and examine consumer preferences in focus groups. The research will be published soon. In addition to this research, Ofgem hosted an industry workshop on 24 February 2004 to raise awareness and receive feedback from suppliers on this issue. Copies of the presentations can be found on Ofgem's website.

4.7 The results of this research will help to inform Ofgem's policy and future work on consumption information.

Energy Efficiency Commitment

4.8 The 2003/04 year was the second year of the first three-year phase of the Energy Efficiency Commitment (EEC). The programme places an obligation on electricity and gas suppliers to install measures in customers' homes to improve energy efficiency. The programme recognises both the social benefits of energy efficiency and the contribution this can make to the reduction of CO_2 emissions arising from households' energy consumption.

4.9 All energy suppliers with at least 15,000[13] domestic customers have an obligation, and are required to target at least half of the energy savings from the measures a priority group that includes households that are in receipt of income related benefits or tax credits.

4.10 Ofgem's role in administering the EEC programme is to approve each energy efficiency scheme set up by suppliers and to monitor progress. To date Ofgem has assessed and approved approximately 120 schemes and suppliers have

[12] Roberts S. and Baker W. *Towards effective energy information a report to Ofgem* Centre for Sustainable Energy March 2003

[13] Eleven suppliers were set an EEC target in January 2002 totalling 62 TWh.

achieved savings of 47 TWh out of the target of 62 TWh. The following are examples of schemes that have been approved.

Npower Lighting Scheme

By the end of the EEC programme in 2005, this scheme will have distributed over 3 million energy saving light bulbs. Npower has targeted the fuel poor in the community by partnering with a number of charitable organisations to deliver free energy saving light bulbs. The use of energy saving lighting in the home reduces energy consumption and in turn, reduces household energy bills.

British Gas Redcar and Cleveland Warm Zone

As an extension of their commitment to alleviate fuel poverty in the Tees Valley area, British Gas has partnered with the Redcar and Cleveland Warm Zone. Operating on a house-by-house approach, the programme provides subsidised energy efficient measures to both priority and non-priority households. The targeted households benefit from the installation of heating and/ or insulation measures such as central heating system upgrades, thermostatic radiator valves, cavity wall insulation, loft insulation and hot water tank jackets. British Gas also funds households switching their heating systems to a more efficient fuel type in the Redcar and Cleveland Warm Zone.

EdF Energy London Borough of Southwark

This scheme shows how suppliers are being innovative in achieving their target under the EEC by tackling fuel poverty on a community level rather than in individual's homes. EdF Energy is working with Southwark Borough Council to provide insulation in the communal heat plant rooms for social housing across the borough. By reducing the heat loss and emissions from pipes, valves and flanges throughout the plant rooms with insulation, LE Group are able to contribute to a reduction in Southwark Borough Council's energy usage and costs.

EEC measures installed

4.11 Table 4 below shows the number of measures that are expected to be delivered in order to meet the EEC target of 62 TWh of energy savings. Lighting is by far the largest in terms of amount of measures that are expected to be delivered. This is simply because compact fluorescent lamps are small and easy to

distribute to customers and a number of suppliers are choosing this method. The table also shows the expected amount of carbon savings from each type of measure by 2005.

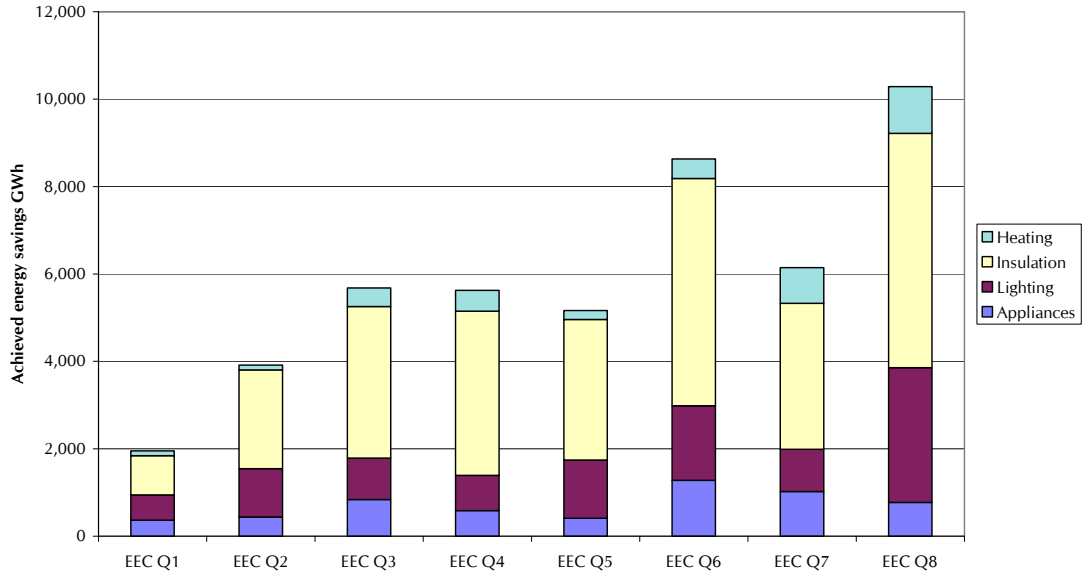
Table 4 Number of EEC measures and annual carbon saving by measure type

		Annual carbon saving by 2005 (MtC/a)	
Measure type	Number of measures anticipated to be delivered to meet the overall EEC target	Business as usual	Additional due to the EEC
Appliances	706,433	-	0.103
Heating	394,186	0.008	0.070
Insulation	2,870,056	0.202	0.143
Lighting	21,645,317	0.169	0.158
Total	**25,616,002**	**0.380**	**0.473**

Source: Ofgem

4.12 Chart 4 below shows the amount of achieved energy savings under EEC to date. It shows a steady increase over the eight quarters that the EEC has been running. For the latest quarter the achieved savings were just over 10,000 GWh.

Chart 4 - Achieved EEC energy savings



The EEC from April 2005

4.13 The Government proposes to extend the EEC programme to 2011 at roughly double the level of the current commitment. A recently published consultation

paper sets out the proposals for the next phase which will run in two separately targeted periods of three years; 2005–2008 and 2008–2011. The consultation only details the period 2005–2008. It is proposed that the total EEC obligation on all suppliers for the period 1 April 2005 to 31 March 2008 should be about 130 TWh of fuel-standardised lifetime-discounted energy benefits.

4.14 Further key aspects of the proposed commitment are:

- the expected carbon savings for the EEC 2005–2008 are to be approximately 0.7 MtC a year by 2010;
- suppliers should be required to achieve at least 50% of the energy savings of the EEC 2005–2008 on householders in receipt of certain income or disability benefits or tax/pension credits, and
- The potential costs to consumers (if passed on in full by suppliers) are estimated to be not more than about £9 per customer per fuel per annum for the period 2005–2008.

4.15 The closing date for the Government's consultation is 13 August 2004 and Ofgem is considering its response. Ofgem will also publish a consultation paper on amending its administration procedures to ensure that they are appropriate to deal with the expansion of the EEC from 2005–2008.

Energy services trial

4.16 The Government announced in the Energy White Paper the establishment of a working group, jointly chaired by DTI, Defra and Ofgem "to explore how to create an effective market in Energy Services ". The Energy Services Working Group included Government representation from DTI, DEFRA, Treasury and Ofgem, as well as suppliers and other stakeholders.

4.17 One of the issues the Energy White Paper invited the Working Group to address was whether barriers were created by the current 28-day rule (which requires all energy supply contracts to be terminable on 28 days' notice) to the establishment of a market in energy services, while maintaining adequate freedom of choice and protection for customers.

4.18 The group reported to Ministers in October 2004 and proposed to test through pilots whether or not removal of the 28 day rule for customers who enter into a genuine energy service agreement makes any substantial difference to supplier engagement and customer take-up, and whether consumers can be adequately protected without having a right to switch.

4.19 In January 2004, Ofgem published a consultation on the parameters for this trial and the licence amendments necessary to allow it to proceed. The consultation also considered arrangements for evaluation of the trial. A decision document was published in March 2004[14] and the trial has now officially started and will run over two winters.

Green supply offerings

4.20 Ofgem issued Green Supply Guidelines in April 2002 to provide guidance for suppliers and consumers on the support instruments for renewables and the voluntary green supply market. Since 2002 there have been a number of developments implemented, or that will soon be implemented, that potentially affect these markets. These include:

- experience of two years of operation of the Renewables Obligation
- the introduction of Renewable Energy Guarantees of Origin, and
- the decision of the Energy Saving Trust to discontinue the Future Energy Scheme.

4.21 Ofgem has participated in a number of meetings organised by suppliers and attended by a range of stakeholders on the issue of auditing of green supply offerings. Ofgem has therefore undertaken to revise the guidelines in light of these developments in the market.

[14] Testing domestic consumer take-up of energy services: Trial suspension of the 28-day rule March 2004 74/04

Demand side participation in the wholesale markets

4.22 Ofgem is working with the large electricity users to identify and consider ways to remove barriers to demand-side entry to the wholesale market. To facilitate these discussions Ofgem chairs the quarterly Demand Side Working Group (DSWG) meetings. Ofgem liaises closely with NGT and other group members to facilitate discussions on wholesale market activities and on developing potential new demand side initiatives and services.

4.23 Together with the DSWG and NGT, Ofgem have facilitated discussions to develop NGT's pilot demand side turndown service. A four-month pilot of this service is expected to provide NGT with a source of contingency reserve via the reduction of load by large demand users, aggregators of demand sites, suppliers and small back-up generators. The introduction of this service has potential benefits for increasing competition and flexibility in the balancing services market and associated potential environmental benefits given the reduction in generation requirements.

4.24 Demand turndown is contracted through a single despatch and contracting counterparty, where each demand turndown provider is required to turndown a net minimum of 100 MW over the service period that extends across the daily summer-morning peak hours of 9.30 to 13.30. If the service is proven to be viable, secure and reliable, NGT may develop an enduring demand turndown service which would compete with warming or hot standby contracts with generators and Balancing Mechanism actions to provide NGC with a sustainable source of contingency reserve that would increase flexibility in balancing the system and increase the liquidity in demand side providers.

4.25 At this mid-stage of the trial period it is fair to say that the current rates of participation during the demand turndown trial have not been as high as initially anticipated. However, Ofgem is continuing to work closely with NGT and interested market participants at the DSWG to facilitate further discussions and develop further demand side initiatives.

Demand management research

4.26 Over the past year, Ofgem has examined broader issues relating to demand side participation in electricity markets. The first phase of this work included high-level research on demand side programmes internationally (e.g. EdF's tempo tariffs in France, Italy's *telegestione* meters, varying real-time pricing schemes in the US, and the rollout of interval meters to some customers in the Australian states of Victoria and New South Wales).

4.27 A further piece of work specifically examined the level of demand side response during the California energy crisis in 2000/01 and focused on the relative performances of interruptible contracts and State conservation programmes in eliciting demand response. A lot of the above work highlighted the importance of metering and profiling in demand side response. Further work in this area is being considered.

5. Increasing openness, transparency and accountability

5.1 This chapter sets out Ofgem's work to promote greater environmental awareness in Ofgem's policy development and to build and maintain relationships with other relevant organisations. The Energy White Paper places great emphasis on partnerships between Government agencies, regulators, devolved administrations, regions, local government and business.

5.2 It also covers the actions that Ofgem will be undertaking to improve its internal environmental practices.

Social and Environmental Guidance

5.3 In the light of a commitment in the Government's Energy White Paper, the Secretary of State has issued revised guidance to the Gas and Electricity Markets Authority on social and environmental issues. The Guidance states that the Government expects the Authority, consistent with its statutory duties, to facilitate the achievement of the social and environmental targets set out in the Energy White Paper. In addition, the guidance requires annual progress reports on how the Authority has helped the Government make progress towards the aims and targets contained in the guidance.

5.4 In keeping with the White Paper's longer-term framework for energy policy, the Government intends that the guidance complements and supports that framework. It therefore proposes that the guidance should last for several years.

Regulatory Impact Assessments

5.5 To fulfil its obligations under the Sustainable Energy Act, and so as to increase transparency and openness in the policy-making process, Ofgem has produced guidance on carrying out environmental appraisals, and has consulted widely with other Government departments and regulators on best practice in this regard. Environmental appraisal is specifically required to be included in Regulatory Impact Assessments that must be produced for all important new proposals.

5.6 Recent documents that have included an RIA include:

- *Testing domestic consumer take-up of energy services: trial suspension of 28 day rule*, Jan 2004
- *National Grid Transco – Potential sale of network distribution businesses: Next steps*, December 2003
- *Making markets work for consumers. The regulation of gas and electricity sales and marketing: proposals for the amendment of standard licence condition 48*, December 2003
- *Regulatory Impact Assessment for Registered Power Zones and the Innovation Funding Incentive*, March 2004

Sustainable Energy Policy Network

5.7 Following the publication of its Energy White Paper in February 2003, the Government set up the Sustainable Energy Policy Network (SEPN) to take forward the implementation of the White Paper. Ofgem takes part in network meetings when developments relevant to the gas and electricity industries are being discussed, and the network is a forum in which issues of cross-departmental or cross-sectoral interest can be raised.

Joint Working Group on Energy and the Environment

5.8 The Joint Working Group on Energy and the Environment (JWGEE) has been established to take forward the Energy White Paper proposal to establish a joint working group between the DTI, Defra and Ofgem on environmental issues modelled on the successful joint working group on security (the JESS working group).

5.9 The terms of reference were agreed by Ministers in August 2003. They focus the group's work on environmental issues relating to gas and electricity, in order to help the Government and the regulators ensure that their combined and coordinated efforts achieve the aims and objectives of the Energy White Paper in the most effective manner.

5.10 The group is jointly chaired by the three organisations and also includes representatives from the Environment Agency (EA); the Welsh Assembly; Scottish Executive; and the Treasury. The group met twice in 2003/04.

5.11 The group will coordinate its work programme with other groups, including the Interdepartmental Analysts Group, and may make recommendations for the commissioning of specific pieces of analysis and research.

Interdepartmental group on the social cost of carbon

5.12 In January 2002, a joint Defra-Treasury paper *Estimating the Social Cost of Carbon Emissions* suggested £70/tC (within a range of £35 to £140/tC) as an illustrative estimate for the global damage cost of carbon emissions. The paper also recommends periodic reviews of the illustrative figures as new evidence became available.

5.13 Following on from the publication of this paper and an international seminar, the Defra-chaired Inter-departmental Group on the Social Cost of Carbon (IGSCC) was set up in October 2003 to take forward a review of the social cost of carbon (SCC). The IGSCC is developing economic advice on the marginal damage costs of greenhouse gas emissions with the aim of producing a set of SCC estimates and advice on their application to policy assessment. The work is expected to be completed in summer 2004.

5.14 Ofgem is one of the departments participating in the group. When the group has published its recommendations, Ofgem will review its procedures for including monetary values of greenhouse gas damages in our environmental appraisals.

Environmental Economists Panel

5.15 Ofgem has a panel of Environmental Economists who can be called upon to comment on specific pieces of work or advise on particular items of policy. In the last year, panel members have provided advice to Ofgem on:

- the content and structure of environmental appraisals
- the use of price elasticities, and
- the valuation of non-CO_2 greenhouse gas impacts.

Environmental Advisory Group

5.16 A high level external group was established in 2002 to provide advice on Ofgem's environmental work. The group's purpose is to advise Ofgem on the priorities for its work in relation to the environment. In particular the group advises Ofgem on:

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

5.17 After one year of operation a review of the EAG was undertaken. Members were invited to submit comments and suggestions on how they felt the group had progressed and if they had any ideas for improving how it worked. As a result of the review, Ofgem has made some changes to the way that the group is run. These include:

- meeting three times per year, and
- inviting individual members to submit papers for discussion within the group.

Bilateral work with environmental regulators

5.18 During 2003/04 Ofgem continued to work with the Environment Agency on issues of common interest in the context of the two organisations' Memorandum of Understanding. This included research on the operation patterns of coal-fired power stations in recent years, shared analytical work on environmental assessment and reporting, and developing joint approaches to emerging issues in energy and environmental policy. High level bilateral meetings were held in July 2003 and February 2004. A meeting was also held with the Chief Executive of the Scottish Environment Protection Agency (SEPA) in July 2003.

Ofgem's internal environmental management

ISO 14001

5.19 Ofgem passed an annual audit of its ISO 14001 accredited environmental management system in February 2004 Ofgem has now held accreditation under this scheme for two years. Ofgem's environmental management system is overseen by a dedicated team and includes policies on:

- building management
- information technology
- procurement
- recycling, and
- other issues including business travel and cycling to work.

CHP unit

5.20 As reported in last year's review, Ofgem installed a CHP unit in its headquarters building in Millbank. The unit provides the building with its baseload electricity and heat.

5.21 From installation in March 2003 until the end of February 2004 the unit produced some 1.3 GWh of electricity and 2.0 GWh of heat during 6,360 running hours. The unit is designed to run 24 hours a day, 7 days a week to minimise use of Grid electricity. Ofgem also purchases 10 per cent of its total demand as green electricity.

6. Ofgem's work programme for 2004/05

6.1 There clearly remain major challenges for the electricity networks to accommodate and make use of new renewable and CHP generation in an efficient manner. Ofgem will work to finalise the new incentive framework described that will form part of the price controls to take effect from 1 April 2005, intended to encourage electricity distribution companies to invest efficiently in the reinforcement of their networks, and to develop and apply innovative solutions to reduce the costs of doing this.

6.2 Ofgem will also work on the other elements of the Distribution Price Control review including an enhanced incentive to reduce losses on the distribution system; and a duty to report environmental outputs as part of the regulatory process.

6.3 Ofgem will continue the work to put in place an incentive mechanism on to the existing transmission price controls to ensure that transmission licensees have incentives to make transmission investment for new generation in a timely and efficient manner and will, with the DTI, develop a licensing scheme for offshore transmission cables to connect off-shore renewable generation to the on-shore transmission network.

6.4 Ofgem will continue to administer Government environmental programmes in the energy sector as efficiently and effectively as possible – the Renewables Obligation, the exemptions from the Climate Change Levy for renewables and CHP, the Renewable Electricity Guarantees of Origin, the Energy Efficiency Commitment and the CHP database.

6.5 Ofgem will continue to work with Government on defining the scale and scope of the new Energy Efficiency Commitment (EEC). This aims to reduce emissions of carbon dioxide from domestic household energy consumption, and, together with other social programmes, to reduce the numbers in fuel poverty. Ofgem will be responding to the current consultation the next couple of months and also publish a consultation paper on amending its administration procedures to ensure that they are appropriate to deal with the expansion of the EEC.

6.6 The Government has announced its plans to extend the Renewables Obligation to 2015/16. During the year Government will carry out a review of the Renewables Obligation, the scope of which will shortly be agreed. Ofgem will also work with DTI on both of these and also on implementing any amendments agreed as part of the Energy Bill currently before Parliament.

6.7 During the year Ofgem will take forward several significant initiatives to improve consumer awareness of the environmental consequences of their energy use. The coming year will see the implementation of the EU fuel mix disclosure provisions, and also further Ofgem work on consumption information and on guidelines for green supply offerings. Ofgem will update the green supply guidelines to take account of recent developments in the renewables market, and seek to have these offerings independently accredited.

6.8 Ofgem will work to ensure that these consumer initiatives are coordinated and provide maximum benefits to consumers to assist choice and to improve the environment, and can be implemented by suppliers at least cost. It is also important to evaluate the effects of these initiatives.

6.9 Over the coming year Ofgem will monitor progress of the major pilot project in which suppliers are permitted to offer domestic consumers energy service packages linked to longer term supply contracts than are possible under the normal 28-day rule arrangements. In the longer term, Ofgem will evaluate its benefits, balancing the need for appropriate safeguards to consumers with the need to allow companies sufficient encouragement to offer energy services to the market.

6.10 More generally, Ofgem will explore the potential for improving the ease with which consumers can benefit from responding to prices, for example, by reducing their use of electricity during peak periods when prices are high. The potential for reducing losses from the electricity transmission and distribution networks through encouraging demand-side measures will also be further investigated.

6.11 Ofgem will continue to encourage the delivery of future environmental policy in ways that are compatible with competitive energy markets and effective regulation. It will encourage environmental improvements that secure benefits for present and future consumers.

6.12 Ofgem will continue to improve the environmental analysis that informs its own policy decisions, as well as the wider environmental debate within Government. In this, the panel of environmental economists will play an important role.

6.13 It will continue to advise Ministers on the design and implementation of economic instruments to meet environmental objectives, including the EU-ETS, but also possible future schemes for sulphur dioxide (SO_2) and oxides of nitrogen (NOx).

6.14 Ofgem will continue to participate in the development process as the allocation plan for the first phase of the EU-ETS is finalised and will also monitor the development of the allowance market and any impacts that this may have on the underlying energy markets.

7. The environmental context

7.1 As part of Ofgem's commitment to report annually on progress against the Environmental Action Plan a number of indicators were developed. These are used to help identify changes in the gas and electricity industries. The indicators are:

- emissions data – greenhouse gases, sulphur dioxide and oxides of nitrogen;
- renewables data – percentage of electricity generated from renewables and renewables capacity;
- Combined Heat and Power – electrical capacity; and
- radioactive waste – volume of wastes in stock.

JWGEE indicators sub-group

7.2 One of the JWGEE subgroups is charged with examining suitable indicators that can be used to monitor progress against the Government's environmental targets. Ofgem provided information on its indicators from the EAP annual reviews and these were fed into the work that the subgroup undertook. In addition Ofgem's indicators have been refined and now include indicators on:

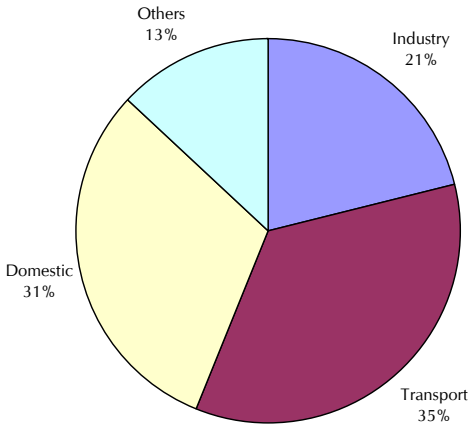
- radioactive waste, and
- historical CO_2 emissions from power stations.

7.3 Throughout most of the data a baseline of 1990 is used. This is consistent with baselines used in Government targets to reduce CO_2 emissions by 20% on 1990 levels by 2010 and to reduce greenhouse gas emissions by 12.5% on 1990 levels.

Final energy use

7.4 Chart 5 shows final energy use in the UK by sector. This chart covers 2002 and shows results that are similar to 2001 in that transport remains the largest user of energy at 35%, up by 1%, with domestic energy use the second largest on 31%.

Chart 5 - Final energy consumption by sector 2002



Source: DTI

Electricity and gas industries' contribution to emissions

7.5 Table 5 and chart 6 (below) show data on the electricity and gas industries' contribution to the UK's greenhouse gas emissions. Emissions from the electricity sector are from generation (CO_2 and nitrous oxide (N_2O)) and sulphur hexafluoride from distribution and transmission equipment. CO_2 is the main emission from generation with others being relatively minor.

7.6 Emissions from the onshore gas industry are through gas end use (CO_2) and pipeline leakage (CH_4). Ofgem has no remit over the offshore gas industry; therefore emissions from this sector have not been included. Data on HFCs and PFCs have been included for completeness, though neither the gas or electricity sectors emit these greenhouse gases. Data for all greenhouse gases have been converted into tonnes of carbon equivalent (tC) using global warming potentials[15].

[15] Global Warming Potential is a method to compare the relative effects of different greenhouse gases. For example, methane is 21 times more potent than carbon dioxide over a 100 year time horizon.

7.7 In table 5 the first main column shows data for 2001 and the second for the baseline year of 1990. Figures are for emissions from the gas and electricity sectors and as a proportion of total national emissions. Data relating to 2001 is used as more recent data is not available to this level of disaggregation. The table shows that CO_2 emissions from power stations have increased for a second year running, in line with expectations due to an increase in the use of coal generation. Electricity generation and gas end use accounted for 51.7% of all carbon dioxide emissions in 2001.

7.8 Methane is a significant greenhouse gas with a global warming potential of 21. Emissions of methane from the gas industry arise from pipeline emissions, primarily from the low pressure system. Pipeline leakage increased by less than 0.1 MtC between 2000 and 2001. However, because of an overall decrease in methane emissions nationally, leakage accounted for approximately 16% of UK methane emissions, an increase of 2%. More significant sources of methane are the waste and agricultural industries and coal mining.

7.9 Emissions of N_2O from electricity generation between 2000 and 2001 increased slightly by 0.02MtC. This raised the proportion of emissions from the gas and electricity industries by about a quarter of one percent bringing it to just over 5%. This small proportion is overshadowed by emissions from agriculture and industrial processes.

7.10 Sulphur hexafluoride is one of the most potent greenhouse gases and is widely used in transmission and distribution equipment. There was an overall increase in SF_6 emissions between 2000 and 2001. This is further reflected in the increase in the contribution from the electricity industry to 42% or 0.2 MtC.

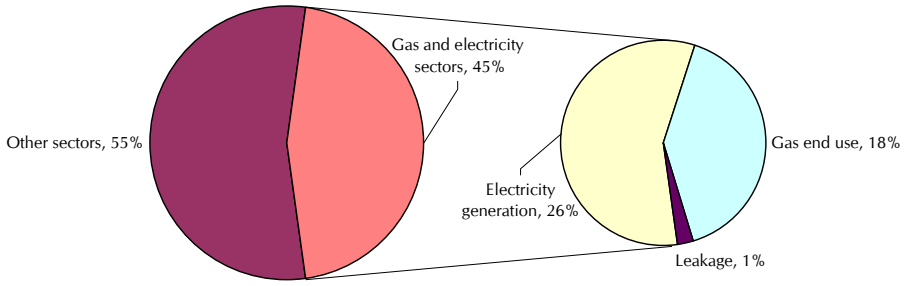
7.11 There are no significant emissions of HFCs or PFCs linked to the gas and electricity industries.

Table 5 Emissions from the gas and electricity sectors 1990 and 2001

	2001				1990			
	Ofgem regulated industries		National emissions	% of national	Ofgem regulated industries		National emissions	% of national
	Sub totals	Total			Sub totals	Total		
Carbon dioxide (CO_2)								
Electricity generation								
Coal	30.11				49.52			
Gas	15.66				0.20			
Oil and other[1]	1.30				5.48			
Gas end use[2]								
Domestic	19.65				15.57			
Industrial	9.47				7.96			
Other[3]	4.39				4.55			
CO_2 total		80.58	155.8	51.7%		83.28	164.6	50.1%
Methane (CH_4)								
Gas losses	1.96				2.28			
CH_4 total		1.96	12.6	15.6%		2.28	21.0	10.9%
Nitrous oxide (N_2O)								
Electricity generation	0.59				0.47			
Gas end use	0.02				0.50			
N_2O total[4]		0.61	11.6	5.25%		0.97	18.5	5.2%
Sulphur hexafluoride[5] (SF_6)		0.20	0.48	41.9%[6]		0.03	0.30	10%
Hydrofluorocarbons (HFC)	0	0	2.65	0%		0	3.10	0%
Perfluorocarbons (PFC)	0	0	0.12	0%		0	0.38	0%
Totals		**83.35**	**183.25**	**45.5%**		**86.56**	**207.9**	**41.6%**

Sources: DUKES, National Atmospheric Emissions Inventory, Digest of Environmental Statistics
1 Includes MSW, scrap tyres and sour gas
2 Excludes electricity generation, oil and gas extraction and non-energy use and losses
3 Includes commercial, agriculture and public administration
4 Includes emissions from combustion of natural gas, domestic, industrial, power stations, railways and all emissions from power stations
5 Source: NAEI
6 This percentage is based on estimates of actual emissions
All Figures MtC unless stated

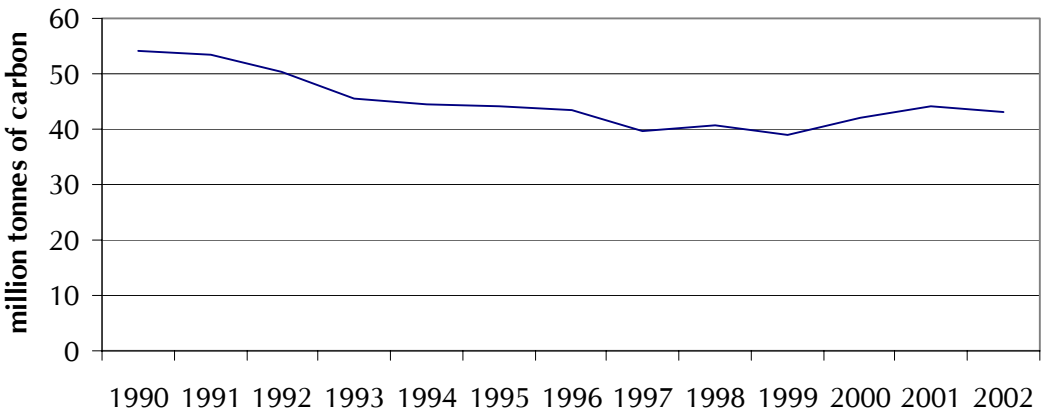
Chart 6 - Greenhouse gas emission from the gas and electricity sectors 2001



Source: NAEI, Digest of Environment Statistics, DUKES
Leakage comprises CH_4 emissions from the gas distribution system and SF_6 from the electricity transmission and distribution systems

7.12 Chart 7 below shows CO_2 emissions from power stations from 1990 to 2002. This clearly shows an overall negative trend with a recent rise in emissions from 2000 reflecting the increase in coal generation noted previously.

Chart 7 - CO_2 emissions from power stations 1990 - 2002



Source: Digest of Environmental Statistics

Air quality

7.13 Table 6 below shows emissions figures for the major air quality pollutants, SO_2 and NOx, from electricity generation and the end use of gas in the UK compared with total national emissions.

7.14 It shows that the proportion of NOx emitted from electricity generation increased by 14 kt while emissions from gas end use fell by 5 kt. Overall this shows as a 2% increase in NOx emissions from the combined gas and electricity sectors. The other major emitters of NOx are industry, agriculture and road transport.

7.15 Emissions of SO_2 from the gas and electricity sectors fell by 79 kt between 2000 and 2001 bringing the percentage of national SO_2 emission from the gas and electricity sectors down to 67%.

Table 6 emissions of NOx and SO_2 2001

	National emissions in kilotonnes (kt)	**Gas and electricity sectors (all figures in kt)**			**% of national emissions from gas and electricity sectors**
		Generation	**Gas end use**	**Total**	
NOx	1647	379	144	523	32%
SO_2	1115	742	0	742	67%

Source: National Atmospheric Emissions Inventory
NOx is shown as equivalent tonnes of NO2

7.16 Charts 8 to 10 show the historical trend of both NOx and SO_2 emissions from power stations between 1990 and 2002. It reveals the large reduction of SO_2 emissions over the last 12 years. During the same period emissions of NOx have gradually decreased and in the last 5 years have stayed fairly constant but with a slight rise in recent years.

Chart 8 - SO_2 power station emissions as a proportion of national SO_2 emissions 1990 - 2002

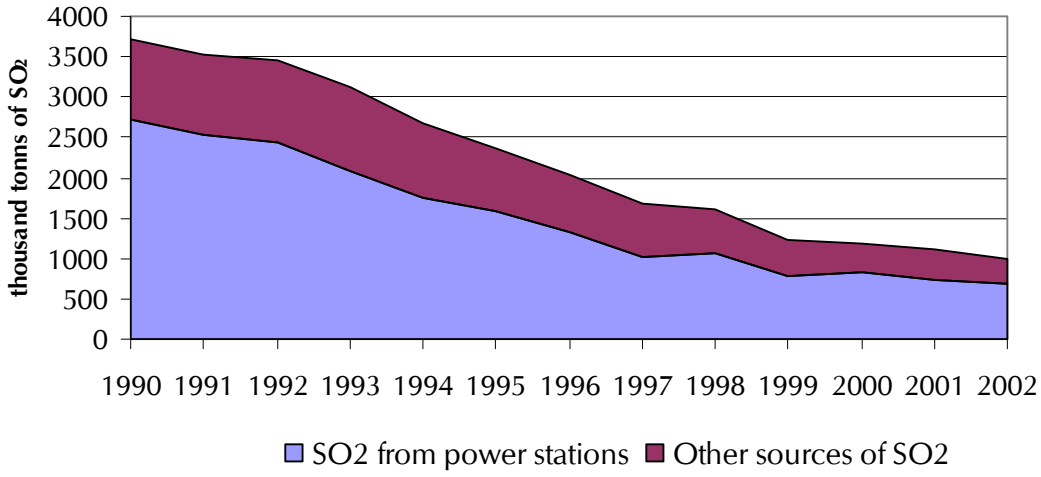


Chart 9 - NOx from power stations as a proportion of national NOx emissions 1990 - 2002

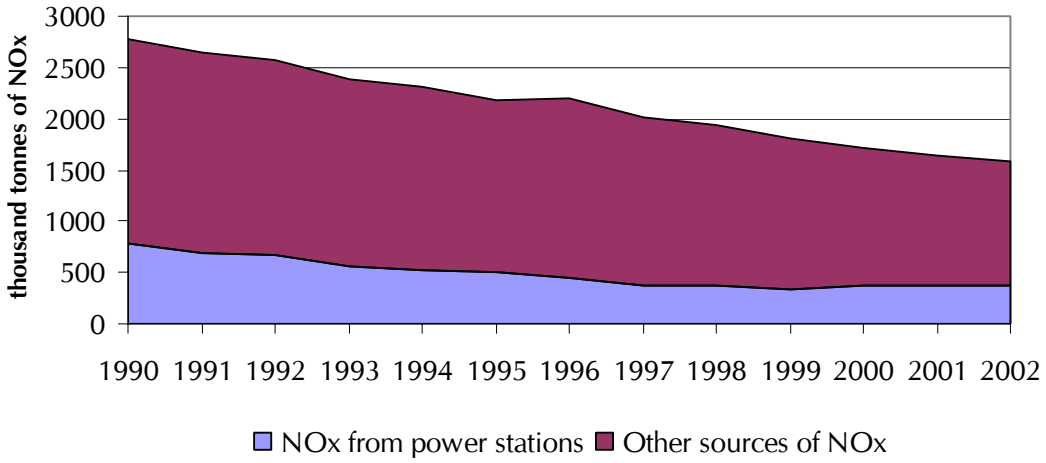
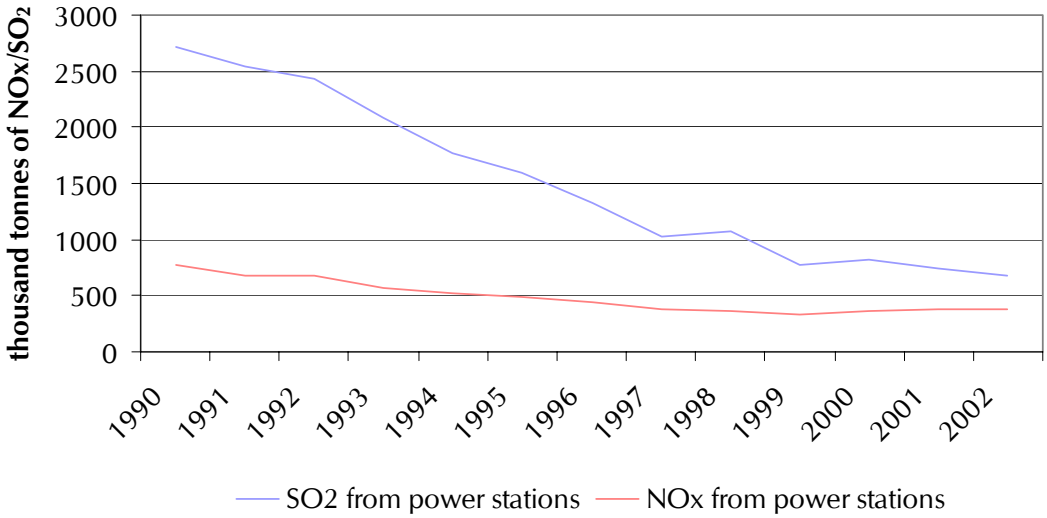


Chart 10 - NOx and SO_2 emissions from power stations 1990 - 2002



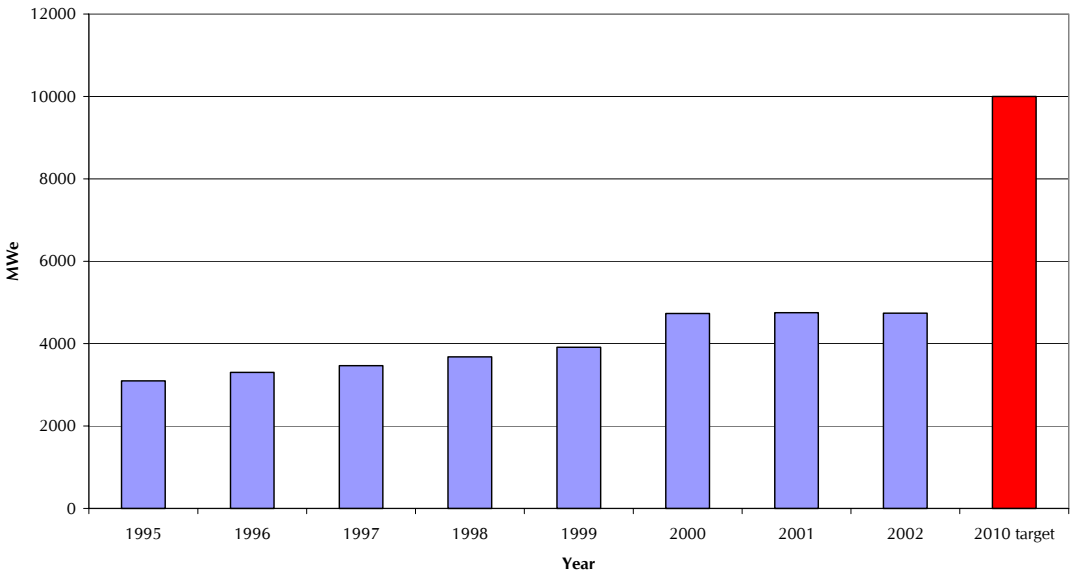
Source: Digest of Environmental Statistics

Combined Heat and Power

7.17 The Government has established a number of fiscal and regulatory measures designed to encourage CHP in light of adverse economic and market conditions faced by the UK CHP industry. These include Climate Change Levy exemption for 'good quality' CHP, eligibility for enhanced capital allowances and a grant support scheme which has been extended until 2005.

7.18 Chart 11 below shows the historical trend of CHP electrical capacity in the UK and also the Government's 10,000 MWe target for 2010 (shown in red). During 2002 CHP capacity fell by 11 MWe due to the difficult market conditions reversing the trend over the last decade.

Chart 11 - CHP capacity 1995 - 2002 (inc. 2010 target)



7.19 In 2003 Defra commissioned Cambridge Econometrics to update and re-run their CHP model. This gave a central projection of around 8,500 MWe of good quality CHP by 2010 (including any addition as a result of the EU Emissions Trading Scheme).

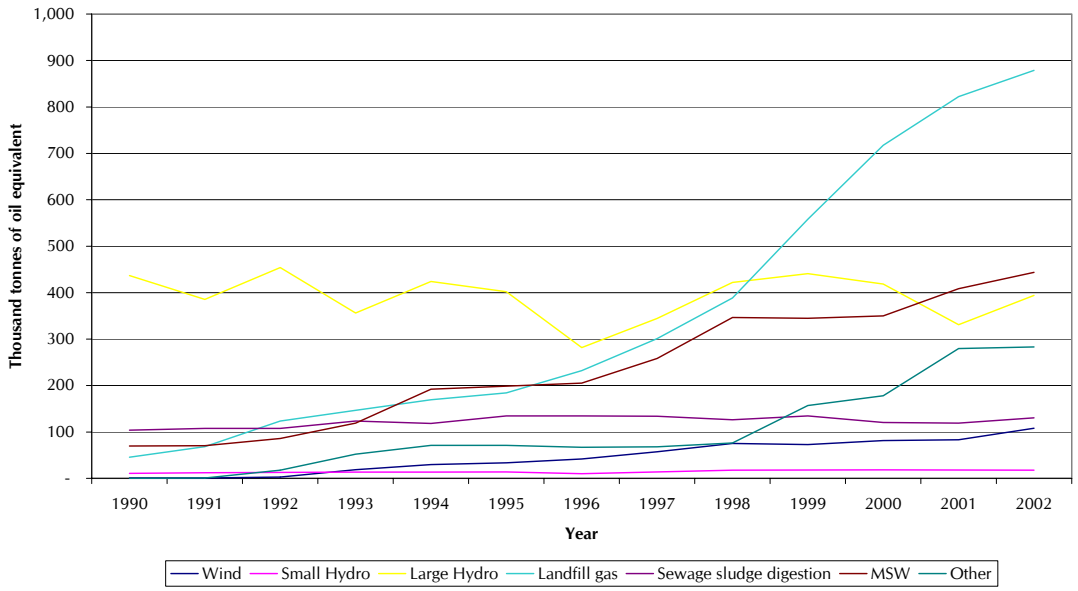
7.20 Further information on Combined Heat and Power can be found in Defra's recently published CHP strategy[16].

Renewables

7.21 Chart 12 shows the proportion of renewables sources used to generate electricity from 1990 to 2002. Total electricity generation from renewables in 2002 was 11,444 GWh of which 40% was from large-scale hydro generation. As shown on the chart, large-scale hydro generation was 19% higher than the low levels of 2001. As a result renewables provided just under 3% of electricity generated in the UK which is 0.3% higher than 2001.

[16] *The Government's strategy for Combined Heat and Power to 2010* Defra 2004

Chart 12 - Renewable sources used to generate electricity 1990 - 2002



Source: Digest of UK Energy Statistics 2003

Radioactive waste

7.22 The United Kingdom Radioactive Waste Inventory reported in April 2001 that there was an estimated 92,000 m^3 of radioactive stock in the UK. Table 7 shows the breakdown between the different levels of radioactivity of the waste by high- medium- and low-level waste. More than 95% of the UK's radioactive waste comes from 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.

7.23 The Radioactive Waste Inventory is published every 4 years. The next edition will be published in 2005 and data from the report will be included in the next EAP annual review.

Table 7 Volume of radioactive wastes in stock, 1 April 2001 (Source: NIREX)

	Cubic metres
Low-level waste	14,729
Intermediate-level waste	75,413
High-level waste	1,961
Total	92,102

Appendix 1 – Environmental Advisory Group members

Chaired by Sir John Mogg – Gas and Electricity Markets Authority

Dr Robin Bidwell – non-executive member of the Gas and Electricity Markets Authority

Juliet Davenport – Good Energy

Neil Davies – Environment Agency

Henry Derwent – Defra

Andy Duff – RWE npower

Professor Paul Ekins – University of Keele and Policy Studies Institute

Rupert Fraser – Fibrowatt

Dr Paul Jefferiss – Royal Society for the Protection of Birds

Dr Eion Lees – Eion Lees Energy

Joan MacNaughton – DTI

Ian Marchant – Scottish and Southern Energy

Jeremy Nicholson – Energy Intensive Users' Group

John Roberts – United Utilities

Bryony Worthington – Friends of the Earth

Philip Wright – Scottish Executive