

NEW & RENEWABLE ENERGY

Prospects for the 21st Century

The Renewables Obligation Statutory Consultation

dti

Department of Trade and Industry

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Foreword

by Patricia Hewitt,
Secretary of State for
Trade and Industry



I am acutely aware of the growing importance of renewable energy in this country. I see the development of renewables as a vital part of the wider sustainability agenda with major benefits, both nationally and internationally.

We are now looking to accelerate the development of renewables – and in a wide range of sources and technologies. Our target for the Obligation is that 10% of licensed electricity supplies will be generated from eligible renewable sources by 2010. This is a very challenging target but one we are determined to see met. It is intended to act as a stimulus to industry and to provide a milestone for monitoring progress.

To help industry deliver the target, we are putting in place a raft of measures, of which the most important is the Renewables Obligation, which is the subject of this statutory consultation. The Renewables Obligation will provide the impetus for the new generating capacity to be developed that will be required to meet our current target and as a basis for further reductions in carbon dioxide emissions. Other measures include:

- the exemption of renewables electricity from the Climate Change Levy;
- a package of direct financial support worth over £260 million over the next few years;
- freedom for most existing Non-Fossil Fuel Obligation (NFFO) projects to move location to overcome planning difficulties; and
- a regional approach to planning and targets for renewable energy.

Because the Renewables Obligation is the single most important measure we are taking and a policy for the long term, it is vital that we get the detail right. We have taken on board many of the views expressed in response to our earlier consultation on the Obligation.

I was greatly encouraged by the positive reception that our preliminary proposals received and welcome the growing enthusiasm of industry to rise to the challenge set before us. I detect a real sense of renewable energy shifting up a gear, making the transition from the fringes of the environmental scene into the heart of the energy and sustainable development policy.

Whilst our target is ambitious, it is not an end in itself. I do not want to see renewables stop at 10%. I want to see a strong, world-beating industry develop in the UK and make an increasing contribution to energy supply beyond 2010. I welcome your comments on our detailed proposals.

A handwritten signature in black ink, appearing to read 'Patricia Hewitt'. The signature is fluid and cursive, with a large loop at the end.

Patricia Hewitt

Secretary of State for Trade and Industry



Executive Summary

The aim of government policy for renewable energy is that it should make an increasing contribution to UK energy supplies in the years to 2010 and, more importantly, beyond. To this end, the Government took powers through the Utilities Act 2000 to impose an obligation on licensed suppliers in Great Britain to source specified amounts of electricity from renewable sources. This consultation paper addresses the Government's proposals for an obligation upon electricity suppliers in England and Wales (the Renewables Obligation, or RO). The Scottish Executive will be publishing a consultation on similar proposals for an obligation on electricity suppliers in Scotland (the Renewables Obligation Scotland, or ROS). Together these two obligations are referred to as "the Obligation" in this document.

The Government's preliminary proposals for the RO were published in October 2000¹. Over 200 responses were received and these have been taken into account in preparing the detailed proposals presented here. State Aid clearance on these proposals is currently being sought from the European Commission. Following this statutory consultation, the Government intends to lay an Order before Parliament to implement its final proposals.

Comments are invited from the wider community, as well as the statutory consultees, on these detailed proposals. Responses should be made by 12 October 2001, ideally by e-mail, and a series of meetings to discuss the proposals with key stakeholders will be held in September. All written responses will be published on the DTI website unless marked 'Confidential'.

The RO will place an obligation on all licensed electricity suppliers in England & Wales to source a growing percentage of their total sales from eligible renewable sources. Most sources of renewable energy will be eligible, although existing large hydroelectric stations (over 20MW) will be excluded. Energy recovery from the incineration of waste, unless it is biomass such as forestry material, will also be excluded. Energy recovery from the non-fossil element of mixed wastes will only be eligible when advanced technologies such as pyrolysis and gasification are used.

Compliance with the RO will be demonstrated by presenting Renewables Obligation Certificates (ROCs) to the Gas and Electricity Markets Authority, Ofgem, in respect of year-long periods. These certificates will be issued to accredited generators for eligible renewable electricity generated within the UK, its territorial waters and Continental Shelf, and supplied to customers in Great Britain.

As an alternative to supplying renewable energy, suppliers may fulfil part or all of their obligation by paying a buyout price to Ofgem, which will be set at £30/MWh

until 1 April 2003 and thereafter be adjusted in line with the retail price index (RPI). The proceeds will be returned to suppliers by Ofgem, in proportion to the number of ROCs that each supplier presents to discharge its obligation. This will provide a strong financial incentive to fulfil the RO through presenting ROCs, rather than buying out. Subject to specified limits, suppliers will be able to bank ROCs for use in the period after they are issued, but we do not propose to allow any borrowing from future periods or banking for longer timescales.

We propose that the obligation on each supplier will rise from 3% of sales in the first obligation period (ending on 31 March 2003) to 10.4% of sales in the year ending 31 March 2011. It is proposed that the Obligation will then remain at least constant at 10.4% of sales until 31 March 2027, but may well be increased to meet more ambitious targets for renewables beyond 2010. This will provide long-term stability for the renewables market and the Government has no plans to reduce the level of the Obligation once in force. As the effects of climate change continue to be felt, the need for carbon dioxide emissions reduction is likely to increase. The Obligation will

¹ Department of Trade and Industry (2000). *New & Renewable Energy – Prospects for the 21st Century: The Renewables Obligation Preliminary Consultation*. London: DTI.

therefore be reviewed in the light of performance, new policy developments, and the best scientific advice at the time, which may well lead to an increased Obligation in the future and we will need to take account of developments in Europe.

The Obligation will increase the cost of electricity to consumers in Great Britain by around 0.5% each year until 2010, a total increase of a little under 5%, equal to about £780 million by 2010/11. We believe that this is a price worth paying to address the problem of climate change and represents good value for money at around £310/tonne of carbon, in reducing the UK's carbon dioxide emissions. It is anticipated that the RO will start the month after the Order is made.

The Obligation should be seen as part of the UK's Climate Change Programme and as part of a wider programme to support and develop the renewable energy sector. Exemption from the Climate Change Levy will provide a further incentive for the uptake of renewable generation. The Government also continues to invest in renewables research and development, both through the Research Councils and through DTI's own research and development programme.

In addition, a programme of capital grants worth £39 million for offshore wind has been announced by DTI. A further £10 million is being made available to fund the launch of a major market stimulation programme for solar photovoltaics, aimed at matching the major solar roofs programmes of our competitors, whilst establishment grants for energy crops will be available from DEFRA. The New Opportunities Fund will also make available £50 million for offshore wind, energy crops and small-scale biomass heat projects, while in March, the Prime Minister announced a further £100 million of support for renewables. This will be allocated following a Cabinet Office Performance and Innovation Unit's report on renewable energy due shortly. In total, over £260 million has been committed over the next few years to develop the UK's renewable energy resources. The Obligation will create a strong and growing demand, worth over £1 billion by 2010, for renewable energy.

The consultation pack includes a draft Order for the RO. Comments on both the policy proposals set out in this document and the extent to which the Order delivers those policy objectives, and suggestions for improvement, are invited. Comments on the draft Regulatory Impact Assessment at Annex A are also invited.

More details on the other renewables policy instruments can be found at Annex B. Ofgem has been developing its procedures for implementing the Renewables Obligation and will publish a consultation covering its intended procedures on its website www.ofgem.gov.uk shortly. Responses to specific issues raised in the Preliminary Consultation that do not relate directly to the Order are presented at Annex C.

Section

1

Introduction

1.1 The Utilities Act 2000 made provision for an obligation to be placed on licensed electricity suppliers to supply specified amounts of electricity generated from renewable sources. A preliminary consultation was published in October 2000 containing proposals about how such an obligation would be implemented in England and Wales. The response to that consultation document was very encouraging, with over 200 responses being received from a wide range of interests – from the electricity supply businesses, renewable energy generators, professional and environmental organisations and private individuals. We have carefully considered the issues raised in that consultation exercise, and this document lays out our response and our detailed proposals for the Renewables Obligation (RO) in England and Wales. A summary of the responses to the preliminary

consultation has been published and is available from the DTI Publications orderline on 0870 150 2500 or on the internet at <http://www.dti.gov.uk/renewable/response.pdf>

Responses to this Consultation

1.2 The Utilities Act requires us to consult, before the Order is made, with certain bodies, the statutory consultees, – the Gas and Electricity Markets Authority, the Gas and Electricity Consumer Council, electricity suppliers to whom it would apply and generators of electricity from renewable sources. We would also welcome comments on these detailed proposals from other interested parties. **Views are sought on the policy proposals in this document, on the attached Regulatory Impact Assessment and on the draft Order. Key policy issues and changes made following the preliminary consultation are summarised in paragraph 1.15.**

1.3 Responses to this statutory consultation must be received by 12 October 2001, ideally by email to RO.consultation@dti.gsi.gov.uk or by post to:

Dr Marilyn Booth,
Sustainable Energy Policy Unit
Department of Trade and Industry,
Room 1116, 1 Victoria Street,
London SW1H 0ET

Please include a name and postal address with any email responses. This document can also be found on the DTI website at <http://www.dti.gov.uk/consultations/>

1.4 We will publish all the written responses to this consultation that we receive, along with a summary, on the Internet in due course, so any responses not for publication must be marked ‘Confidential’. In addition, we intend to hold a series of meetings with the key stakeholders in September. Invitations will be sent to previous respondents nearer the time and details will be published on the DTI website. Any enquiries about these meetings, or this consultation should be directed to the email address above.

1.5 The Scottish Executive will be publishing a statutory consultation on proposals for a similar obligation on licensed suppliers in Scotland shortly.

Renewable Energy

1.6 Renewable energy, at its most basic level, can be thought of as energy that occurs naturally and repeatedly in the environment. The basic definition of “renewable sources” in the Utilities Act 2000 is “sources of energy other than fossil fuel or nuclear fuel...”. Such sources are continuously available, offering potential to help the UK achieve its aims in terms of sustainability of energy supplies. World-wide energy demand continues to increase (currently at a rate of 2% per annum), while the availability of fossil fuel is expected to decline in the longer term and concerns over the potential impact of global warming continue to grow. The sustainability of energy supply can therefore be expected to continue rising up the social, economic and political agenda in the years to come.

1.7 As the above definition makes clear, renewable energy can include energy generated from:

- biofuels (e.g. all types of biomass, including the biodegradable fraction of energy from waste, landfill gas, sewage gas, agricultural and forestry residues, and energy crops);
- onshore and offshore wind;
- water (hydro power, wave power and tidal energy);
- solar energy (both active and passive solar heating as well as photovoltaics); and
- geothermal energy.

1.8 Renewables have a key role to play in the Government's wider Climate Change programme: these sources generally produce low or negligible levels of pollutants (e.g. greenhouse gases) and by displacing conventional sources of energy they can help the UK to meet its climate change targets. Sourcing 10% of UK electricity from renewable sources could result in an annual saving of around 2.5 million tonnes of carbon emissions in 2010². The recent report by the Royal Commission on Environmental Pollution³ confirms that renewables will play a key role in future greenhouse gas abatement and that increasing the uptake of renewables has to be a non-negotiable element of future energy use.

Government Policy on New and Renewable Energy

1.9 The Government wants to promote a climate of innovation and to develop the competitive potential of the renewables industry both at home and abroad. The Government's broad policy for new and renewable energy was published as *New & Renewable Energy: Prospects for the 21st Century: Conclusions in Response to the Public Consultation in February 2000*⁴.

Policy Aims

1.10 The Government's renewable energy policy has five key aims:

- to assist the UK to meet national and international targets for the reduction of emissions including greenhouse gases;
- to help provide secure, diverse, sustainable and competitive energy supplies;
- to stimulate the development of new technologies necessary to provide the basis for continuing growth of the contribution from renewables into the longer term;
- to assist the UK renewables industry to become competitive in home and export markets and in doing so provide employment; and
- to make a contribution to rural development.

Targets

1.11 At the end of 1999, renewable energy sources represented 2.8% of total electricity generated in the United Kingdom⁵. This is expected to rise towards 5% as new capacity built under the Non-Fossil Fuel Obligations (NFFO) in England and Wales and the Scottish Renewable Obligations (SRO) is commissioned.

1.12 The Government's target for the Obligation is for electricity from eligible renewable sources to make up 10% of sales from licensed suppliers by 2010, subject to the cost to the consumer being acceptable. This represents a substantial increase in the use of renewables, with the total Obligation in Great Britain rising to around 34TWh/yr in 2010. Renewable energy projects can take up to 6 years from inception through to commissioning. Consequently, it will be in the interests of suppliers and generators to be forward thinking and to recognise the long lead times of many of the renewable resources they will need to deploy.

Policy Instruments

1.13 In the past, the Government's principal renewables policy instrument has been the Non-Fossil Fuel Obligation (NFFO), the analogous Scottish Renewable Obligation (SRO) and Northern Ireland Non-Fossil Fuel Obligation (NI-NFFO) arrangements, which have succeeded in creating an initial market for renewables. The RO moves away from the NFFO approach and reflects the Government's belief that the way forward is to create the market conditions for a thriving, dynamically competitive renewables industry. There will be no further NFFO orders. Instead, all licensed electricity suppliers in England and Wales will be subject to the RO, and in Scotland to the Renewables Obligation Scotland (ROS). The Northern Ireland Assembly is considering how best to further promote the uptake of renewables in Northern Ireland.

1.14 The new Obligation is one of a series of measures to promote the development of renewables. Other policy strands include:

- exemption of renewables electricity from the Climate Change Levy;

² Department of the Environment, Transport and the Regions (2000). *Climate Change: Draft UK Programme*. London: DETR.

³ Royal Commission on Environmental Pollution (2000). *Energy – The Changing Climate*. London: RCEP <http://www.rcep.org.uk/newenergy.html>

⁴ Department of Trade and Industry (2000). *New & Renewable Energy – Prospects for the 21st Century: Conclusions in Response to the Public Consultation*. London: DTI.

⁵ Department of Trade and Industry (2000). *Digest of United Kingdom Energy Statistics, 2000*. London: The Stationery Office.

- a supporting programme of research, development and technology transfer, with assistance to overcome non-technical barriers to deployment;
- development of regional strategies for renewable energy, with regional targets based on resource assessments, and a review of planning arrangements;
- capital grants for longer term technologies including offshore wind and energy crop projects;
- a fund of £100 million, announced by the Prime Minister in March 2001 to stimulate the development of renewables;
- locational flexibility for most NFFO projects, where planning difficulties have been encountered;
- a major photovoltaic roofs market stimulation programme, aimed, in time, at matching those of Germany and Japan; and
- the Performance and Innovation Unit is currently examining the options for meeting our long-term energy objectives, including the role that renewables will play as part of a wider-ranging Energy Review.

Policy instruments for promoting renewables are further discussed in Annex B.

Summary of Policy Issues and Changes

1.15 Key points are summarised below.

For full details, please consult the relevant sections of this document and the draft Order.

- The RO will come into force on the first day of the month following the Order being made (paragraph 2.1).
- The Obligation will apply to all licensed suppliers and will be a percentage of all sales (including CHP) (paragraph 2.32).
- The level of the Obligation has been revised to take account of other changes to the RO & ROS (paragraphs 2.32 to 2.34).
- Electricity generated from renewable sources outside of the United Kingdom, its territorial waters and Continental Shelf will not be eligible (paragraph 2.11).
- Electricity generated from the fossil-derived content of energy from waste will not be eligible for the RO and will not be counted towards the renewable energy target (paragraph 2.32).
- Electricity from the incineration of mixed wastes continues to be ineligible (paragraph 2.22).

- Electricity generated from the non-fossil fraction of waste using advanced conversion technologies (such as pyrolysis, gasification and anaerobic digestion) will be eligible (paragraph 2.21).
- Electricity generated from biomass sources (whether energy crops or waste in origin) will be eligible (paragraph 2.20).
- Electricity generated by stations commissioned on or after 1 January 1990 will be eligible. Stations operational prior to that date will not be eligible, unless re-equipped since that date (with the exception of hydro stations with a declared net capacity of 1.25MW or less, and co-firing stations) (paragraph 2.8).
- Electricity generated by hydroelectric stations with a capacity greater than 20MW and first commissioned after the date the Order is made will be eligible (paragraph 2.17).
- The use of up to 10% fossil fuel is allowed for specified purposes, but the energy derived from the fossil fuel will not be eligible (paragraph 2.23).
- Co-firing – using fossil fuels alongside biomass – is allowed until 31 March 2011 as a transitional step towards the more extensive use of energy crops, but may only fulfil up to 25% of a supplier's

obligation (paragraphs 2.25 & 2.26).

After 31 March 2006, at least 75% of the energy from the biomass in a co-firing station must come from energy crops.

- The buyout price has been set at £30/MWh for all eligible technologies, and will be adjusted each year, following the retail price index (paragraph 2.38);
- Each Renewables Obligation Certificate will represent 1MWh of eligible generation.
- Up to 25% of a supplier's obligation may be met by ROCs awarded in the previous period – banking (paragraph 2.40).
- No borrowing – bringing forward ROCs from future periods – will be permitted (paragraph 2.41).
- The proceeds of buying out for each Obligation period will be returned to all licensed suppliers in proportion to the number of ROCs they present (paragraph 2.39).
- The maximum cost to consumers of the Obligation will be £779 million in 2010/11.
- State Aid clearance for these proposals is currently being sought from the European Commission (paragraph 2.43).

1.16 The principal eligible renewables are summarised in the following table:

Table A: Sources of Energy Eligible for the Renewables Obligation

Source	Eligibility
Landfill gas	✓
Sewage gas	✓
Energy from waste	Only non-fossil derived energy will be eligible. Energy from incinerating mixed waste will not be eligible. Energy from the non-fossil derived element of mixed waste using advanced technologies will be eligible.
Hydro exceeding 20MW declared net capacity (dnc)	Only stations commissioned after the date the Order is made.
Hydro 20MW or less dnc	✓
Onshore wind	✓
Offshore wind	✓
Co-firing of biomass	Eligible until 31 March 2011 for up to 25% of a supplier's obligation. At least 75% of biomass fuel to be energy crops from 1 April 2006.
Other biomass, e.g. agricultural and forestry residues	✓
Geothermal power	✓
Tidal & tidal stream power	✓
Wave power	✓
Photovoltaics	✓
Energy crops	✓

Only stations first commissioned or re-equipped on or after 1 January 1990 (except microhydro and co-firing stations), and stations located within the United Kingdom, its territorial waters and

Continental Shelf will be eligible for the Obligation. Electricity sold under a NFFO contract and electricity generated from peat will not be eligible.

Timetable

1.17 The Government proposes that the RO will come into force on the first day of the month immediately following approval of the Order by Parliament, and that the first period should last until 31 March 2003. Following the close of the Statutory Consultation on 12 October, the responses will be considered and any necessary amendments made to the draft Order. It is then hoped to lay the Order before Parliament in the autumn in time for the Order to come into effect from 1 January 2002, subject to State Aid approval (see paragraph 2.43). The Order will require approval by both Houses of Parliament before coming into effect.



Section
2

The Renewables Obligation

Implementation Date and Duration

2.1 Due to the early dissolution of Parliament, it will not be possible to lay the Renewables Obligation Order before Parliament until the autumn session, which is expected to commence in October 2001. We hope that the Order will be able to complete the Parliamentary process before Christmas. We propose that the Order will come into effect and the first Obligation period begin at the beginning of the first month following its approval by Parliament, possibly 1 January 2002.

2.2 Other than the first period, which will run until 31 March 2003, Obligation periods will be a year long, from 1 April to 31 March. The final Obligation period will end on 31 March 2027.

The Government's Role

2.3 The Government is committed to the Obligation in order to stimulate investment in renewable energy generating capacity.

2.4 In order to give the necessary confidence for investment, we want to assure the renewables industry that, once the Obligation is in place, the Government has no plans to:

- lower the buyout price during the time that this initial Obligation remains in force;
- reduce the scale of this initial Obligation;
- curtail the duration of the Obligation.

2.5 It must be noted, however, that each Parliament remains sovereign and may repeal or amend legislation. The Obligation will also be subject to any changes in UK law brought about to comply with European Union Directives, or any changes required to

obtain or maintain State Aid clearance. A Directive on Renewable Energy is currently under consideration and is expected to be adopted later this year. Every effort has, however, been made to ensure that these proposals are compatible with the draft Directive.

The Role of Ofgem

2.6 Ofgem will be responsible for monitoring and enforcing compliance with the Obligation following its introduction. It will perform a similar role in respect of the ROS. This is likely to include a number of functions:

- accrediting generators;
- issuing Renewables Obligation Certificates (ROCs);
- assessing compliance;
- monitoring implementation;
- calculating the buyout price;
- receiving and recycling buyout funds; and
- reporting annually to the Secretary of State or, in the case of the ROS, the First Minister, on compliance with the Obligation.

2.7 Ofgem has been developing its procedures for implementing the Obligation and will publish, on its website, a consultation covering its intended procedures shortly. These procedures will indicate how Ofgem intends to fulfil its functions described above. These procedures will include the accreditation of generators, the issue of ROCs, evidence requirements to demonstrate compliance, the requirements in order to effect buyout recycling and the processing of any disputes. Paragraphs 2.30 to 2.41 summarise how DTI and Ofgem anticipate the process will work.

Eligibility

Existing Generating Stations

2.8 We propose to exclude existing generating stations from the Obligation, unless built or refurbished on or after 1 January 1990, with the exception of co-fired stations (as described in paragraph 2.25) and micro-hydro stations (as described in paragraph 2.17). Refurbishment is defined as the replacement of all specified (in the Order) major components.

Generating Stations Built With Support Under Non-Fossil Fuel Obligation (NFFO) Arrangements

2.9 Electricity from generating stations built under the NFFO arrangements in England and Wales (NFFO 1-5) or in Scotland (SRO) will be eligible for the Obligation, to the extent that it meets the requirements of the RO. Where output continues to be sold under a NFFO contract, it will be sold into the market by the Non-Fossil Purchasing Agency (NFPA) and the benefit of the RO will be used to offset the cost of these contracts to consumers through the Fossil Fuel Levy. We expect that similar arrangements will apply to stations contracted under the SRO.

2.10 Electricity generated subject to a Qualifying Arrangement under the Northern Ireland Non-Fossil Fuel Obligation (NI-NFFO) will not be eligible for the Obligation.

Location of Generating Stations

2.11 To be eligible, the electricity must be physically supplied to customers in Great Britain. ROCs issued in respect of electricity supplied to customers in Great Britain, whether in Scotland or in England and Wales, will be eligible for the Obligation in

England and Wales. We anticipate that similar arrangements will apply to electricity supplied to customers in England and Wales under the ROS.

2.12 Subject to paragraph 2.10, electricity generated from eligible renewable sources in Northern Ireland will be eligible to discharge a supplier's obligation in England and Wales once a physical link has been commissioned that enables electricity generated in Northern Ireland to be supplied to customers in Great Britain.

2.13 In order to be eligible for the RO, electricity from an eligible renewable source must be generated in the UK or its territorial waters, or within the UK Continental Shelf. For generators sited in Northern Ireland, and offshore generators connected to the transmission and distribution system in Northern Ireland, additional evidence of physical supply across the interconnector will be required. Offshore generators must be connected to the transmission and distribution system in the UK and may not be connected to such systems elsewhere.

2.14 The Government has, however, undertaken to the European Commission that should another Member State of the EU introduce a similar obligation, then it will amend the Obligation in Great Britain to recognise certificates of supply to customers in Great Britain from that Member State. This would require a further Order to be made, amending the current proposals and there would be a separate consultation on any such proposals.

Generators' Own Use

2.15 Electricity used in the operating of a generating station will be deducted from the eligible output.

Onsite Electricity Use

2.16 Electricity from otherwise eligible sources can only qualify for the RO if it is supplied by a licensed supplier to customers in Great Britain. Electricity generated and supplied by companies to their own premises would not, therefore, normally be eligible. Some companies may, however, choose to enter into arrangements to sell their generation to a licensed supplier and buy a similar quantity of electricity back. Such sales to the supplier, if of eligible

renewables and supplied to a customer in Great Britain, would qualify for the RO.

Hydro

2.17 The majority of responses to the preliminary consultation supported the exclusion of large hydro stations, which were constructed under public ownership. However, concern was expressed by the industry over the age of current stations and the need to refurbish them, and there has also been concern that some potential new developments could not proceed without support. We, therefore, propose to exclude existing stations with a declared net capacity (DNC) of over 20MW from the Obligation, but to include any stations first commissioned after the date of the Order is made, regardless of capacity. We believe that these measures will encourage the refurbishment of existing stations of up to 20MW and will support any future schemes, if planning permission can be secured.

2.18 There has also been concern that owners of very small existing hydro stations of 1.25MW DNC or less would be unable to refurbish such stations without support from the RO. We, therefore, propose that all

such stations will be eligible for the Obligation without the need to refurbish described in paragraph 2.8. For hydro stations between 1.25MW and 20MW DNC first commissioned before 1 January 1990, refurbishment after that date will be required before the output from the station will be eligible.

2.19 Pumped storage stations will not be eligible for the Obligation.

Energy From Waste

2.20 Respondents to the preliminary consultation expressed concern regarding the distinction between some forms of waste and biomass. Sawdust, for example, could be considered under certain circumstances as biomass, a forestry residue, and under other circumstances as an industrial waste, say from a furniture factory. In order to eliminate such anomalies we propose that all energy derived from purely plant and animal derived material⁶ – including waste and meat & bonemeal – would be eligible for the Obligation, regardless of the energy conversion technology used (including combustion). Energy derived from peat will not, however, be eligible for the Obligation.

2.21 Over 60% of respondents commented on the question of energy from waste, with the majority opposing the proposed exclusion from the Obligation. One of the concerns expressed was that the development of more efficient and/or environmentally beneficial technologies would be inhibited. These technologies, including pyrolysis, gasification and anaerobic digestion, are also expected to play an important role in the future of electricity generation using energy crops. By and large, they require pre-separation of recyclable material from the waste stream and are well suited for community-sized developments. We therefore propose to include these new technologies (which use thermal or biological processes to convert the waste into a fuel oil or gas, which is then burnt) within the Obligation. Mixed waste may be used as the feedstock for such stations but only the output attributable to non-fossil derived material will be eligible.

2.22 Under these revised proposals, energy from the incineration of mixed waste will not be eligible for the Obligation. Whilst arguments have been made for the eligibility of incineration of unseparated waste, we do not believe that the

Government should encourage waste incineration through the RO. This approach is consistent with the Government's support for waste reduction, recycling and reuse as described in the Government's Waste Strategy 2000, whilst supporting the development of more efficient and environmentally benign energy conversion from biomass.

Fuel Use For Process Purposes

2.23 Some generating stations require small amounts of fossil fuel use for the purposes of igniting gases of low or variable calorific value, heating the combustion system to its normal operating temperature and maintaining that temperature, or for emissions control. Such use is permitted provided that the energy content of the fossil fuel does not exceed 10% of the energy content of the renewable fuel used in any one Obligation period. Only the non-fossil derived output will attract ROCs.

2.24 Where a station uses fossil fuel for other purposes, or where the 10% fossil fuel limit is exceeded, then the station will be considered to be co-fired and subject to the restrictions on such stations, as detailed opposite.

Co-firing

2.25 Stations that are powered by both a fossil-derived fuel and biomass (known as co-firing) may have an important role to play in helping to develop biomass and energy crops, and in delivering renewable energy capacity quickly at relatively low cost. Electricity generated from biomass by co-firing in **existing** generating stations will therefore be eligible for ROCs (excluding the 2% fossil-derived energy content permitted), subject to two restrictions:

- Only electricity generated before 1 April 2011 will be eligible;
- From 1 April 2006, at least 75% of the biomass must consist of energy crops.

2.26 In a co-fired station, biomass would displace some of the fossil fuel feedstock, but there is a concern that overall carbon dioxide emissions could increase if the eligibility of co-firing for the Obligation altered the current balance of fossil fuels used in electricity generation. We therefore propose that the output from co-fired stations can only be used to fulfil up to 25% of an individual supplier's obligation.

⁶ Subject to a maximum fossil-derived energy content of 2% to allow for accidental contamination. If the output from fossil-derived content exceeds 2% in any one period, none of the electricity from that station will be eligible for the Obligation in that period.

2.27 Co-firing of waste which is not biomass is excluded. The table below illustrates the proposed eligibility of energy from waste and biomass.

Table B: Eligibility of Energy from Waste and Biomass

	Mixed wastes	Waste which is purely biomass	Energy crops, agricultural waste & forestry material
Incineration	Ineligible	Eligible ⁶	Eligible ⁶
Pyrolysis, gasification, anaerobic digestion	Only non-fossil derived energy eligible	Eligible ⁶	Eligible ⁶
Co-firing	Ineligible	Eligible until 31 March 2011 (must be 75% energy crops from 1 April 2006)	Eligible until 31 March 2011

The Operation of the Obligation

Renewables Obligation Certificates

2.28 Renewables Obligation Certificates (ROCs) will be issued as evidence that electricity from an eligible renewable source has been supplied to customers in Great Britain by a licensed supplier. Electricity generated from eligible renewable sources in Great Britain but exported to countries elsewhere (including to Northern Ireland) will not be eligible for ROCs.

2.29 The Financial Services Authority has recently conducted a consultation on proposals concerning the regulation of certificates and notes associated with energy supply. The consultation paper can be found at www.fsa.gov.uk/pubs/cp/96/index.html. The status of ROCs for the purposes of VAT is also currently under consideration by HM Customs & Excise.

⁶ Subject to a maximum fossil-derived energy content of 2% to allow for accidental contamination. If the output from fossil-derived content exceeds 2% in any one period, none of the electricity from that station will be eligible for the Obligation in that period.

Accreditation of Generators

2.30 Taking accreditation first, in order for ROCs to be issued, the generating station that generated the electricity must be accredited by Ofgem to ensure that the electricity generated meets the eligibility criteria for the Obligation.

2.31 The procedure for accrediting generators is likely to follow a similar one to that used for the Climate Change Levy exemption. Ofgem will try to avoid duplication where possible. So, for example, if a generator is already accredited for the exemption, and the categories of technology are the same across both regimes, they will not have to provide the same details over again. It is likely that they will have to provide some additional information, however, to meet the different requirements of the RO.

Basis of Calculating the Obligation on Suppliers

2.32 The obligation for each supplier will be calculated by applying a percentage obligation to that supplier's **total electricity sales**⁷ to customers in England and Wales during each Obligation period. We propose that the sales figures for each supplier will be based on the estimates already provided by suppliers to the Department of Trade and Industry (DTI) for use in compiling and publishing national energy statistics, including any revisions to the estimates made prior to 1 August each year. The aggregate of these figures for all licensed suppliers has previously been published in the column headed "Public distribution system, Sales of electricity to customers, Total" in Table 23 of the DTI's monthly statistical bulletin "Energy Trends" and will in future be published in Table 5.5 on the DTI's energy statistics website.

⁷ Total sales by licensed electricity suppliers, as defined, include electricity from combined heat & power (CHP) generating stations. The Government is currently developing a strategy for the promotion of good quality CHP. The Government may decide that excluding electricity from good-quality CHP from the sales figures on which the RO is based is an important and cost-effective means of supporting CHP. In that case, we will issue a further consultation on this specific issue at a later date. We would anticipate, however, that any such change would not affect the total absolute level of obligation (total MWh) on suppliers as a whole.

2.33 The table below sets out a projection of electricity sales in Great Britain to 2010/11 and the proposed level of obligation for each year. We propose to apply the same level of obligation to all suppliers in Great Britain.

Table C: Level of the Obligation

Period	Estimated sales by licensed suppliers in GB	Total Obligation (GB)	Total Obligation as % of sales (GB)
	TWh	TWh	%
2001/2002	310.9		
2002/2003	313.6	9.4	3.0
2003/2004	316.2	13.5	4.3
2004/2005	318.7	15.6	4.9
2005/2006	320.6	17.7	5.5
2006/2007	321.4	21.5	6.7
2007/2008	322.2	25.4	7.9
2008/2009	323.0	29.4	9.1
2009/2010	323.8	31.5	9.7
2010/2011	324.3	33.6	10.4
2011/2012 to 2026/2027			10.4

2.34 Whilst the above table shows the obligation remaining constant at 10.4% of total electricity sales from 2010/11 onwards, this will be reviewed throughout the lifetime of the Obligation in the light of the latest information on climate change.

Increases may, therefore, be brought forward through an amendment to the Renewables Obligation Order but, as explained in paragraphs 2.3 and 2.5, the Government has no plans to reduce the level of the Obligation.

Issuing of ROCs

2.35 Turning now to the actual issue of the ROCs; these certificates will be issued to accredited generators for eligible renewable electricity generated within the United Kingdom, its territorial waters and Continental Shelf, and supplied to customers in Great Britain. Again this issue will be carried out in a similar fashion to the issuing of Levy Exemption Certificates (LECs). The ROCs will be based on metered output, rounded to whole MWh, and will be issued electronically to generators or, in the case of output sold through existing NFFO and SRO contracts, to suppliers. They will follow the same format as the LECs and will be issued in units of 1MWh. Each 1MWh certificate will have a unique number and will detail the generating station, the renewable source used and the period in which the electricity was generated. A supplier may discharge the Obligation by buying ROCs from generators or another party as ROCs can be sold separately from the electricity.

Evidence of Compliance

2.36 Ofgem will be responsible for assessing and monitoring the extent of compliance by suppliers. Suppliers will be required to provide evidence of their compliance with the Obligation by a given date, the specified date

(proposed to be 1 October) after the end of each Obligation period. This can be through the presentation of ROCs or, alternatively, suppliers may fulfil part or all of their obligation by paying a buyout price to Ofgem. The evidence required is likely to include: the figures on which they have made their calculation including the amount of electricity they have supplied to customers and their percentage obligation, the ROCs they are presenting and the amount of buyout, if any, to reflect the difference between the number of ROCs presented and their obligation.

Failure to Comply

2.37 If a supplier fails to present evidence of fulfilling their obligation, either through ROCs or through paying the buyout by the specified day, they will be considered in breach of a 'relevant requirement' within the meaning of section 25 of the Electricity Act 1989. Ofgem will thereafter decide whether to impose a financial penalty, subject to their then current Statement of Policy with respect to Financial Penalties, and will follow the then current process for dealing with financial penalties. Ofgem will take full account of the facts and circumstances of the contravention under consideration, including any representations made to it by interested parties.

Buyout Price

2.38 The Order will set out the initial buyout price, proposed to be £30/MWh, and Ofgem will then adjust this in line with the RPI, rounded to the nearest 1p/MWh, and announce the new buyout price each year. Suppliers will be required to pay any buyout due to Ofgem by the specified date described above.

Buyout Recycling

2.39 The proceeds from the buyout will be returned to suppliers by Ofgem, according to the number of ROCs that each supplier presents to discharge their obligation compared to the total number of ROCs presented by all suppliers. If the total amount of eligible electricity supplied in a period were equivalent to 25TWh, a supplier who presented ROCs relating to 2.5TWh would receive 10% ($2.5\text{TWh} \div 25\text{TWh}$) of the total buyout funds received in that period. If a supplier chose to buyout part or all of the Obligation, it would not receive any recycling of the buyout funds for the proportion that it had bought out.

Banking and Borrowing

2.40 The preliminary consultation outlined proposals for banking up to 50% of a supplier's obligation. The majority of comments received expressed the view that the 50% limit was too high, and could encourage market manipulation. Some suggested that a 10% limit would be more appropriate, but we believe that a 10% limit would be too restrictive, particularly given that there is to be no borrowing.

We therefore propose that up to 25% of a supplier's obligation can be met by ROCs issued in the previous period.

2.41 Opinion on borrowing was more divided, with some expressing a concern that allowing borrowing would, in effect, reduce the overall size of the Obligation by the amount of borrowing allowed. There was also concern that borrowing could encourage speculation and manipulation of the ROC market. Suppliers will have other forms of fulfilling the RO – through buying ROCs from generators or third-party traders, or by paying the buyout price. We do not believe that an additional way of complying is required and we therefore propose not to allow any borrowing.

Banding

2.42 In the preliminary consultation, we sought views on whether the Obligation should be banded, setting different buyout prices for different sources of renewable energy. There was no clear consensus in the responses we received. We believe that such banding would be too rigid an approach for a long-term policy such as the Obligation, and would require the Government to dictate the contribution of each energy source. This approach would be contrary to the market-led basis of the Obligation and would remove the essential ingredient of competition between renewable energy technologies, and we therefore do not propose to band the RO.

State Aid Clearance

2.43 The Obligation is likely to be considered State Aid by the European Commission. The Government's current proposals are with the Commission and we expect a decision on them in the autumn. Although we do not anticipate any changes to the proposals being required for approval, the Obligation cannot be implemented until approval is received.

Regulatory Impact Assessment

A1 This is the second draft of the Regulatory Impact Assessment (RIA) of the Renewables Obligation Order 2001.

A2 The purpose of this RIA is to assess the impact of the Renewables Obligation. The Obligation has been appraised for its potential impact on the environment, particular groups of society and business. Relevant cost and benefit information has been included where appropriate. The environmental benefits have been estimated and quantified in terms of carbon savings.

A3 This assessment follows a preliminary consultation exercise conducted in October 2000 and reflects the responses received. A summary of the consultation document is available from <http://www.dti.gov.uk/renew/ropc.pdf> and a summary of responses received is also available from <http://www.dti.gov.uk/renewable/response.pdf>

Purpose and Intended Effect of the Measure

Issue

A4 Climate change is considered to be one of the greatest environmental threats facing the world. Scientists estimate that global average temperatures will rise by between 1.4°C and 5.8°C over the next 100 years if no action is taken to reduce the greenhouse gas emissions that cause climate change. This rate of warming is greater than any since the last Ice Age, 10,000 years ago.

Climate change is likely to have far reaching effects on all aspects of the world's environment, economy, society and health. In the UK, temperatures could rise by a further 3°C by 2100; rainfall could increase by as much as 10% over England and Wales and 20% over Scotland by the 2080s and changes to the seasons are expected. Higher temperatures in the UK might also exacerbate the effects of air pollutants, particularly in the summer months.

A5 In response to the threat of climate change, developed countries agreed at Kyoto in December 1997 to legally binding targets which will reduce their emissions of the six main greenhouse gases by 5.2% below 1990 levels over the period 2008-2012. The European Union and its Member States agreed to an 8% reduction. In June 1998, Member States agreed to share out the EU's target and the UK agreed to cut its emissions by 12.5%. The Government also has a more challenging domestic goal of a 20% reduction in carbon dioxide emissions below 1990 levels by 2010. The devolved administrations have also adopted this goal.

A6 Kyoto was only the start of a longer-term process. The Intergovernmental Panel on Climate Change has confirmed that it will be necessary to stabilise greenhouse gas emissions if damaging climate change is to be avoided. Further cuts in emissions will be needed and the challenges of meeting future targets cannot be overstated.

Objective

A7 The UK Climate Change Programme proposes a package of policies and measures that will deliver the UK's legally binding target from Kyoto to cut greenhouse gas emissions and move towards its domestic goal. Stimulating new, more efficient and lower carbon sources of power generation is an important part of the package. The main means of stimulating an increase in the proportion of electricity supplied from renewable energy sources will be the obligation on electricity suppliers to procure sufficient supplies from such sources, consistent with a total supply of renewables of 10% by 2010, subject to the cost to consumers being acceptable.

A8 The programme will act as the framework for a long term, comprehensive strategy on climate change for the UK as a whole. It also looks beyond the Kyoto commitment period of 2008 – 2012 and uses the domestic goal as the spur for further action to cut emissions that will see the UK onto a more sustainable path by encouraging a move to a lower carbon economy. Moving towards the domestic goal will also enable the UK to ensure that it will be better placed to meet future, more difficult, targets. It will send a strong signal to the international community that the UK is leading by example; and it will help safeguard the competitiveness of UK firms by encouraging a more energy efficient industry and by stimulating the development of new environmentally-friendly technologies.

A9 The purpose of the Renewables Obligation within this programme is to specifically encourage the uptake of renewable power generation sources by the electricity supply industry by developing the market for electricity from renewable sources, and to reduce emissions of greenhouse gases.

Risk Assessment

A10 The full implications of allowing climate change to happen at its current rate are not fully known but scientists believe that the net effect will be detrimental. Initial work by the UK's Hadley Centre has indicated that globally:

- by the 2070s, large parts of Northern Brazil and central southern Africa could lose their tropical forests;
- sea levels are expected to rise by over 40 centimetres by the 2080s causing sweeping changes to coastal communities and environments and the dislocation of millions of people;
- climate change could affect global food supplies. Africa is expected to experience significant reductions in cereal yields, as are the Middle East and India;
- an additional three billion people could suffer increased water shortage. Northern Africa, the Middle East and the Indian subcontinent will be the worst affected; and
- climate change could expose an additional 290 million people to the risk of malaria – with China and Central Asia likely to see the largest increase in exposure.

A11 The potential effects of climate change in the UK were assessed in 1996. The review concluded that, although some sectors could benefit from climate change (for example forestry, some forms of agriculture and tourism) climate change would:

- adversely affect UK's water resources and cause more flooding and property damage, affecting not only people but sectors such as the insurance industry;
- harm people's health through the spread of disease;
- cause soils – the foundation of natural habitats, agriculture and the built environment to suffer more drought, erosion and clay shrinkage;
- cause a northward shift in farming zones and wildlife (including pests and diseases), which could result in new species coming over from the continent as well as the loss of familiar landscapes; and
- cause sea levels to rise, which will increase the risk of coastal flooding and erosion, with economic impacts on property in those areas and damage to natural habitats.

A12 The implications of the UK failing to meet its Kyoto target are not yet known. Discussions about compliance with the Kyoto Protocol are continuing internationally and the European Union is still discussing the implications of Member States failing to meet their respective share of the target sharing arrangement (see paragraph A5). One of the Government's reasons for moving towards the UK's domestic goal is to allow some headroom to ensure that the Kyoto target is met.

A13 The UK's greenhouse gas emissions are currently forecast to begin increasing again around 2010. As stated above, another of the Government's reasons for moving towards the domestic goal is to ensure that the UK is better placed in the longer term to meet future international targets. Taking a long-term perspective at this stage will ensure that change can be introduced gradually, thereby minimising the cost of transition.

Options

Identifying the Options

A14 The evidence above clearly demonstrates that action is needed if the global community is to avoid the serious effects of climate change. The Government believes that taking no action is not an option and consequently in 1997 a review of the status and prospects of renewables was carried out. This included an examination of what would be necessary and practicable to achieve 10% of UK electricity requirements from renewables by 2010 and what contribution renewables could make to reducing greenhouse gas emissions. In March 1999 the Government published a consultation paper⁸ reporting the outcome of the review and possible ways forward in implementing the Government's new drive for renewables.

A15 Following the public consultation, DTI published an analysis of the responses to the consultation paper⁹ in July 1999 and then in February 2000 a conclusions paper¹⁰. The conclusions paper summarised the aims of Government policy on renewables, which are:

- assisting the UK to meet national and international targets for the reduction of emissions including greenhouse gases;
- helping to provide secure, diverse, sustainable and competitive energy supplies;
- stimulating the development of new technologies necessary to provide the basis for continuing growth of the contribution from renewables in the longer term;
- assisting the UK renewables industry to become competitive in home and export markets and in doing so provide employment in a rapidly expanding sector; and
- contributing to rural development.

A16 The Government published a preliminary consultation paper on the Renewables Obligation in October 2000, which attracted over 200 responses from a broad cross-section of respondents, including the electricity supply industry, renewables generators, environmental and professional organisations and private individuals.

Issues of Equity or Fairness

A17 The Government believes that all sectors must play their part in contributing to improving energy efficiency and reducing emissions of greenhouse gases to contribute to meeting our climate change target. Accordingly, the UK Climate Change Programme sets out a package of policies and measures for all sectors in the economy.

A18 The energy supply sector currently accounts for about 26% of the UK's emissions of carbon dioxide¹¹. The sector has a special role to play in helping to cut emissions from the business, domestic and public sectors.

A19 The Renewables Obligation, along with a new target to double the capacity of combined heat and power by 2010, will be the main components of the UK Climate Change Programme specifically designed to assist the power sector in continuing to achieve greenhouse gas reductions.

Benefits

Identifying the Benefits

A20 The UK Climate Change Programme will help ensure that the UK meets its legally binding Kyoto target to cut greenhouse gas emissions by 12.5% below 1990 levels by 2008-2012 and move towards the domestic goal of a cut in carbon dioxide by 20% below 1990 levels by 2010.

A21 The Renewables Obligation will help to achieve these targets for greenhouse gas emissions reductions. The Obligation will form part of a package of measures alongside other existing regulations, voluntary arrangements and incentives, as well as any future initiatives designed to achieve the reductions required.

A22 As well as these environmental benefits the Government believes that the Renewables Obligation will stimulate investment in renewable technologies and will assist these industries to compete on the world stage in what will become a significant global industry. For example, estimates based on World Energy Council projections¹² indicate that cumulative investment in renewables could range from £150 billion to £400 billion between 2000

⁸ Department of Trade and Industry (1999). *New and Renewable Energy – Prospects for the 21st Century*. London: DTI.

⁹ Department of Trade and Industry (1999). *New and Renewable Energy – Prospects for the 21st Century: Analysis of the Responses to the Consultation Paper*. London: DTI.

¹⁰ Department of Trade and Industry (2000). *New and Renewable Energy – Prospects for the 21st Century: Conclusions in Response to the Public Consultation*. London: DTI.

¹¹ 'UK Energy in Brief', November 2000, pp27.

¹² Department of Trade and Industry (1999). *New and Renewable Energy – Prospects for the 21st Century*. London: DTI.

and 2010. Similarly, Shell scenarios have suggested that renewables could meet 40% of world energy needs by the middle of the century.

Quantifying and Valuing the Benefits: Overall Cost to Consumers

A23 Estimates of the overall cost to consumers are shown in the following table, both in absolute terms and as a percentage of average electricity prices compared to actual 1999 levels in real terms. The table assumes that eligible renewables reach 10.4% of sales by licensed electricity suppliers – 33.6TWh – in 2010/11.

A24 The table also assumes that receipts from suppliers are recycled in proportion to the amount of eligible renewables supplied and that this does not increase the maximum potential cost to the consumer. Let us assume that the Obligation is set at 33.6 TWh, that the total renewables generation is 30 TWh and that all Renewables Obligation Certificates are traded ex-post. Buyout payments then total £108 million (3.6 TWh multiplied by £30/MWh) and the share of buyout payments is therefore £3.60/MWh (£108 million divided by 30 TWh). Renewables Obligation Certificate

prices would therefore settle at around £33.60/MWh – the price of the avoided buyout plus the share of total buyout payments. In aggregate, suppliers would pay generators up to £1,008 million for the Renewables Obligation Certificates and would have no net position on buyout. The costs to consumers would therefore be in line with the theoretical maximum of £1,008 million (33.6 TWh multiplied by £30/MWh).

Table D: Cost of Renewables Obligation to Consumers in Great Britain in 2010/11

Renewables Obligation target	33.6 TWh
Maximum cost for buyouts (33.6TWh x £30/MWh)	£1,008 million
Reduction in the cost of the Fossil Fuel Levies* compared to costs without the Obligation	-£229 million
Total extra support for renewables	£779 million
Percentage impact on average electricity prices compared to 1999 actual levels	4.4%

* In England and Wales, and in Scotland

A25 It is anticipated that licensed electricity suppliers will increase their prices in order to meet the additional costs of complying with the Obligation. If unlicensed suppliers also increase their prices to match those of the licensed suppliers, an additional indirect cost of £93 million would be incurred. This would bring the overall cost of the Obligation for both direct and indirect costs to £872 million, which represents an increase of 4.9% in real terms over actual 1999 prices. This estimate takes account of the increase in electricity sales between 1999 and 2010/11 which will enable the costs of the Obligation to be spread over a greater volume of total electricity sales than in 1999.

Compliance Costs for Business Sectors Affected

A26 The following types of firms will be affected:

- licensed electricity supply companies;
- generators of renewable energy;
- potential traders in Renewables Obligation Certificates; and
- large consumers of electricity.

A27 The Government estimates that there will be fewer than 100 supply businesses that will be required to comply with the Renewables Obligation. Many of these businesses are large companies.

Compliance Costs for a “Typical” Electricity Supply Business

A28 The compliance costs of the Renewables Obligation fall into two categories:

- initial start-up costs; and
- recurrent costs of complying with the Obligation;

A29 Initial start-up costs for businesses are likely to include:

- time spent in planning and preparing for the new Renewables Obligation;
- changes to existing administrative and computer accounting systems;
- training of staff;
- legal costs in drawing up generator-supplier contracts; and
- any consequential printing and stationery costs.

A30 Recurrent costs would include:

- providing the evidence as required by Ofgem;
- maintaining records and accounting systems to enable the RO to be complied with; and
- purchasing Renewables Obligation Certificates (ROCs) and providing these to Ofgem.

Consultation with Small Businesses: “The Litmus Test”

A31 The preliminary consultation on the Renewables Obligation was conducted in the autumn of 2000. No specific concerns were expressed by small businesses but it is believed that the Obligation may affect small businesses in two ways:

- **Where small businesses are large consumers of electricity.** Since the cost of the Obligation is based on £/MWh, it is likely that the increased costs to suppliers in meeting the Obligation will be passed on to consumers on a similar basis. Since large consumers currently enjoy lower average electricity unit prices than other consumers, the impact of the Obligation as a percentage of electricity prices will be greater for large consumers than others. Some small businesses may be very

energy-intensive, such as certain manufacturing firms, but the higher increase in costs because of the Obligation is not believed to affect many small businesses.

- **Where small businesses are involved in the design, development and deployment of renewable generation.** Many of the firms involved in the renewable energy sector are small businesses. It is believed that the Obligation will significantly increase the size and security of the renewables generation market, and support the development of the industries that supply it.

Other Costs

Distributional Effects, Number and Type of Losers, Average Loss, Gainers

A32 It is not possible to define the exact net effect of the introduction of the Renewables Obligation on individual industries or sectors.

The net effect depends on:

- the future energy consumption of firms in the sector; and
- the way in which licensed suppliers choose to pass on the cost of complying with the Renewables Obligation.

Gender Impact

A33 None envisaged.

Environmental Impact

A34 The Renewables Obligation is expected to save around 2.5 million tonnes of carbon equivalent (MtC) a year by 2010. These savings will make an important contribution towards meeting the UK’s climate change targets. Given the overall annual cost of the Obligation of up to £779 million in 2010/11, this represents a cost of £312 /tC saved.

Impact on Employment

A35 It is expected that the Renewables Obligation, by stimulating investment in new environmentally beneficial technologies, will have a favourable impact on employment. As stated in paragraph A22, the world-wide market for renewables has the potential to grow significantly. Previous estimates¹³ have suggested that working towards the 10% target, combined with efforts to improve export capability, could result in an additional 10,000 – 45,000 jobs in the UK renewables sector. These figures must be treated with caution, however, given the dearth of rigorous research in this area.

Impact on Retail Price Index (RPI)

A36 The Obligation is expected to increase electricity prices by around 4.4 % in 2010, with the impact on the RPI expected to be less than 0.1%.

Results of Consultation

A37 A preliminary consultation on the Renewables Obligation was held in the autumn of 2000, with over 200 responses being received from a wide cross-section of parties including electricity suppliers, renewable electricity generators and non-governmental organisations. The Government’s response to the comments received is contained in the statutory consultation (of which this draft assessment is an annex). The main issues raised in the preliminary consultation responses were:

- the Obligation should apply to all licensed electricity suppliers;
- large-scale hydro should be excluded from the Obligation, as proposed;
- energy from waste should be included in the Obligation;
- the profile of the Obligation should extend beyond 2010;
- the level of banking should be reduced and opinion on borrowing was divided;

¹³Department of Trade and Industry (1999). *New and Renewable Energy – Prospects for the 21st Century*. London: DTI.

- ROCs should be used as a means of demonstrating compliance;
- buyout payments should be returned to suppliers but there were concerns over the mechanism;
- the costs were acceptable overall and expected to be less than suggested; and
- there was no clear consensus on banding of the Obligation.

Summary and Recommendations

A38 Although additional costs are likely to be incurred by the power sector, business and the public as a result of the introduction of the Renewables Obligation, the Government believes that the economic, environmental, social and health benefits to be gained significantly outweigh these costs.

Enforcement, Sanctions, Monitoring and Review

A39 The Renewables Obligation will be administered and enforced by Ofgem. Non-compliance with the Obligation will be considered as a breach of a 'relevant requirement' of a suppliers license and appropriate sanctions will be imposed by Ofgem. Ofgem will also measure and report on the progress of the Obligation.

Post Implementation Review (PIR) is subject to ministerial decision.

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Other Policy Instruments

Capital Grants

B1 The Government's 10% target for electricity from renewables is expected to require a significant increase in the power generated from offshore wind and energy crops. In order to bring forward this increase, the Government has announced that capital grants totalling £89 million will be made available from the Department of Trade and Industry and from the New Opportunities Fund. This support will offset a proportion of the investment costs of early demonstration projects and will provide experience of commercial deployment and operation. The capital grants are also expected to underpin the development of the industry and supply chains. Offshore wind and biomass projects may also benefit from further funding from the £100 million announced in March 2001 by the Prime Minister (paragraphs B9 and B10).

B2 There will be separate capital grants schemes for offshore wind and energy crops. This is to recognise the different nature of projects that will come forward from these two resources e.g. projects generating electricity from energy crops will require inputs from different fuel sources over time.

B3 The £89 million funding also includes £3 million to be allocated by the New Opportunities Fund for small-scale biomass heat, and combined heat and power (CHP) projects. This funding is expected to significantly increase the penetration of the non-domestic heat market by biomass.

DTI Offshore Wind Scheme

B4 DTI are expecting to formally launch the £39 million capital grants scheme for offshore wind shortly. State Aid clearance is currently being sought for the scheme. The Department has consulted extensively with the offshore wind industry on the design of the scheme, of which the key objective is to stimulate the early deployment of offshore wind farms in UK waters.

B5 Sites should be sited within UK territorial waters and developers will also need to have secured all necessary consents for the proposed project before submitting a grant proposal.

B6 The maximum grant available for each wind project is expected to be a maximum of 40% of eligible project costs. The total grant should also not exceed £10 million per project.

The New Opportunities Fund

B7 In April 2001, the Fund received policy directions from Government to deliver a number of major new grant programmes, including further funding for the environment. A strand of the new 'Transforming Communities' environment programme represents investment of £50 million for renewable energy. Of the funding available, at least £33 million should be committed to developing renewable electricity generating capacity for electricity from energy crops, at least £10 million to building offshore wind electricity generation projects and at least £3 million to small-scale biomass heat, and combined heat and power projects.

B8 The policy directions require that the Fund commits funding by 2005. The Fund plans to consult with key stakeholders during summer 2001 to develop UK-wide schemes intending where possible to complement existing activities and strategies to ensure that funding makes an early contribution towards UK targets for renewable energy.

Additional Funding for Renewables

B9 On 6 March 2001, the Prime Minister announced an additional £100 million to support the development of renewables.

He said:

“Last year I asked the Performance and Innovation Unit to undertake a major study into the future of UK renewable energy. Today I can announce a further £100 million to support those technologies identified by the report. I know that a number of green groups have been campaigning for a target of 100,000 solar PV installations. This new money will help us to promote solar PV, give a boost to offshore wind, kick start energy crops, and bring on stream other new generation technologies. This investment in renewable technology is a major down-payment in our future, and will help open up huge commercial opportunities for Britain.”

B10 The allocation of these funds will be informed by a Performance and Innovation Unit report on renewable energy. In deciding the allocation of the funds, the objective is to provide renewables generation at least cost in the long term. The potential benefit

to consumers from renewables support in this way is primarily from the reduction in the future cost of achieving climate change targets. It is expected that cost reductions will be derived from the process of learning-by-doing. The PIU report will be published later this year and will consider both the likely contribution from different renewable energy technologies and the potential for cost reductions through learning-by-doing.

Climate Change Levy Exemptions

B11 The Climate Change Levy introduced by the Government under the provisions of the Finance Act 2000 commenced on 1 April 2001. The Levy is charged at the rate of 0.43p/kWh on electricity supplied to non-domestic customers in the United Kingdom, except where negotiated agreements have been made. Electricity from qualifying renewable sources is exempt from the Levy. Ofgem is responsible for monitoring the exemption claimed in Great Britain; Ofreg has a similar role in respect of electricity supplied in Northern Ireland.

B12 Monitoring the exemption involves:

- accrediting generators;
- issuing Levy Exemption Certificates (LECs) in respect of output from accredited generators; and
- reporting to Her Majesty’s Customs & Excise on the LECs confirmed to suppliers.

B13 In January 2001 Ofgem issued an accreditation pack for generators who wished to apply for the output from their stations to qualify for the exemption. The information provided by the applicants enabled Ofgem to establish whether the

station met the definition of a qualifying renewable source. The qualifying definition is set out in the Climate Change Levy (General) Regulations 2001 (S.I. 2001 No. 838). Up to 10 May 2001, 408 generators in Great Britain have been accredited with a total installed capacity of over 1,262 MW (not all the installed capacity is qualifying output).

B14 Once accredited, a generator is issued with a unique accreditation number, which identifies the technology type / fuel source and the location of the generator.

Table E: Accredited Stations

Technology	Number of stations accredited	Installed Capacity MW
Agricultural waste / energy crops	6	123.5
Energy from waste (incineration)	12	222.3
Hydro	126	158.1
Landfill gas	171	389.1
Offshore wind	2	3.8
Onshore wind	56	320.6
Sewage gas	35	44.8
Total	408	1,262.2

B15 On receipt of the monthly output information, Ofgem issues the LECs to the generator (in the case of non-NFFO generators) or the supplier (in the case of NFFO generators). One LEC is issued for each qualifying MWh produced. Each LEC has a unique serial number that indicates the generator's accreditation number and the month and year in which the output was generated. The LECs have to be traded with the electricity and cannot be sold separately. Following the issue of the LECs, suppliers are required to notify Ofgem of the quantity and serial numbers of the certificates purchased from generators. Ofgem then validates this information using the details it holds of the LECs issued and provides confirmation to the suppliers.

Research & Development

B16 The Renewables & Sustainable Energy research and development programme is one element of the Government's policy of stimulating the development of renewable energy so that it can provide a continuously growing contribution in the competitive energy market. The Government has recently increased the budget for its expenditure on the research and development programme to around £55 million over the next three years.

B17 The Renewables & Sustainable Energy R&D Programme currently supports research and development projects in the following areas:

- Biofuels
- Fuel cells
- Solar energy
- Wind energy
- Water (small-scale hydro & wave energy)
- Tidal stream
- Embedded generation.

B18 The future priorities for projects will be developed from the draft long term strategies (Technology Route Maps) that are presently being developed by DTI in consultation with industry, academia and other key stakeholders. Proposals for research and development outside the scope will still be considered, but priority will be given to proposals that are within the scope of the Route Maps. Such projects are expected to make a significant contribution to the key technology targets that are emerging from the Technology Route Mapping exercise.

B19 Projects can include industrial research or pre-competitive development activity, which can include initial demonstration projects or pilot plants. The programme does not support the cost of commercial projects, nor of design/feasibility studies for commercial projects. The principal requirement for all proposals is that they should include innovation that offers the prospect for reduced cost and/or improved performance of new and renewable energy, with the goal of improving its competitiveness, and the competitiveness of UK industry. We expect proposals to make the case clearly that the innovation is worth pursuing and that the particular project is the next logical step in the development.

B20 Further details on the Technology Route Maps can be found on the DTI website at www.dti.gsi.gov.uk/renewable/renew.htm and details on R&D grants at www.dti.gsi.gov.uk/renewable/call.htm

Other Issues raised in responses to the Preliminary Consultation

Green Tariffs

C1 Green tariffs, where supply companies either match subscribers' energy use with electricity generated from renewable sources or support green investment funds that invest in renewable energy, have had modest success, with over 20,000 consumers signing up. The Government believes that green tariffs should not be used to meet a supplier's costs in fulfilling their obligation but rather the intention is that any green tariff should lead to additional generation, over and above a supplier's obligation. We believe that green tariffs have an important role in promoting and raising awareness of renewables but it is unclear whether, and to what extent, green tariffs will continue after the introduction of the Obligation. We will be discussing the future of such voluntary schemes for renewables with the industry.

Embedded Generation

C2 The responses to the preliminary consultation expressed concern that there is little encouragement for embedded generation. An embedded generation working group was established to investigate how embedded generation could be supported. That group has now made its report, which can be found at www.dti.gov.uk/energy/egwg/report.htm and a further group is being established to monitor implementation of its recommendations.

NETA

C3 Considerable concern has been expressed over the impact of the New Electricity Trading Arrangements (NETA) on small generators, particularly intermittent forms of generation such as wind farms. Ofgem is currently conducting a review of the impact of NETA on such generators, and any further measures will depend on the outcome of that review.

Planning

C4 The Government recognises that the planning system has an important role to play if renewable energy targets are to be met. The Government wants to promote a positive and strategic approach to planning, and to create an atmosphere conducive to open and constructive dialogue among operators, the planning authorities and local people so that suitable sites can be identified with sensitivity and care.

C5 In order to promote this strategic approach from the regional level downwards, the Government in February 2000 initiated work to prepare regional assessments and targets for renewable energy provision based upon and, where necessary updating, existing resource studies.

C6 The majority of these regional assessments is now complete, with the remainder expected to be completed by the end of 2001. The Department intends to carry out a review of the completed regional assessments in terms of the consistency of approach, including assumptions made in development of regional targets, and to gauge how the total proposed regional contributions match up to the 2010 UK target.

C7 The results of these assessments should be incorporated following consultation with interested stakeholders into Regional Sustainable Development Frameworks. These Frameworks will elaborate a regional approach to renewable energy, including regional targets which flow from the assessment of each region's capacity to generate electricity from a range of different sources.

C8 The Frameworks will work alongside Regional Planning Guidance (RPG) and Regional Development Agencies' Economic Strategies in promoting sustainable development. Thus we envisage RPG taking forward, in land-use terms, a region's strategy for delivering renewable energy targets by defining broad locations for renewable energy development and setting criteria to help local authorities select suitable sites in their plans. We would encourage regional planning bodies to set targets in RPG, where appropriate, for the structure plan and unitary development plan areas, consistent with the targets provided by the Regional Sustainable Development Frameworks.

C9 National planning policy guidance in PPG 22: Renewable Energy, and regional guidance, as taken forward through structure plans and Part I unitary development plans, will provide a strategic framework for renewable energy developments in local plans, including the identification in those plans of suitable sites. This in turn will feed through to decisions on individual planning applications.

C10 More positive planning at regional and local levels will contribute to greater public familiarity with, and acceptance of, prospective renewable energy developments. It remains important, however, for operators to prepare the ground with local authorities, environmental organisations and residents before formal planning applications are submitted and to develop proposals in consultation with them.

Offshore Wind Consents Process

C11 The Department has recently held a consultation exercise on the consents process for offshore windfarms. This proposes that instead of the current fragmented situation, DTI acts as a "one stop shop", receiving and co-ordinating the administration of proposals for offshore windfarms in England and Wales. It also proposes that smaller offshore windfarms i.e. those at or below 50MW will be included in this regime, since the local planning regime does not extend offshore. Responses were sought by DTI by 23 April 2001 and the Department will announce the outcome of the consultation exercise shortly.

