

# **REGULATORY IMPACT ASSESSMENT**

## **Title**

1. This is a Regulatory Impact Assessment (RIA) of the Renewables Obligation (Scotland) Order 2002 (ROS).
2. The purpose of this RIA is to assess the impact of the ROS on the environment, particular groups of society and business. Relevant cost and benefit information has been included where appropriate. The environmental benefits have been measured and quantified in terms of carbon savings.
3. This assessment follows a preliminary consultation exercise launched in November 2000, and a statutory consultation which took place between August and October 2001. These consultation documents are available from:

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## **Purpose and Intended Effect of the Measure**

### **Issue**

4. 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 20% in 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.

5. 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% under the burden sharing arrangement. The UK Government also has a more challenging domestic goal of a 20% reduction in carbon dioxide emissions below 1990 levels by 2010. The Scottish Executive has agreed to play a full part in meeting these objectives.

6. 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 can not be overstated.

## **Objective**

7. The Scottish Climate Change Programme (SCCP) comprises a package of policies and measures that will contribute towards the delivery of the UK's legally binding Kyoto target and move towards its domestic goal. The SCCP supports the UK Climate Change Programme (UKCCP). Stimulating new, more efficient sources of power generation is an important part of both programmes. The main means of stimulating an increase in the proportion of electricity supplied from renewable energy sources in Scotland will be the ROS, an obligation on electricity suppliers to procure sufficient supplies from such sources, subject to the cost to consumers being acceptable.

8. The SCCP will act as the framework for a long term, comprehensive strategy on climate change for Scotland as a whole. Along with the UKCCP, it 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 help the UK move to a more sustainable path by encouraging a move to a lower carbon economy. Moving towards the domestic goal will also enable us to ensure that we are better placed to meet future, more difficult, targets. It will send a strong signal to the international community that the UK, and in particular Scotland, is leading by example; and it will help safeguard the competitiveness of Scottish business by encouraging a more energy efficient industry and by stimulating the development of new environmental technologies.

9. The purpose of the ROS within the SCCP is specifically to 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 from the sector.

### **Risk Assessment**

10. 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:

- ◆ 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;
- ◆ By the 2070s, large parts of Northern Brazil and central southern Africa could lose their tropical forests;
- ◆ 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.

11. 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, in the main, climate change would;

- ◆ Adversely effect UK's water resources and cause more flooding and property damage, affecting not only people but sectors like 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.

12. 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 burden sharing arrangement (see paragraph 5). One of the UK Government's reasons for adopting its domestic goal is to allow some headroom to ensure that the Kyoto target is met.

## Options

### Identifying the Options

13. The evidence above demonstrates that action is needed if the global community is to avoid the serious effects of climate change. The UK 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 per cent 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 paper<sup>1</sup> reporting the outcome of the review and possible ways forward in implementing the Government's new drive for renewables. The Scottish Office and subsequently the Scottish Executive have worked closely with DTI during this process.

14. Following the public consultation DTI published an analysis of the responses to the consultation paper<sup>2</sup> in July 1999 and then in February 2000 a conclusions paper<sup>3</sup>. The Conclusions paper summarised the aims of UK Government Policy on renewables, these 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;

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<sup>1</sup> Department of Trade and Industry. (1999). *New and Renewable Energy – Prospects for the 21<sup>st</sup> Century*. London: DTI

<sup>2</sup> Department of Trade and Industry. (1999) *New and Renewable Energy – Prospects for the 21<sup>st</sup> Century – Analysis of the Responses to the Consultation Paper*. London: DTI.

<sup>3</sup> Department of Trade and Industry. (2000). *New & Renewable Energy: Prospects for the 21<sup>st</sup> Century: Conclusions in Response to the Public Consultation*. London: DTI.

- ◆ Assisting the UK renewables industry to become competitive in home and export markets and in doing so provide employment in a rapidly expanding sector;
- ◆ Contributing to rural development.

15. The UK Government proposed an initial 10-year strategy in collaboration with industry to meet its aims, and proposed to establish a sequence of targets in the electricity sector to act as a stimulus to industry, and to provide milestones against which progress can be monitored.

16. The Scottish Executive agreed that Scotland should play its full part in meeting the UK Government's targets that 10% of UK electricity requirements should be met from renewables by 2010, subject to the cost to the consumer being acceptable. The key component in achieving this target is the ROS, designed to establish a growing market in which the industry can invest with confidence.

### **Issues of Equity or Fairness**

17. 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 SCCP sets out a package of policies and measures for all sectors of the economy.

18. The energy supply sector accounts for about 30% per cent of the Scotland's emissions of carbon dioxide<sup>4</sup>. The sector has a special role to play in helping to cut emissions from the business, domestic and public sectors.

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<sup>4</sup> 'UK Energy in Brief', November 2000, pp27.

19. The ROS will be the main component of our contribution to the UK Climate Change Programme, specifically designed to assist the power sector to achieve significant greenhouse gas reductions.

## **Benefits**

### **Identifying the Benefits**

20. The SCCP 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.

21. The ROS will help to achieve these targets for greenhouse gas emissions reductions. It 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.

22. As well as these environmental benefits, the Executive believes that the ROS will stimulate investment in renewable technologies and assist the industry to compete on the world stage in what will become a significant global industry. The potential for the creation of new jobs is also economically and socially significant.

23. For example, estimates based on World Energy Council projections<sup>5</sup> indicate that cumulative investment in renewables could range from £150 billion to £400 billion between 2000 and 2010. Similarly, Shell suggests that renewables will meet 40% of world energy needs by the middle of the century.

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<sup>5</sup> Department of Trade and Industry. (1999). *New & Renewable Energy Prospects for the 21<sup>st</sup> Century*. London: DTI

## **Quantifying and valuing the benefits**

### **Overall Cost to Consumers:**

24. Estimates of the overall cost to consumers can be calculated both in absolute terms and as a percentage of the total value of electricity sales in 1998 (£1.5 billion). We have a notional target of 18% of Scottish consumption being met by renewable sources (i.e. + 5% on existing hydro and Scottish Renewables Obligation output). However, the Scottish target will be met by setting an obligation that involves a proportionate burden for Scottish consumers, relative to others throughout Great Britain. As hydro output varies from year to year due to climatic conditions, it would not be prudent to make the 18% headline figure a regulatory target.

25. As an example, let us assume that the Obligation is set at 2TWh, that the total eligible renewable generation is 1.6TWh and that all Renewable Obligation Certificates (ROCs) are traded ex-post. Buy-out payments then total £12million (0.4TWh multiplied by 3p/kWh) and the share of buy-out payments is therefore 0.75p/kWh (£12million divided by 1.6TWh). Renewable Obligation Certificates would therefore settle at 3.75p/kWh - the price of the avoided buy-out plus the share of total buy-out payments. In aggregate, suppliers would pay generators £60 million for the Renewable Obligation Certificates and would have no net position on buy-out. The costs for consumers would therefore be in line with the theoretical maximum of £60 million. (2TWh multiplied by 3p/kWh).

## **Compliance Costs for Business**

### **Business Sectors Affected**

26. The following types of firm will be affected:

- ◆ Licensed electricity supply companies;
- ◆ Generators of renewable energy
- ◆ Potential traders in Renewable Obligation Certificates

27. The Scottish Executive estimates that there will be very much fewer than 50 businesses that will be required to comply with the ROS. Many of these businesses are large companies.

### **Compliance Costs for a "Typical" Business**

28. The compliance costs of the ROS fall into two categories:

- ◆ Initial start-up costs;
- ◆ Recurrent costs of complying with the obligation.

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

- ◆ Time spent in planning and preparing for the new Obligation;
- ◆ Changes to existing administrative and computer accounting systems;
- ◆ Training of staff;
- ◆ Legal costs in drawing up generator-supplier contracts;
- ◆ Any consequential printing and stationery costs.

30. Recurrent costs would include:

- ◆ Providing the evidence as required by OFGEM
- ◆ Maintaining records and accounting systems to enable the ROS to be complied with
- ◆ Purchasing Scottish Renewable Obligation Certificates (SROCs) and providing these to OFGEM

## **Consultation with Small Business: "The Litmus Test"**

31. The preliminary consultation on the ROS was launched in November 2000. Although no specific concerns were expressed by small businesses, it is believed that the ROS may affect small businesses in two ways:

- *Where small businesses are large consumers of electricity.* Since the cost of the ROS is based on p/kWh, it is likely that the increased costs to suppliers in meeting the ROS will be passed on to consumers on a similar basis. Since large consumers currently enjoy lower average electricity unit prices than other consumers, the costs of the ROS as a percentage of total electricity costs may 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 ROS is not believed likely 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 ROS 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**

32. It is not possible to define the exact net effect the introduction of the ROS will have on individual industries or sectors. The net effect depends on:

- ◆ The future energy consumption of firms in the sector;
- ◆ The way in which licensed suppliers choose to pass on the cost of complying with the Renewables Obligation (Scotland)

## **Gender Impact**

33. None envisaged.

## **Environmental Impact**

34. The ROS is expected to save around 220 kilotonnes of carbon a year by 2010. These savings will make an important contribution towards meeting the UK's climate change targets. Given the overall cost of the ROS of up to £69.5 million by 2010, this represents a cost of £315/ktC saved.

## **Effect on Work Incentives**

35. It is expected that the ROS, by stimulating investment in new environmentally beneficial technologies, will have a favourable impact on employment. As stated in paragraph 24, the world-wide market for renewables has the potential to grow significantly. Previous estimates<sup>6</sup> have suggested that working towards the UK target of 10%, combined with efforts to improve export capability, could result in an additional 10,000 – 45,000 jobs in the UK renewables sector. Many of these jobs are expected to be in Scotland. These figures must be treated with caution, however, given the dearth of rigorous research in this area.

## **Impact on Retail Price Index (RPI)**

36. The ROS 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%.

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<sup>6</sup> Department of Trade and Industry. (1999). *New & Renewable Energy: Prospects for the 21<sup>st</sup>*.

## **Results of Consultations**

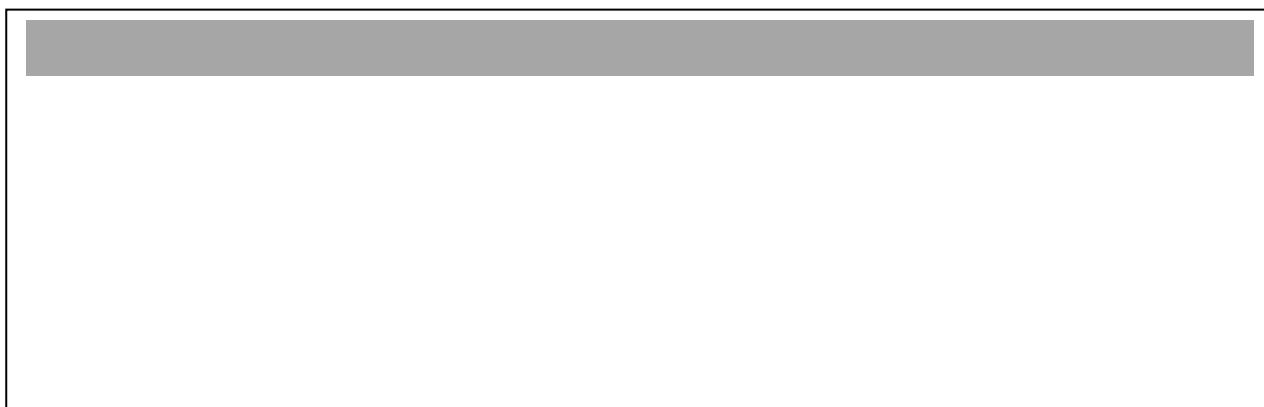
37. A preliminary consultation on the ROS was held in the autumn of 2000, with over 150 responses being received from a wide cross-section of parties including electricity suppliers, renewable electricity generators and non-governmental organisations. A further statutory consultation was conducted in August 2001. Summaries of the responses to both consultations are available from the Scottish Executive Energy Division.

## **Summary and Recommendations**

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

## **Enforcement, Sanctions, Monitoring and Review**

39. The ROS will be administered by OFGEM. Administration and enforcement will also be undertaken by OFGEM.



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