

# RENEWABLE ENERGY

Laura Helm, UK National Audit Office

## INTRODUCTION

The threat of climate change requires an urgent response from all countries. The recently ratified Kyoto Protocol requires developed countries to reduce their greenhouse gas emissions by an average of 5% of 1990 levels by 2008-12. The UK's share of this target is a reduction of 12.5% over this period. In order to achieve this, in 2000 the UK Government put in place an overarching Climate Change Programme. The Programme consists of various measures to reduce carbon emissions, including the promotion of energy efficiency, both in homes and businesses, and encouragement of low carbon transport.

The promotion of renewable energy is a key pillar of the Climate Change Programme. Renewable sources of energy include the sun, the wind, and biomass. Generation of electricity from these sources produces no carbon dioxide, or in the case of energy from biomass, only returns to the atmosphere the carbon dioxide that had been absorbed by the growing plant. The UK Government has set a target of 10% of UK electricity to be supplied from renewable sources by 2010. Achieving this will reduce carbon dioxide emissions by some 9 million tonnes a year, making a significant contribution to the UK's Kyoto target.

## WHAT POLICY TOOLS ARE IN PLACE?

Renewable sources of electricity are generally more expensive than conventional fossil-fuel power generation, and as such, need additional support in order to be economically viable. Since 2002, the UK Government has put in place a policy package aimed both at achieving its target for 2010, and its longer term aspiration of 20% of UK electricity coming from renewable sources by 2020, as follows:

- **Renewables Obligation:** This is the main mechanism for promoting renewable energy. It is a market-based traded certificate scheme designed to encourage greater electricity production from renewable sources by increasing the income that renewable generators receive. It is a complex scheme by which the electricity consumer covers the additional cost of renewable generation through slightly higher electricity prices.
- **Capital grants schemes:** Some renewable technologies, such as offshore wind power, are relatively new, which can make it difficult for firms to finance projects. Therefore in 2002, the Government set up two capital grants schemes to support offshore wind and bioenergy. The UK's first offshore wind farm, off the coast of North Wales, came into operation last year. A further 11 offshore projects will come online over the next two years.
- **Research and Development grants:** There are other renewable technologies that are still in development, including wave and tidal power, which have potential to provide a contribution to the UK's electricity needs in the long run. The Government has a long term Research and Development programme aimed at supporting these technologies.

This package of support measures has been in place for three years. The Government hopes that they will lead to a rapid growth in renewable energy generation, from 2.4% of UK electricity supply

in 2003-04 to 10% by 2010. As such, at this interim stage we thought it would be helpful to the Government to take stock of its achievements to date, and the likely progress from now until 2010.

## WHAT QUESTIONS DID WE ASK?

We framed our study methodology around the 3 questions which we saw as key to the subject:

- Based on the most up-to-date analysis, how likely is it that the Government will achieve its 10% target for 2010?
- Are there any barriers to it achieving the target, and is it working effectively to overcome these?
- How much will it cost the consumer and taxpayer to meet the target, and does this represent value-for-money for both parties?

## WHAT DID WE DO?

In order to answer these questions, we used a number of different approaches, as follows:

- **Economic analysis:** We employed consultants to carry out an economic analysis of the Renewables Obligation. This included estimating what the level of achievement would be by 2010, and analysing the level of incentives provided by the Obligation to renewable generators. This analysis allowed us to publish a report containing up-to-date estimates of how successful the Government was predicted to be in reaching its target.
- **Analysis of policy development:** We used criteria on best practice in policy-making to analyse the policy development process. We did this through review of the Government's policy development files and interviews with civil servants. This work informed our understanding of how the Government had arrived at the current policy framework.
- **Stakeholder interviews:** We conducted interviews with various Government bodies involved with renewables, trade associations, renewable energy companies, financiers from the City of London, and non-governmental organisations. The interviews provided us with information on the concerns in this sector, and created stakeholder engagement with our work.
- **Analysis of data:** We analysed data on the Renewables Obligation and capital grants schemes in order to provide an early view on how they were performing against their initial objectives. This allowed us to establish how well the Government was performing now, and whether it was on track to meet its targets.
- **Literature review:** We reviewed a range of recent documents produced by Government departments, parliamentary select committees, non-government organisations, and private sector consultancies. These helped inform us of latest developments in the renewables sector. The literature review gave us an increased knowledge of other analysis and work being conducted in the field so that we were able to direct our work to areas where we could add most value.
- **International Comparisons:** Our consultants carried out high level comparisons of the renewable energy programmes of other countries to see if there were any lessons that could

be learnt from abroad. The international comparisons gave us an appreciation of the innovative approach that the UK is taking, through the Renewables Obligation, in comparison to other European countries.

- **Expert panel:** We also invited experts from the renewables sector to provide advice and guidance on our methodology and emerging findings.

## WHAT DID WE FIND?

We reported that the UK Government was on course to meet its 10% target. Our consultants estimated that 9.9% of UK electricity would come from renewable sources by 2010. However, this level is dependent on electricity prices remaining at their current level in the short to medium term. It is also dependent, among other factors, on upgrades being made to the UK's national grid network, and on changes to the planning system proving effective.

We also found that as a means of reducing carbon emissions, the promotion of renewables is not as cost effective as other policy approaches such as the promotion of energy efficiency. In addition, over time, up to a third of the financial support provided to renewable generators under the Renewables Obligation may be in excess of what they need to build their sites. This is particularly the case with onshore wind and landfill gas power stations.

## WHAT NEXT?

On publication, we received coverage both in the national and local media, through television, radio and newspapers. Editors tended to focus on the impact that the Government's policy was having on electricity consumers' bills.

In February the UK Parliament's Select Committee of Public Accounts held a hearing based on the report. It will shortly produce its own report based on the hearing and the NAO's report, which will make recommendations to the Government on the way forward.

The Government is also conducting a review of the Renewables Obligation this year. We are working with the Government to see how our work can be fed into this review to provide greatest value.

Finally, the Government is also reviewing its wider Climate Change Programme this year. We hope that our work will help inform the policy debate for this process.