CARBON TRUST

Carbon Trust NI Submission to Environment Committee Inquiry into Climate Change

February 2009

Making business sense of climate change

Contents

Introduction

Background

This document has been prepared by Carbon Trust Northern Ireland in response to the Environment Committee's inquiry into Climate Change. We welcome this opportunity to contribute to this inquiry and our submission builds on the experience gained by Carbon Trust working in Northern Ireland (NI) since 2002.

The Carbon Trust is grant funded by DECC (the new Department of Energy and Climate Change where both our Defra and BERR sponsor teams have moved), the Scottish Government, the Welsh Assembly Government and Invest Northern Ireland. The work of the Carbon Trust in NI is supported with funding from the European Regional Development Fund.

The Carbon Trust

The Carbon Trust is an independent company set up by Government to accelerate the move to a low carbon economy. Working with organisations of all sizes, we deliver our mission by catalysing low carbon enterprise across the UK economy and by helping to deliver carbon emissions reductions now and in the future.

We cut carbon emissions now

- By providing business and the public sector with expert advice, finance and accreditation
- By stimulating demand for low carbon products and services

We cut future carbon emissions

- By developing new low carbon technologies through project funding and management, investment and collaboration
- By identifying market barriers and practical ways to overcome them

The Case for a NI Department of Energy and Climate Change

Although the inquiry's terms of reference only mention the subject of 'energy' once, the fact that the majority of carbon dioxide (CO2 – the principal greenhouse gas) emissions result from the combustion of fossil fuels will necessitate that the inquiry considers matters relating to energy policy in some detail. Indeed, against a backdrop of expected increased demand for energy and the need to make rapid and deep cuts in carbon emissions, we feel these twin imperatives would be best served through the Northern Ireland Executive and Assembly creating a dedicated NI Department of Energy and Climate Change.

The intertwining of key energy and climate change issues is so profound and fundamental that continued separation across multiple Departments risks inefficient and sub-optimal policy and delivery. Such a new Department should be adequately resourced and empowered to ensure that Northern Ireland's move to a low carbon economy is achieved in the most rapid and cost-advantageous manner possible and in such a way as to maximise the wealth creation opportunities for NI plc through the creation, development and commercial exploitation of low carbon intellectual property and technologies.

1. Identify initial commitments for Northern Ireland that will ensure it plays a fair and proportionate role as part of the UK in meeting climate change targets

The so-called "20/20/20" package agreed by European Union leaders for the EU27 in January 2008 set a number of ambitious commitments to fight climate change and promote renewable energy, namely:

- 20% cut in greenhouse gas emissions by 2020, compared with 1990 levels
- 20% contribution from renewable energy sources (by consumption) by 2020
- 20% cut in energy consumption through improved energy efficiency by 2020

This sets the context for the UK agreed target of a 15% contribution from renewable energy by 2020 and although this target is not presently disaggregated by country, we believe that NI's contribution to the UK (and EU) target should be at least of this magnitude i.e. at least 15% of NI's total energy consumption (electricity, thermal and transport energy) should come from indigenous renewable energy sources by 2020. Indeed, in light of other considerations such as concerns about security of supply, we believe consideration should be given to setting a higher target as part of a comprehensive, holistic package of measures designed to achieve rapid, deep cuts in NI's carbon emissions. Exploitation of the technical resource available from wind energy and an aggressive policy towards improving standards of energy management (conservation and efficiency) will be the key tenants of such a package.

In December 2008, the Committee on Climate Change (CCC) proposed carbon budgets to put the UK on a trajectory to reduce emissions by 80% (from a 1990 baseline) by 2050, and their proposals included an interim target of 34% reduction by 2020, rising to 42% if a global successor deal to Kyoto is reached.

An 80% reduction is estimated to be achievable at a cost of between 1-2% of UK GDP in 2050. But cost is not the only barrier to success. Achieving these targeted reductions challenges businesses' and the public sector's current capabilities and resources as well as demanding a shift in technologies and business models.

The sustainable development strategy for Northern Ireland and the Executive's Programme for Government includes a number of very challenging energy and climate change related targets including:

- Reducing NI's CO2 emissions by 30% below 1990 levels by 2025;
- Reducing NI carbon footprint by at least 25% by 2025; and
- 40% of electricity consumed beyond 2025 to be from indigenous renewable sources

Attainment of these targets in NI will require a multi billion pound investment in both generation capacity and demand-side management projects over the next 10-plus years. Investment at this scale will require careful planning and management to ensure NI's move to a low carbon economy is achieved at maximum cost advantage to businesses and citizens.

We believe that NI's contribution to UK/European carbon reduction targets can be best managed and delivered through the establishment of a NI Department of Energy and Climate Change, allowing such a Department to take ownership of the various targets and policies presently set by DETI, OFMDFM, DoE, DARD and others. The following actions will help NI deliver on challenging carbon reduction targets in an optimal manner:

- Adopt – as a minimum – the SMART targets set by the Climate Change Act and ensure that the processes and procedures for carbon budgeting and accounting envisaged by the Act, are applied at a NI level.

- Development and delivery of an evidence based implementation plan to ensure carbon reduction targets are met in the more cost advantageous manner i.e. prioritising measures with the lowest carbon abatement cost.
- Delivery of focussed, targeted, carbon reduction awareness campaigns aimed at the various sectors of the economy explaining the need to reduce emissions and highlighting the associated opportunities e.g. reduced energy bills, new business opportunities.
- NI Public Sector organisations to demonstrate leadership through an accelerated programme of decarbonising their estates which will not only bring about substantial resource efficiency gains but will help build capacity and capability within local businesses regarding the delivery of low carbon solutions.
- Ensure NI's Building Regulations, Investment Strategy and Planning processes drive a rapid move to low carbon buildings, infrastructure and solutions.
- Avoid 'exporting wealth' through the purchase of non-indigenous low carbon energy and/or carbon credits.

It is worth noting that although absolute reductions in carbon emissions is critical, in order to 'correct' for any 'structural' changes in NI's energy usage, we would encourage the inclusion of robust carbon intensity metrics within a suite of key performance indicators e.g. a measure of the carbon intensity of NI economy expressed in terms of millions of tonnes of carbon per £'000 million GDP.

2. Necessary actions and a route map for each significant sector in NI

In 2003, the Carbon Trust and Invest NI commenced a project to develop an action plan that would set Northern Ireland on the path to a low carbon economy. The 'NI Vision Study' examined the prospects for reducing CO2 emissions in five key sectors of the economy. Although the study was concluded in March 2005 many of the key findings remain valid today and we attached a copy of the study report to this submission for the Committee's reference and information.

The study concluded that it was possible to realise a 60% reduction in carbon emissions by 2050 (the then target in the UK Energy White Paper), provided early action was taken to:

1. Optimise energy use by implementing all possible energy efficiency and reduction measures;
2. Decarbonise energy/fuel supplies by investing in renewable energy resources; and
3. Decouple economic growth and social activity from the consumption of high-carbon fuels by developing low carbon technologies, products and services.

The project also published an initial action plan to help initiate this change:

Immediate actions

1. Encourage improvements in energy efficiency in all sectors of the economy by developing additional support mechanisms for smaller organisations and by setting up a capital fund to support major investment in new buildings and industrial plant.
2. Improve building energy efficiency via improved standards, efficiency labelling and compliance monitoring by, for example, requiring all buildings over 1,000 square metres to display a building energy performance certificate that complies with the EU Energy Performance of Buildings Directive. Also support moves towards zero emission buildings.
3. Change public procurement procedures to promote the highest energy efficiency standards and to demonstrate public sector leadership in reducing

carbon emissions. This should include only procuring space in buildings within the top quartile of energy performance, a Government commitment announced in its 2004 Energy Efficiency Action Plan.

4. Improve the quality of data collected on energy use, and make it more readily available to consumers to facilitate better targeting of support for energy efficiency measures and to enable progress to be monitored and publicised.

Developing options for the future

5. Support the exploitation of local renewable resources such as wind and bio-energy by increasing renewable obligations on energy suppliers.
6. Modify the regulatory scheme to encourage the uptake of good quality CHP and discourage the use of inefficient local generators during peak periods.
7. Encourage investment in the fledgling low carbon technology sector and take the lead on developing new technologies where Northern Ireland could obtain commercial advantage.

Cross-cutting actions

8. Develop planning procedures that have the minimisation of energy demand and transport use as prime criteria and explore the options for a transport efficiency programme.
9. Plan and execute sustainability marketing campaigns to capture the hearts and minds of the population and seek to build up the skills base in application of low carbon technologies.
10. Keep a watching brief on international developments in low carbon technologies and position Northern Ireland to become an early adopter of emerging technologies, such as low/zero emission vehicles.

The project also considered the actions necessary for key sectors of the economy and these are summarised in the following annexes to the report:

Annex A	Scenarios for a low carbon economy
Annex B	Prospects for bio-energy in Northern Ireland to 2050
Annex C	Prospects for the commercial, public and agriculture sectors
Annex D	Prospects for the domestic sector to 2050
Annex E	Prospects for power supply in Northern Ireland to 2050
Annex F	Prospects for the industrial sector to 2050
Annex G	Prospects for energy savings in transport to 2050

3. Costs associated with meeting these obligations and compare them with the costs that will be incurred if they are not achieved

A substantial and credible body of work exists into the economics of climate change. The conclusion of such studies encourage early action to reduce greenhouse gas emissions and suggests that the cost of taking action to avoid the worst economic impacts of climate change can be limited to around 1% of global GDP per annum against 5-20% cost of inaction.

The 'NI Vision Study' estimated the cost of reducing NI's carbon emissions by 60% by 2050, which based on the carbon-abatement costs used in national studies, totalled £775 million or around 4% of Northern Ireland's GDP in 2004. This equated to £75 per tonne of CO2, which is at the upper end of the cost range outlined in the 2004

Energy White Paper. However, some wider economic scenarios suggest the cost could be £1.25bn-£2.5bn.

It should be noted that the move to a low carbon economy will deliver significant cost savings brought about by energy efficiency improvements and deployment of cost effective renewable energy technologies. Data from the Government's *Performance and Innovation Unit* report of February 2002 suggests that (based on an annual energy spend of £2bn) at least £500 million per annum could be saved in NI through the deployment of existing, cost effective energy management and energy efficiency technologies and techniques. Indeed, energy surveys conducted by the Carbon Trust in businesses within Northern Ireland has identified over £100 million of annual energy savings (£50 million pa of which have been implemented, reducing carbon emissions by over 465,000 tonnes of CO2 pa) and within the domestic sector where the relative and absolute savings are highest, the Energy Saving Trust has indicated that by improving standards of energy efficiency in the home, the average householder in Northern Ireland could save £340 a year which amounts to over £223 million per annum.

Furthermore, the move to a low carbon economy will generate significant wealth creation and economic development opportunities. The low carbon energy sector has been identified as an important growth focus by a number of UK and global regional development agencies and one which we believe offers a solid foundation for a forward looking, wealth creating, economic strategy for a region like NI.

Northern Ireland already has considerable capability and capacity in a number of key industry sectors which, if strategically managed, could transfer to the low carbon sector. Our natural resources (wind, land, marine) and strategically important infrastructure (e.g. deep-port and cranage facilities), aligned with the internationally recognised talent in low carbon research that resides in both our local Universities, provides the building blocks to enable Northern Ireland to become a significant player in the fast growing clean energy sector - both as a creator of products and services and as an exploiter of the available technologies. This opportunity should be explicitly recognised by the NI Assembly and Executive and help shape the outworking of energy and climate change policy.

There is precedent of some small nations that have implemented a strategic energy technology development focus and who have developed profitable niche markets for global products. For example, Denmark in wind turbine technology, Austria in biomass boiler technology and (to a lesser extent) New Zealand in small-scale combined heat and power systems. Although NI is much smaller than these comparators, there is potential for significant economic benefits through innovative product development and through effective networking and partnering to serve existing low carbon supply chains. If NI fails to develop, deploy and exploit clean energy technologies we face the prospect of importing such technologies whilst exporting wealth from NI.

In an attempt to quantify the opportunities for NI businesses in relation to the renewable energy sector, an initial study by the Carbon Trust determined that although around 2 million jobs could be created across Europe by 2020, NI businesses will need to work hard to realise these opportunities:

- NI businesses need to be creative in thinking about the opportunities that the low-carbon economy will present to develop new products and markets. Manufacturers must also not neglect the service opportunities associated with the low-carbon economy, given the contribution that services can make to their profitability.
- They will also need to act quickly to link into the supply chains being formed to produce the new low-carbon products and establish an early toehold in emerging global markets.
- The risks and expense involved in developing new low-carbon products means that NI manufacturers will also increasingly need to look at identifying potential collaborative partners.

- Alongside the government, industry must also make the commitment to invest in the R&D and skills required to deliver the low-carbon economy.
- Firms also need to look beyond their current relationships and approaches to markets. For example, the key role that manufacturing will play in the low-carbon economy gives it the chance to improve its profile and image.

Clearly the exact number of jobs created in the NI economy depends on many factors. It would depend on the success of companies exploiting supply chain opportunities and exporting products and services to the UK and EU. The initial estimates for potential job creation in NI set out in the table below is based on the premise that NI companies could capture a small share of the total EU and UK market through export of goods and services, and a significantly larger share of the home market. The table provides a range based on NI capturing 0.1% - 1% of total jobs generated in the EU market; 1% - 2% in the UK; and 5% - 10% of jobs generated through renewable energy in Northern Ireland. NB: these estimates are best considered as a discussion point and in actuality would vary depending on the NI's success in capturing potential opportunities.

High case		***Low case***	
Share of Jobs in Renewables	***Potential Employment***	***Share of Jobs in Renewables***	***Potential Employment***
1% of total jobs generated in EU	*20,230*	*0.1% of total jobs generated in EU*	*2,023*
2% of total jobs generated in UK	*11,280*	*1% of total jobs generated in UK*	*5,640*
10% of total jobs generated in NI	*1,614*	*5% of total jobs generated in NI*	*807*
Potential number of jobs in NI	*33,124*		*8,470*
Average GVA per employee NI	*£29,853*		*£29,853*
Total GVA pa	*£989m*		*£253mil*

This provides an indication as to the number of jobs that could potentially be generated in NI based on the assumed percentage share of the total market in each region. This percentage share could vary and is subject to the aggressiveness of NI companies in participating and benefitting from renewables supply chain opportunities.

If NI companies position themselves well to benefit from the opportunities arising through the renewables supply chain in the coming years the number of jobs created in NI could potentially be around 33,000; this represents an addition to the economy of c£1billion per annum in terms of GVA.

To put this into perspective:

- The EU Commission estimate that continued investment in renewable energy systems could generate an additional 2,023,000 people in full time employment in the EU by 2020, accounting for jobs lost in the traditional energy sector;
- Total energy infrastructure investment in the EU before 2030 is estimated at more than $2 trillion;

- A detailed study by the Carbon Trust has estimated that UK revenues from offshore wind could hit £8bn per year by 2020 and create up to 70,000 jobs in the UK;
- In 2006, the global wind industry employed 235,000 people according to WWEA;
- Germany reports 12,500 people employed in the solar hot water industry and 30,000 people employed in the solar PV industry; and
- The Obama-Biden comprehensive New Energy for America plan aims to help create five million new jobs by strategically investing $150 billion over the next ten years to catalyze private efforts to build a clean energy future.

4. Formal cost effective mechanism for assessing the potential impact of new policies on climate change / CO2 emissions

We strongly support the introduction of a formal 'climate change' / 'GHG emissions' / 'low carbon economy' proofing requirement for all NI originated policies. This approach should be extended to inform all major projects in NI which would entail, for example, subjecting significant public and private sector infrastructure investments to such a proofing test. Such a systematic process would help avoid lock-in to high carbon projects and systems and help 'future-proof' strategic investments. The cross-Departmental nature of this requirements points again to the need for a NI Department of Energy and Climate Change, or similarly mandated Department.

5. Appropriate targets/actions that could be included in the new Northern Ireland Sustainable Development Implementation Plan

The science of climate change presently indicates that the UK and other 'developed' economies need to reduce their GHG emissions by 80% by 2050 as a commensurate and proportionate response to enhanced climate change (this being legislated for by the Climate Change Act which commits the UK to an 80% reduction relative to 1990 base year). Although, this UK-wide target has not been disaggregated by country, we believe that it should be adopted by NI and that the process and procedures for carbon budgeting and accounting envisaged by the Act, should be applied at a NI level. This will help ensure that NI truly plays its part in moving to a low carbon economy. All NI-specific GHG targets should be kept under review in light of emerging research regarding enhanced climate change and scale of cuts required in GHG emissions.

We also believe there is merit in revisiting a number of climate/energy related targets within the sustainable development strategy for NI to ensure that they are SMART and will deliver on the policy objectives in the most cost-efficient manner.

6. How the Assembly might conduct more effective scrutiny of climate change responsibilities across all relevant departments

We feel that this would best be achieved through the Northern Ireland Executive and Assembly creating a dedicated NI Department of Energy and Climate Change.

The cross-cutting nature of climate change and the move to a low carbon economy is so profound that continued separation of responsibilities across multiple Departments risks inefficient and sub-optimal policy and delivery. Such a new Department should be adequately resourced and empowered to ensure that NI's move to a low carbon economy is achieved in the most rapid and cost-advantageous manner possible and in such a way as to maximise the wealth creation opportunities for NI plc through the creation, development and commercial exploitation of low carbon intellectual property and technologies.