



Environment and Renewable Energy Funding Package

Northern Ireland Priorities and Budget 2006-08

SECURING OUR FUTURE

February 2006



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* Photos courtesy of Northern Ireland Tourist Board

Foreword

by the Secretary of State



During 2005, extreme weather conditions around the world tested human resilience to the limit and provided further indications that significant climatic change is taking place.

Energy usage is a major source of the greenhouse gases that contribute to the climate change affecting the weather. Yet demand for energy continues to grow.

We must take action now to reduce the amount of energy we use and reduce the levels of harmful emissions from our energy usage to help protect the environment. The Environment and Renewable Energy Fund is designed to help everyone in Northern Ireland contribute to doing so.

The availability of energy is central to economic growth and stability. Energy markets have changed fundamentally over the last two years. High and volatile fuel prices have altered consumer perception of long-term affordability and more people are finding it difficult to heat their homes. Businesses are dealing with higher energy costs impacting on their margins and reducing competitiveness.

There are also concerns over future security of supply as world demand for energy dramatically increases, particularly from China and India. The

imperative of protecting fossil fuel reserves is beginning to show through in premium energy prices and levies, such as the EU Emissions Trading Scheme, are beginning to have an impact on price by passing the environmental cost of carbon dioxide emissions through to end users.

But there is good news too. 2005 also saw the penetration of renewable energy into Northern Ireland's energy mix experience a step change. The introduction of the Renewables Obligation doubled the amount of electricity supplied to Northern Ireland consumers from renewable sources. The world's only combined heat and power wood pellet production facility opened at Enniskillen and work to develop the world's first commercial marine current turbine got underway at Strangford.

This is encouraging progress, but it represents only the first few steps along the road. The Environment and Renewable Energy Fund will enable Northern Ireland to build on this progress and help ensure everyone takes more responsibility for how they obtain and use energy, creating a truly sustainable energy system.

As detailed in this document, the Fund will enhance the long-term sustainability of the Northern Ireland energy system in a manner which increases the security and diversity of supply. It will help protect biodiversity, encourage innovation and the development of new skills; underpin employment and create new job opportunities (particularly in the rural communities) and

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contribute to the reduction of energy costs, aiding industrial competitiveness and helping to alleviate fuel poverty.

The efficient use of energy will be targeted by revisions of building standards in Northern Ireland. The use of solar, geothermal and wood for energy in efficient modern heating systems will also be encouraged through grant assistance as this can reduce the amount of oil and gas used for heating purposes and can help alleviate fuel poverty. Additionally, using renewable sources of heat and power will create substantial internal economic wealth in Northern Ireland through agricultural and engineering diversification and the development of new skills in the workforce through innovation and transfer of technology and scientific knowledge.

Already Thermomax in Bangor is a world leader in solar heating technology, the Copeland plant in Cookstown is the world's largest supplier of compressors which are increasingly being used in heat pumps and Harland & Wolff has captured an important part of the specialised market in offshore windfarm logistics.

The demand for renewable energy technologies in Europe is growing fast and I want to ensure that businesses here seize the opportunities.

The drive for renewables will also enable local businesses to gain closer control of their energy costs by using renewable fuels sourced locally. The increased use of advanced renewable energy solutions to cost effectively treat and dispose

of organic wastes in a safe manner will benefit the environment, help protect business margins, enhance competitiveness and safeguard jobs.

It is Government's responsibility to provide leadership in energy consumption through sustainable procurement, both as a means of reducing our impact on the environment and in helping to build the infrastructure and capacity necessary to create and support a vibrant renewables market in Northern Ireland.

The Environment and Renewable Energy Fund will add significantly to the existing programme of renewable energy activities.

Taking a strong position in favour of renewable energy is good for business, good for jobs, good for the environment and in the longer term is the only sustainable way to secure a cleaner more reliable energy system for the future generations of Northern Ireland.

The renewable energy achievements of the past year have seen Northern Ireland become a leader in the UK and the time is now right to build on these to position Northern Ireland as a world class exemplar in this field and make use of tomorrow's energy today.



Rt Hon Peter Hain MP

Secretary of State for Northern Ireland

27 February 2006

Introduction



Northern Ireland's energy policy places targeted demand reduction and the development of renewable energy sources at its heart. The Strategic Energy Framework for NI (SEF) published in June 2004 by the Department of Enterprise, Trade & Investment set four priorities:

- to reduce energy costs relative to other UK/EU regions;
- to build competitive energy markets;
- to protect our future by enhancing sustainable energy supply and consumption; and
- to maintain reliable energy supplies.

This reflects the Economic Vision, which acknowledges that the social, economic and environmental well being of Northern Ireland is enhanced by the provision and maintenance of quality infrastructure and that sustainable development activity offers opportunities for enterprise and innovation.

In line with the overall climate change agenda and the NI Sustainable Development Strategy, the SEF places a firm emphasis on renewable energy

generation and reduced environmental impact. A secure and diverse supply of sustainable energy will help insulate NI customers against the volatility of carbon based fuel prices; more efficient power stations will

reduce emissions and more energy efficient homes will reduce demand.

Renewable energy also offers wider benefits to Northern Ireland through the accelerated development of energy infrastructure, the introduction of new skills and innovation through increased enterprise and the opportunity to alleviate fuel poverty. However, success here depends on actions which simultaneously encourage more supply of renewables and also create sufficient demand to sustain a vibrant market.

Northern Ireland has already demonstrated its strong commitment to reducing the environmental impact of energy supply and consumption. 75% of our electricity generation is from clean, efficient gas-fired power stations with plant efficiencies averaging 50% - amongst the highest in the UK with the result that the carbon dioxide intensity of generation in 2003 was at least 16% less in Northern Ireland than 1990 levels.

The renewable electricity market in Northern Ireland has been fully incentivised, primarily with actions on the supply side, by the introduction of a Renewables Obligation from April 2005 which provides £140 million of direct support up to 2012.

The Obligation has already stimulated the investor confidence necessary to secure the prospect of £500 million of private investment in the Northern Ireland energy system and the amount of electricity supplied from renewable sources in Northern Ireland has doubled in the past twelve months.



Offshore Wind Farm Logistics at Belfast's shipyard

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There has been an encouraging increase in the use of household scale renewables but the actual number of installations which would deploy without assistance remains small and insufficient to support sustainable growth of renewable energy businesses.

Less attention to date has been given to incentivising the renewable heat market and this is an immediate priority area as it offers significant opportunity for local economic growth through alternative land use in Northern Ireland. The full decoupling of agricultural subsidies support from output, which began in 2005, enables farmers to make better informed production decisions based on market prices and demand. This makes large scale diversification into the production of energy crops possible and will in the longer term result in higher farm incomes.

Within this context the overall aim of the Environment and Renewable Energy Fund is to enhance the long term sustainability of the Northern Ireland energy system in a manner which increases security and diversity of supply, encourages innovation and the development of new skills, underpins employment and creates new job opportunities, particularly in the rural community and contributes to the reduction of energy costs which aids industrial competitiveness and alleviates fuel poverty.

The Fund will support action in four programmes:

- Research and Demonstration £15.2 million
- Building Market Capacity through the

Provision of Infrastructure and Supply Chain Development £2.5 million

- Accelerated Deployment £35 million
- Underpinning Knowledge and Raising Awareness £6.5 million.

The Department of Enterprise, Trade and Investment will lead on this £59.2 million package over the next two years, working in conjunction with the Department of Agriculture and Rural Development (DARD), Department of Social Development (DSD), Department of the Environment (DOE) and the Department of Finance and Personnel (DFP) and other organisations. This new package is expected to leverage a further £300 million of private investment in local energy infrastructure. An analysis of how the Fund will be invested is shown at Appendix 1 and a detailed breakdown of individual projects being pursued within each of the four programmes above is provided in the following sections.

*Northern Ireland's Largest Wind Farm at
Altahullion, Limavady
(Copyright B9 energy)*



Research

and Demonstration (£15.2m)

In the past only modest resources (around £400k annually) have been available to encourage and facilitate the demonstration of innovative renewable energy solutions. Projects sponsored have included the use of small-scale wind turbines in commercial settings, experimental willow growing for heat purposes and bio-diesel combined heat and power generators.

Projects have been expertly implemented but perhaps due to the lack of investor confidence have struggled to become fully commercial. The new funding now being made available will further elevate energy research and enable commercial scale demonstration of renewable energy at a level which will place Northern Ireland at the cutting edge within Europe.

The aim of the Research & Demonstration Programme is to identify and assimilate best practice and develop plans to encourage the integration of renewable energy in Northern Ireland through effective demonstration in the following areas:

- innovative energy from waste plants which deal positively with waste management, reduce business costs, underpin the economy and enhance the support which renewables can provide to the electricity grid;
- integration of renewable energy into commercial activity particularly when the energy resource arises as residues from the main business activity;
- exemplars within the public sector by installing a biomass fuelled combined heat and power plant on the Stormont Estate to supply 40% of electricity demand of the Estate buildings and the majority of heat requirements. In addition, a flagship renewable energy centre of excellence will be developed within the Agricultural Research Institute at Hillsborough to assist the agri-food industry to maximise the potential of renewable energy and support technology transfer activities;
- research on an all-island basis into the future development needs of the electricity grid to ensure the maximum penetration of renewables at 2020 and beyond;

Greening the wires - a big task

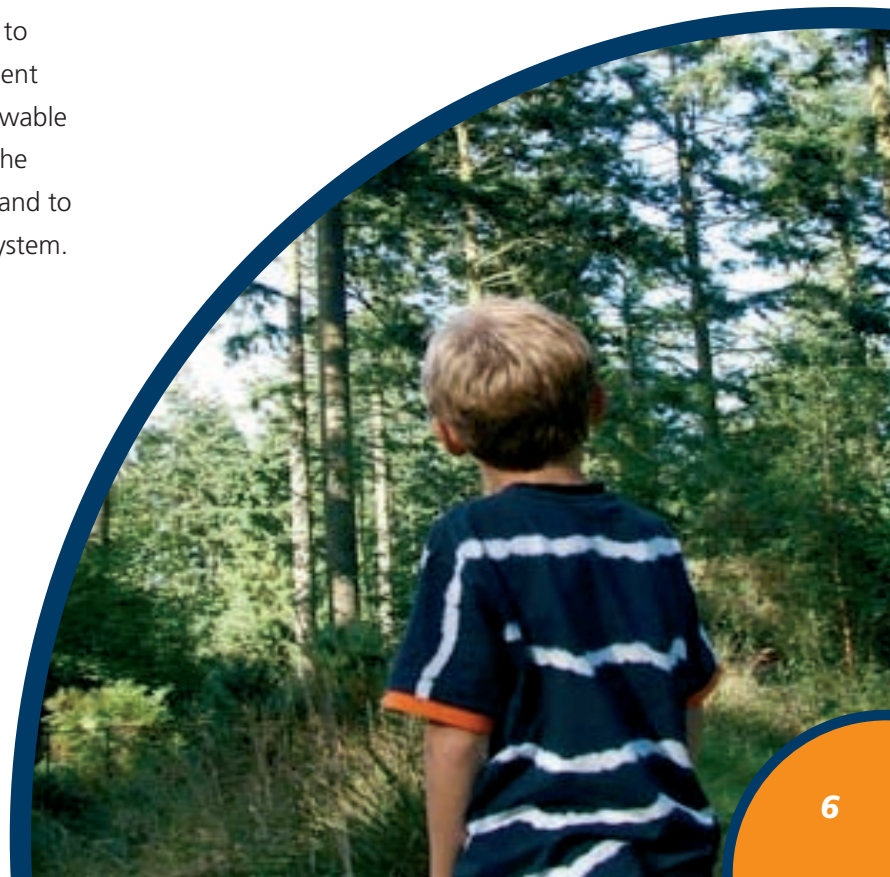
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- investigation of Northern Ireland's unique salt cavern geology to determine its suitability for gas storage, the strategic deployment of compressed air as a support for intermittent wind energy and CO₂ capture; and
- pilot installations of small-scale community heating in selected Housing Associations as a demonstration of the benefits of renewable energy in social housing.

The overall outcome of the Research & Demonstration Programme will be the creation of a market for renewable electricity and heat supported by flagship projects which demonstrate viability and encourage replication. The public sector will have provided leadership by making a decisive switch to renewable fuel sources and will have created a world class renewables research facility providing a database of locally relevant scientific, technical and financial information to support investment decisions. The development needs of the electricity grid to maximise renewable penetration will have been identified as will the potential of salt deposits within Northern Ireland to play an important future role in our energy system.

Energy from the trees



Building

Market Capacity through the Provision of Infrastructure and Supply Chain Development (£2.5m)

The climate and soil conditions in Northern Ireland are ideally suited to growing crops and forestry which could be used to provide primary heat energy for the future.

The Department of Agriculture and Rural Development has supported significant trial planting to determine the optimum approach and has since 2004 operated a Challenge Fund for Short Rotation Energy Crops which has resulted in 300 hectares of willow planting out with an additional 250 hectares of applications being considered. However, if the supply of renewable heat is to develop further investors must have confidence that a stable, competitive and demanded market can be sustained and adequately serviced by appropriate infrastructure.

Additionally, from research already completed, it is clear that Northern Ireland could

use significant geothermal energy for heating in schools, domestic and small commercial applications. To date, no direct assistance has been provided to help unlock the potential of geothermal energy in Northern Ireland. Capital cost is the only barrier to its widespread use and this is expected to dramatically reduce with scale and competition so long as an appropriate market is developed from the outset.

The new funding being made available will accelerate the development of renewable heat markets where demand and supply are broadly in equilibrium and long term development will occur without the need for continued financial assistance. Key market initiatives that will be supported include:

- encouragement for a co-operative approach to providing strategically located wood drying, storage and logistics facilities to support growers placing their product in identified markets;
- co-operative provision of drilling equipment needed to access geothermal energy resources with the aim of reducing the capital costs of installation by up to 40%; and
- leveraging private sector investment to develop the energy services company (ESCO) market by providing long term contracts to supply 10 megawatts of renewable heat to the public sector, with a particular emphasis on rural schools.

Willow growing at Brookhall Estate, Londonderry

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This investment will ensure that the use of geothermal heat pumps as mainstream heating becomes viable with around 500 new installations completing over the next two years. Additionally, the stable demand for biomass created by the issue of long-term contracts will add significant value to forestry products and encourage landowners to diversify into growing energy crops. The support provided over the next two years will act as a catalyst for the development of a fully mature supply chain.

*Geothermal Heat Pump in
Roan Primary School, Dungannon*



Accelerated

Deployment (£35m)

Over the past three years, financial support for the commercial deployment of renewable energy has mainly been provided from UK funds managed by the Department of Trade and Industry. Grant support from Northern Ireland public resources has been around £½ million per year so the use of renewable energy has been out of reach for the majority of householders.

The adoption of renewable energy solutions in the commercial sector has also been patchy and dependent upon high levels of support although there are indications that high oil prices and the cost of

other fuels has enhanced the attractiveness of renewable energy investments.

The Accelerated Deployment Programme aims to achieve a step change in the use of renewable sources to provide heat, light and power requirements in domestic dwellings, commercial premises and public sector buildings through:

- providing grant assistance to approximately 4,000 householders using renewable energy systems, targeting high energy users to maximise the impact of assistance;
- installing at least 600 solar hot water systems in social housing with preference to fuel poor households;
- increasing the number of energy efficiency measures provided under the Warm Homes Scheme from 8,250 to 10,000
- enhancing the support available to schools and other public sector organisations switching to renewable sources of energy and ensuring that Government office buildings make use of renewable energy where possible; and
- purchasing 10 megawatts of renewable generation with the electricity it provides being used to help alleviate fuel poverty and the value of Renewable Obligation Certificates (ROCs) being reinvested in further renewable energy projects.

This uniquely structured programme will help create a self sustaining market for domestic renewable energy solutions

NIHE Switch to Solar Power, Markethill

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thereby create new job opportunities, reduce demand for grid electricity, help alleviate fuel poverty and encourage the use of renewables in commercial operations as a means of reducing energy costs and increasing competitiveness.

It will also enable the public sector to begin a decisive switch to renewable heat, particularly schools which can integrate their experiences of using renewable heating into the learning of their students.

This programme will further enhance the use of renewables in social housing which is of particular importance for vulnerable tenants and also enable many more households to become more efficient in their use of energy.

The world's first combined heat & power wood pellet plant at Balcas, Enniskillen



Underpinning

Knowledge and Raising Awareness (£6.5m)

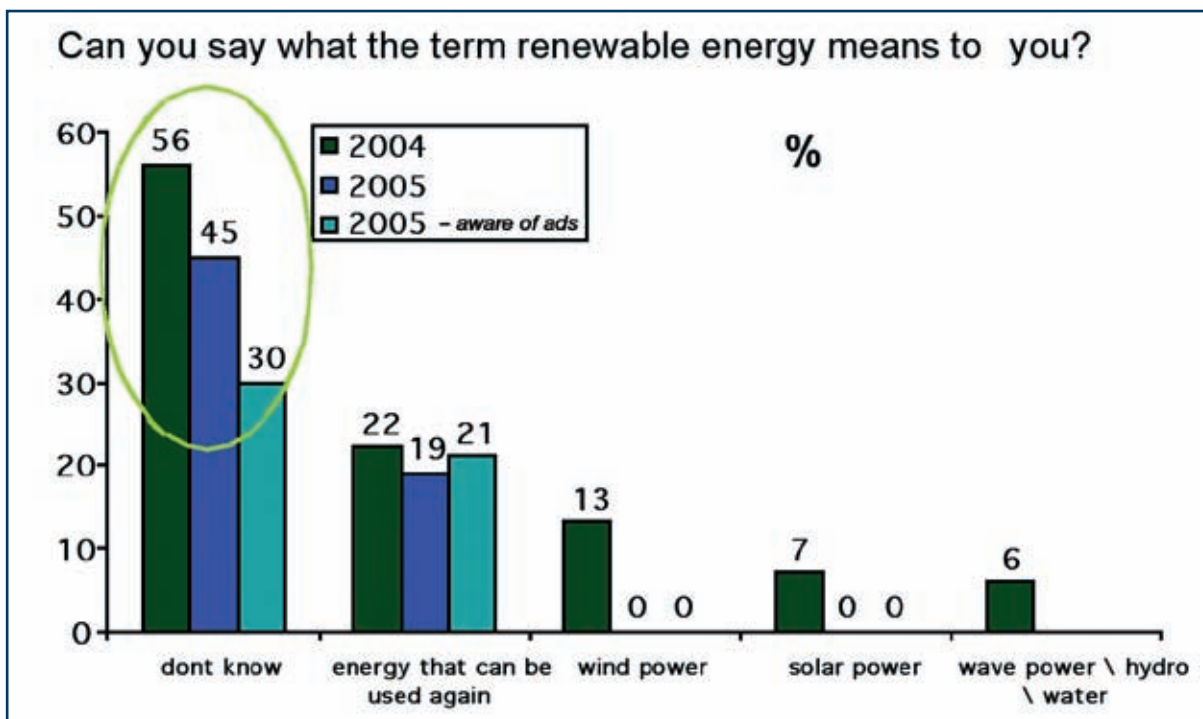
Government has invested over £2 million since 2003 in efforts to raise awareness of the benefits of renewable energy and the need to reduce consumption of fossil fuels. Creating the conditions which deliver lifestyle changes of the scale necessary to make a real difference is neither easy nor short-term in nature.

Recent surveys carried out for DETI confirmed that a relatively small number of consumers in Northern Ireland understand the consequences of energy consumption and many had little appreciation of how the electricity they currently use is generated. Despite this, once introduced to renewables, the

level of acceptance and support for its use was amongst the highest in the United Kingdom.

The funding now being made available will support activities aimed at enhancing knowledge of sustainability issues, raising awareness of the impact of unsustainable consumption of energy and provide assistance for those wishing to take corrective action. An intensive integrated communications strategy, to ensure uptake of renewable energy grants by householders, will be rolled out as follows:

- a focused media campaign to build awareness of renewable energy options and build support for preferring energy from green sources;



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- public outreach activities including information seminars, training courses and roadshows to achieve direct engagement with specific target audiences; attendance at appropriate public events and exhibitions with high footfall possibilities;
- production of a suite of literature on all aspects of sustainable energy tailored to individual target audiences for use in outreach programmes and in direct mail campaigns;
- production of technical and best practice guides for installers, investors and householders;
- the creation, maintenance and publication of approved renewable energy equipment and installers listing for Northern Ireland;
- development of interactive web resources to underpin the sustainability in energy theme; and
- development of the Action Renewables Education Programme to encompass both primary and post-primary schools in a curriculum-linked programme available to every school in Northern Ireland.

Additionally, the importance of sustainable development, in particular climate change and energy consumption, will be highlighted through an integrated awareness campaign developed to complement the Northern Ireland Sustainable Development Strategy.

The result of the significant new activity anticipated in this area will be a better informed society fully aware of the choices available and sufficiently empowered to take corrective action. Young people in particular will be the focus of much of the activity envisaged within this programme, as they will play an important part in securing tomorrow's energy by making changes to their lifestyles today.

500th Primary School (Fairhill, Dromara) to complete the half day learning on renewable energy



Appendices

Appendix 1

Research and Demonstration (£15.2m)

Project	06/07 £m		07/08 £m	
	Revenue	Capital	Revenue	Capital
1. Non Domestic Programme Encourage commercial, industrial and agricultural premises to make use of renewable energy. DETI , Invest NI, Carbon Trust.	.15	1.25		
2. Energy Flagships Ensure that two energy from waste flagship projects (municipal, industrial or agricultural) are developed. DETI , DARD, DOE.				6
3. Implement a significant programme of Research:- a. into the grid constraints and investment needs on an all-island basis in support of the 2020 vision; and b. the potential for using NI's unique geology (salt caverns) to store energy and underpin renewables. DETI , DCMNR (RoI).	.75		.75	
4. Renewable Energy/Energy Efficiency in Social Housing Install innovative 'community heating' using renewable energy in Housing Association developments as demonstration pilots. DSD , Housing Associations.		.25		.25
5. Stormont Estate Combined Heat and Power A flagship biomass CHP plant to provide energy requirements on the Stormont Estate. DFP .		1		1.1
6. Renewable Energy Centre of Excellence Develop the new Agricultural Research Institute at Hillsborough as a renewables centre of excellence to demonstrate the potential of renewables to the agricultural community. DARD , DETI.		.80		1.35
7. Bio energy Research, Technology Transfer and Commercial Demonstration at Farm scale DARD , DETI, DOE.	.60	.20	.75	
SUB-TOTAL	1.5	3.5	1.5	8.7

Lead department in bold

Appendix 2

Building Market Capacity through the provision of Infrastructure and Supply Chain Development (£2.5m)

Project	06/07 £m		07/08 £m	
	Revenue	Capital	Revenue	Capital
1. Bio Energy/Geothermal Infrastructure Ensure that the necessary infrastructure to support bio energy/ geothermal is in place. DETI , DARD.		1		1
2. Development of Energy Services Company (ESCO) Market Provide long-term contracts to ESCOs to supply 10 megawatts of renewable heat at no more cost than the whole life cost equivalent of fossil fuel systems. This would also underpin the rural economy requiring 4,000 acres of SRC willow to plant out. DETI , DFP, DARD.	.25		.25	
SUB-TOTAL	.25	1	.25	1

Lead department in bold

Appendices

Appendix 3

Accelerated Deployment (£35m)

Project	06/07 £m		07/08 £m	
	Revenue	Capital	Revenue	Capital
1. Household Programme Aims to enable at least 4,000 private households to install solar, PV, biomass, wind or geothermal energy systems and enhanced energy efficiency measures. DETI , Action Renewables.		3.9		4.1
2. Renewable Energy Assets Purchase up to 10 MW of renewable energy generation (preferably from waste) with the electrical output being used alleviate fuel poverty (approx 20,000 households) and the Renewable Obligation Certificates being sold and the premium (£1m per annum) reinvested for developing additional renewable energy assets. A Renewable Energy Investment Fund would be operated to manage receipts. DETI , DARD, DOE.				12
3. Renewable Energy/Energy Efficiency in Social Housing Install 600 solar hot water systems in Housing Executive dwellings. DSD , NIHE.		.6		1.2
4. Energy efficiency in private housing Increase the number of energy efficiency measures provided under the Warm Homes Scheme from 8,250 to 10,000. DSD .		5		4.2
5. Central Energy Efficiency Fund An exemplary scheme to encourage use of renewable energy in wider public sector, with particular emphasis on schools including local government and health. DFP .		1		1
6. Government office buildings Commencement of a programme to include solar and PV energy systems within Government office buildings. DFP .				2
SUB-TOTAL	0	10.5	0	24.5

Lead department in bold

Appendix 4

Underpinning Knowledge and Raising Awareness (£6.5m)

Project	06/07 £m		07/08 £m	
	Revenue	Capital	Revenue	Capital
1. Integrated Communications Strategy to encourage uptake of grants, raise awareness of renewable energy, provide educational tools on renewable energy for inclusion in the curriculum. DETI.	1		1	
2. Raise awareness of sustainable development and NI's ecological footprint DOE.	.25		.25	
3. Develop Action Renewables , enhance research and training activity and improve interfaces with communities and the construction industry and develop a comprehensive best practice database. DETI.	2		2	
SUB-TOTAL	3.25		3.25	

TOTAL ALLOCATION TO EREF (£m)	5	15	5	34.2
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Lead department in bold



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