

PROGRESS REPORT

IMPLEMENTATION OF THE NATIONAL CLIMATE CHANGE STRATEGY

INTRODUCTION

Climate change is recognised as the most significant and threatening global environmental problem. This is being caused by emissions of greenhouse gases that occur as a result of some human actions. The international community responded to this problem at a United Nations conference in Kyoto, Japan in 1997. At that conference, the industrialised world agreed to start reducing these emissions through legally binding targets. Ireland's target is to limit emissions to 13% above 1990 levels over the five year period 2008 to 2012, within an overall EU target to reduce emissions by 8% in the same timeframe.

The *National Climate Change Strategy (NCCS)*, published in November 2000, sets out how Ireland will meet our Kyoto target. Many measures identified in the Strategy are underway and many more will be put in place over the next 10 years to make sure that we meet our target.

This report charts the first year of progress with the Strategy, and identifies major developments about climate change at national, European and international levels. It is divided into four key sections: -

- ▶ firstly looking at international developments,
- ▶ secondly describing the EU position,
- ▶ thirdly listing national developments, and
- ▶ finally outlining the key actions implementing the Strategy.

Section 1 International Developments

NEW SCIENTIFIC REPORT

The Intergovernmental Panel on Climate Change (IPCC) is an international panel of experts which assesses the scientific, technical, social and economic aspects of climate change. Its Third Assessment Report was published in 2001.

The Report found that:

- ▶ there is new and stronger evidence that most of the warming observed over the last 50 years is attributable to human activities,
- ▶ the 1990s was the warmest decade of the last century and carbon dioxide (CO₂) concentration in the atmosphere has increased by 30% since 1750,
- ▶ global surface temperature is expected to increase by between 1.4°C to 5.8°C by 2100 (very likely to be without precedent in the last 10,000 years),
- ▶ precipitation is projected to increase,
- ▶ sea levels will rise in the range 0.09m to 0.88m by 2100.

Further climate change is inevitable – the extent will depend on the levels of greenhouse gas emissions resulting from pollution from human activities.

The key messages from the Third Assessment Report are the real threat of climate change and the need for action to be taken quickly and effectively.

THE BONN AGREEMENT AND MARRAKECH ACCORDS

While countries were prepared to sign the Kyoto Protocol soon after agreeing the key targets, many of the details regarding its implementation had to be decided before countries would agree to ratify it. As sufficient countries must ratify it to bring it into force, intensive efforts have been made in international negotiations since 1997 to finalise the necessary decisions. While some setbacks were experienced at the talks in The Hague in December 2000, and when the US decided to withdraw from the Kyoto Protocol in early 2001, key political decisions were agreed at negotiations in Bonn in July 2001. This Bonn Agreement has succeeded in clearing the way for ratification of the Protocol and its entry into force. The key provisions include: -

- ▶ An international regulatory framework for the operation of international emissions trading (from 2008) and the other flexible mechanisms of the Protocol.
- ▶ Strictly controlled access to additional carbon sinks e.g. through sustainable forestry management practices.
- ▶ A strong compliance regime to facilitate, promote and enforce compliance with the Protocol and to underpin its environmental integrity, including a requirement to make up any shortfall in meeting national emissions reductions targets, plus a 30% penalty.
- ▶ New and additional funding of €450 million per annum by the EU, its Member States and some other developed countries to assist developing countries adapt to climate change.

The agreements reached at Bonn were further developed at negotiations in Marrakech in November 2001, which meant that a comprehensive set of legally binding decisions, setting out detailed rules for implementing the Kyoto Protocol, were finalised.

PROPOSAL FOR RATIFICATION

The EU regards meeting the Kyoto targets as a critical aspect of the pursuit of sustainable development. Early entry of the Protocol into force globally is a key political priority for the Community. The arrangements within the EU for ratification are at an advanced stage. It is expected Member States will ratify by early June 2002, in time to allow for the Protocol's entry into force by the World Summit on Sustainable Development in Johannesburg in August – September 2002.

THE EUROPEAN CLIMATE CHANGE PROGRAMME

In addition to actions taken at national level by all Member States, significant action at EU level is also necessary to ensure the EU achieves its overall Kyoto target which is to reduce greenhouse gas emissions by 8% compared to 1990 levels.

Under the European Climate Change Programme (ECCP) priorities for EU action have been set out. The Programme selects cost effective measures with good potential to reduce emissions over the next two to three years. A package of the following measures has now been proposed:

- ▶ A Directive on emissions trading;
- ▶ Promoting effective implementation of the integrated pollution and prevention control Directive and energy awareness initiative;
- ▶ A Directive on linking project-based mechanisms to EU emissions trading;
- ▶ A review of the monitoring mechanism for overseeing national emissions of greenhouse gases;
- ▶ A Directive on energy-efficient public procurement;
- ▶ A Directive on energy services;
- ▶ A Directive for the promotion of combined heat and power (CHP);
- ▶ A public awareness campaign for energy efficiency;
- ▶ A Directive on the promotion of the use of biofuels for transport;
- ▶ Proposals for improvements in infrastructure use and charging in the transport sector
- ▶ Regulation of fluorinated gases (mainly with specialised uses in industry).

The European Commission has calculated that these measures represent a low-cost greenhouse gas reduction potential of some 147 – 177 million tonnes (Mt) CO₂ equivalent per annum across the EU when fully implemented. However, the Commission recognises that these measures will not be sufficient to ensure that the EU meets its target, and will continue to examine additional measures.

DRAFT DIRECTIVE ON EMISSIONS TRADING

The Kyoto Protocol provides that countries may trade emissions to help meet their targets under the Protocol. A draft Directive for a pilot EU trading scheme from 2005 to 2007 is currently under negotiation in Council and Parliament. Such a scheme will better position companies to participate in full international emissions trading from 2008.

The draft Directive provides for: –

- ▶ Mandatory participation by large energy users (about 45 – 60 sites in Ireland, including power generation and large-scale industry).
- ▶ Emissions allowances to be allocated free of charge based on a national plan which is transparent and objective and does not act as a State Aid.
- ▶ Trading of CO₂ initially.
- ▶ Strong national compliance provisions with stiff financial penalties for non-compliance.

It is expected that the EU will seek to finalise the Directive in the European Parliament and Council of Ministers by the end of 2002 or early in 2003.

EMISSIONS UPDATE

Emissions of greenhouse gases in 1999 were 21% above 1990 levels. Without the measures set out in the *National Climate Change Strategy* this figure could rise to up to 37% by 2010. Real and significant action is required over the next ten years to meet Ireland's Kyoto target and to prepare for stronger targets after 2012. Full implementation of the Strategy will reduce emissions by over 15 million tonnes of CO₂ equivalent per annum during 2008-2012 to meet our 13% limitation target.

The *ESRI Medium Term Review 2001-2007* (September 2001) suggests that the growth in emissions will now be 27% – 29%¹, or 3.5 Mt CO₂ equivalent lower than the NCCS projection, leaving the annual reduction target at 12 Mt CO₂ equivalent. The ESRI scenario assumes achievement of reductions in emissions from some measures envisaged in the NCCS, and does not mean that the ambition of the Strategy can be relaxed.

RESEARCH

Research programmes are being undertaken in relation to emissions of methane (CH₄) and nitrous oxide (N₂O), and sequestration of carbon from the atmosphere.

- ▶ The Faculty of Agriculture, UCD, with funding under the Environmental RTDI Programme 2000-2006, is leading a research programme to assess the impact of different levels and types of concentrates and additives in the diet of bovines, and ages to slaughter, on CH₄ emissions.
- ▶ Teagasc, also with funding under the Environmental RTDI Programme 2000-2006, is researching air emissions from agriculture, including establishing reliable inventories of greenhouse gas emissions from the sector.
- ▶ The FAPRI – Ireland Partnership is also involved in making quantitative analyses of policy options for the agricultural sector.

ENVIRONMENTAL PROTECTION AGENCY

Over €32 million is being spent on an environmental research programme during 2000 to 2006, overseen by the EPA.

The climate element includes a broad range of projects in areas such as:

- ▶ Emissions from a range of sources including agriculture, forestry, industrial gases;
- ▶ Improved reporting and monitoring of emissions;
- ▶ The development of indicators of climate change;
- ▶ The preparation of scenarios for climate change specifically for Ireland based on the models used by climate researchers globally.

The development of climate change indicators and scenarios at a national level is necessary because while the modelling used to develop global scenarios can provide useful information for regions at the continental scale, they are not detailed enough to provide specific scenarios for small countries such as Ireland.

IMPACTS OF CLIMATE CHANGE

In an EPA supported research programme, NUI Maynooth has developed climatic scenarios for Ireland for 2041 – 2070 and 2061 – 090 in which some degree of confidence can be placed. The scenarios suggest a **general increase in January temperature** of approximately 1.5°C by mid century, increasing to approximately 2.5°C by 2075. By mid century winters in Northern Ireland and in the north Midlands will be similar to those of Cork/Kerry during the 1961 – 1990 period. Since temperature is a primary meteorological parameter, secondary parameters such as frost frequency and growing season length and efficiency can be expected to undergo considerable changes.

General summer temperature increases of approximately 2°C are apparent by mid century with highest values to be found inland away from north and west facing coasts. This 'continental' effect is further enhanced in the 2075 scenario. Combined with reduced summer precipitation amounts, the principal impact of this is likely to manifest itself in increased evapotranspiration and increased occurrence of soil moisture deficits and drought stress.

The summer and winter temperature scenarios for 2041 – 2070 compared with 1961 – 1990 are in Figure 1.

Precipitation scenarios are less reliable than temperature, but suggest that **winter increases in precipitation** will be observed over most of Ireland. On average these amount to 11%. The greatest increases are suggested for the north west where increases of approximately 20% are suggested by mid century. Little change is suggested as occurring on the east coast and in the eastern part of the Central Plain, though further work in these areas is required to corroborate this.

A more explicit signal is apparent for **summer, with marked reductions in rainfall across eastern and central Ireland**. Nationally, these are of the order of 25% with decreases of over 40% in some parts of the south-east suggested. Such decreases, would have profound implications for agriculture and water resource management.

The **magnitude and frequency of individual flood events will probably increase** in the western half of the country. Seasonal flooding may occur over a larger area and persist for longer periods of time. Long term deficits in soil moisture, aquifers, lakes and reservoirs are likely to develop.

The summer and winter precipitation scenarios for 2041 – 2070 compared with 1961 – 1990 are in Figure 2.

The viability of some crops, such as potatoes, will be possible only with irrigation, and considerable investment in infrastructure to store winter rain may be necessary in eastern parts. **Grass will suffer drought loss over large parts of the south and east** of the country and grass silage may be replaced by maize. Increased problems with slurry storage and spreading in the wetter western part of the country may emerge.

Increased warming is expected to have **significant effects on peatland systems**. There is likely to be an increase in decomposition, a reduction in peat formation, more erosion, changes in species composition, loss of carbon storage potential, increases in CO₂ emissions, a possible increase in CH₄ emissions, and an increase in the release of pollutants.

In terms of **sea-level changes**, areas in the south of the country are likely to feel the effects first, particularly low lying coastal locations with little or no natural protection and located on 'soft' or easily erodible material. **Coastal floodplains are especially at risk** on occasions when a high tide and storm surge couple with a period of intense rainfall leading to a breach in the carrying capacity of the drainage network. The impacts of sea level rise will be **most apparent in the major cities of Cork, Limerick, Dublin and Galway** where infrastructure is at risk of inundation.

CLIMATE INDICATORS

The Department of Geography, NUI Maynooth, has also identified potential indicators of the occurrence of climate change in Ireland. The primary indicators are temperature and precipitation; global trends in temperature change have been replicated in Ireland, but a few years behind. The 1990s was the warmest decade on record in this country. Annual rainfall in the north of the country has increased by up to 40% during the 20th century while locations in the south have recorded decreases. Some changes have also been noted in seasonal precipitation with wetter winters in the north and west and drier summers in the south and east. A wide range of secondary indicators, which would be expected to respond to climate change, were also examined and there are indications of earlier arrival dates for some migratory birds and a longer growing season, especially in the south-west. The report concluded that the Irish climate is indeed changing, as it always has and will, and is mirroring trends at a global scale but a few years behind.

¹ The 21% projection on page 88 of the *ESRI Medium-Term Review 2001-2007* has been adjusted to include the industrial gases, and sequestration by sinks, on a consistent basis with the NCCS.

FIGURE 1

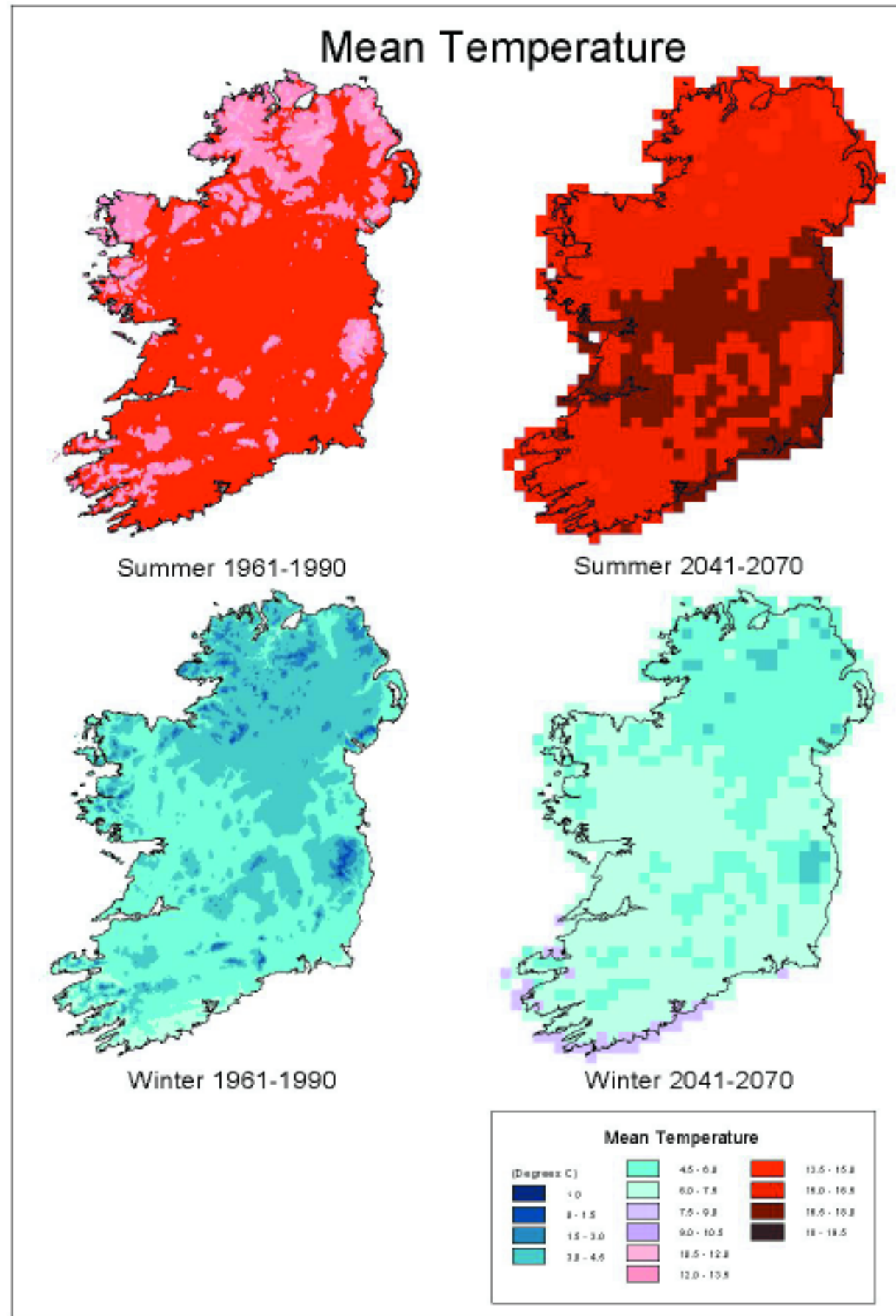
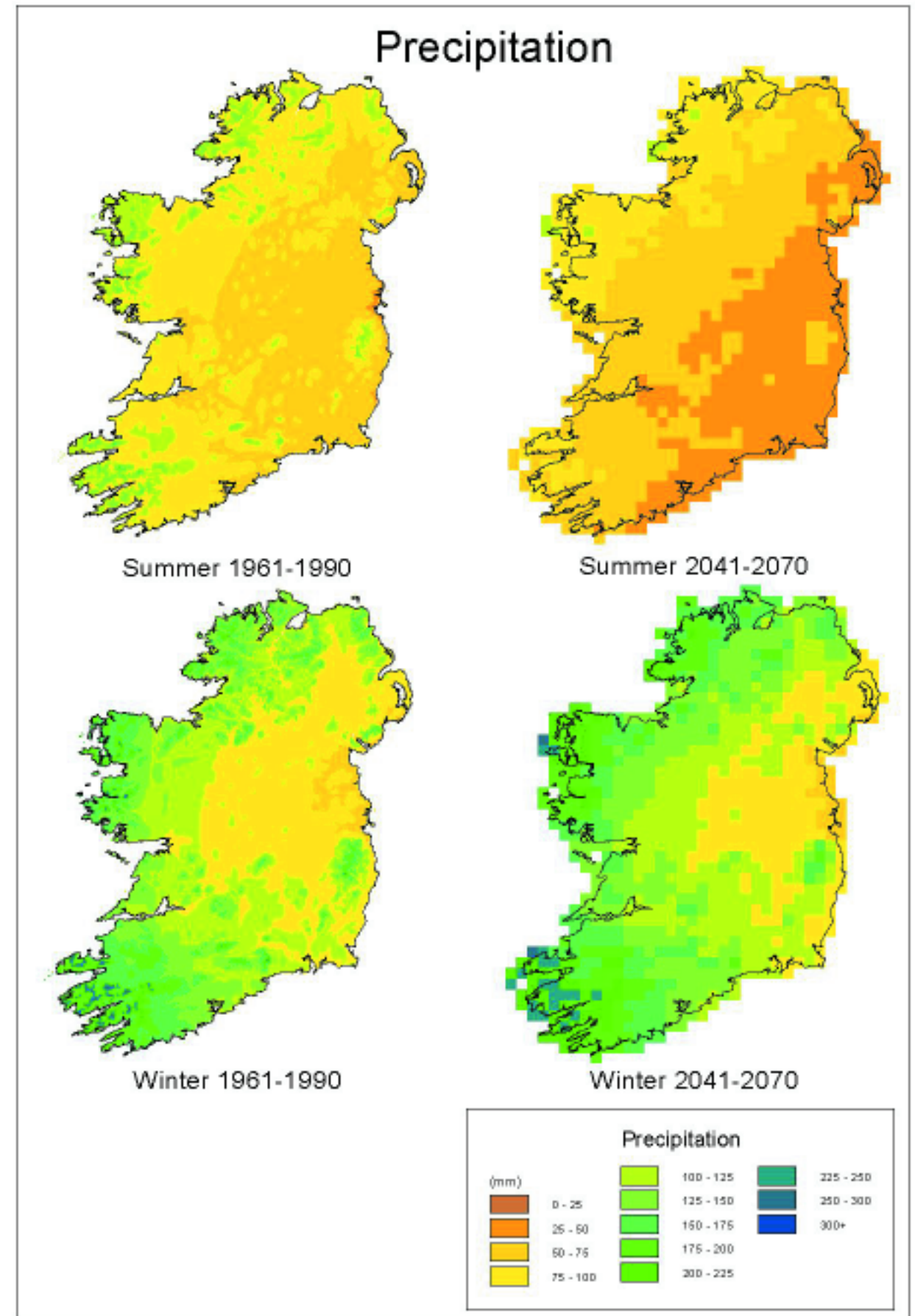


FIGURE 2





Section 4
Implementing the
Strategy

All sectors which emit greenhouse gases have taken actions to limit their emissions under the *National Climate Change Strategy*, and are preparing for further action over the timescale of our commitment.

The measures taken to date will generate savings in emissions over the rest of the decade and beyond. The measures listed below, where quantified savings on emissions have been calculated, have the potential to reduce annual emissions by 3.3 million tonnes (Mt) CO₂ equivalent by 2010, of the total target of 15.4 Mt CO₂ equivalent outlined in the *Strategy*.

A cross-Departmental Climate Change Team, chaired by the Department of the Environment and Local Government, oversee this work. The team has undertaken widespread consultation on implementation arrangements. It is developing indicators to measure implementation at sectoral and national level. The team will also look at the costs and benefits of implementing specific measures, and will undertake the first review of the *Strategy*, beginning later this year in consultation with Comhar, the National Sustainable Development Partnership.

CROSS-SECTORAL MEASURES

Taxation: A paper on the key elements for a framework for greenhouse gas taxation was prepared by the Department of the Environment and Local Government in discussion with the Economic Analysis sub-group of the Climate Change Team. This has been presented to the Tax Strategy Group under the aegis of the Department of Finance. Further work in developing specific proposals and analysing the economic and social impact of such proposals is underway.

Emissions Trading: An emissions trading advisory group, chaired by the National Treasury Management Agency, has been established and is examining, in conjunction with potential participants, Irish participation in emissions trading and other flexible mechanisms and offering advice on the Irish position in international negotiations as required, including the draft EU Directive on emissions trading.

Further information on the ongoing analysis of taxation and trading measures in the context of the industry sector is provided below.

SECTOR SPECIFIC MEASURES

Examples of specific policies in the *Strategy* in the course of implementation, and policies which have a beneficial benefit on overall greenhouse gas emissions, follow.

ENERGY SUPPLY SECTOR

Renewables: To attain the 500MW target for renewables-based electricity generating capacity – set in September 1999 in the *Green Paper on Sustainable Energy* – the fifth competition in the Alternative Energy Requirement series, AER V, was launched in May 2001. AER V offered contracts to the market for 255MW plant in large wind, small scale wind, biomass and small scale hydro.

In February 2002 Power Purchase Agreements were offered for up to 370 MW to successful bidders in AER V, expected effectively to double the amount of electricity generated from renewable energy sources.

The development of 370 MW of renewable energy under AER V will achieve a reduction of emissions of 760,000 tonnes CO₂ per annum for the purposes of the National Climate Change Strategy.

The balance of the 500MW target will be offered to the market as soon as is practicable so as to ensure that the overall target is achieved by 2005.

The construction and operation of a 200 turbine, 520MW offshore wind farm in the Irish Sea on the Arklow Bank has been approved. Construction on Phase I (60 MW) is expected to get underway by 2003. Issues such as connection to the grid, costs for the grid connection and suitable market mechanisms are being considered. The development of offshore wind resources is in addition to the 500MW target for renewables-based electricity generating capacity set in the *Green Paper on Sustainable Energy*. This is one of a number of such projects being considered by developers for construction in Irish waters, mainly off the east coast.

The energy produced on completion will be equal to an annual reduction of 1.1 Mt CO₂ from a coal-fired generating station producing the same amount of electricity.

Energy Efficiency: Legislation was enacted in February 2002 to establish the **Irish Energy Centre** as an independent body. This will result in the Centre becoming the Sustainable Energy Authority of Ireland with increased funding and staffing resources to become one of the principal agencies in the Government's drive to meet our Kyoto obligations.

The new Authority has been allocated €222.5m in the *National Development Plan 2000-2006* (NDP), to be directed towards those programmes and measures which contribute the most in terms of CO₂ abatement.

Implementation of the *Green Paper on Sustainable Energy* continues to be a priority for the Government and in this regard in 2001:

- ▶ A €21.1m research scheme in advanced domestic energy efficiency developments, the *House of Tomorrow* programme, was launched. This programme offers support for research, development and demonstration projects aimed at generating and applying technologies, products, systems, practices and information leading to more sustainable energy performance in Irish housing.
- ▶ The second phase of a major €12.7m work programme to improve energy efficiency in non-commercial public sector buildings was launched, stimulating the application of improved energy efficiency design strategies, technologies and services in building construction and retrofit projects, acting as both an exemplar for good practice and as a demand leader for the services and technologies involved.

Combined Heat and Power (CHP): Full market access has been granted to electricity from CHP. A report by the Irish Energy Centre *An Examination of the Future Potential of CHP in Ireland* examines the status of CHP in the current Irish market, its potential for future growth, the barriers to that growth, and possible measures to assist CHP achieve the target set in the *National Climate Change Strategy*. The report was published for public consultation in December 2001.

High Efficiency Electricity Generation: Two new gas fired electricity generation plants will be commissioned during 2002, generating electricity at 55% efficiency compared to 34% efficiency for coal plant.

New Peat Plants: Two new peat stations will be constructed by the ESB by 2005, at Shannonbridge and Lanesboro, in line with the orderly closure of existing peat stations. The new peat stations will be in addition to the peat station at Edenderry which came into commercial operation in December 2000. Each of these three plants will use state of the art, efficient and environmentally more acceptable technologies, replacing all existing peat stations which can operate only at 26% efficiency compared to 37% for the recently commissioned new peat plant. This has the dual benefit of being more environmentally friendly by ensuring an average reduction of 38% in the amount of CO₂ produced per unit of electricity, while having regard to national security of supply issues.

| Target Set for Energy Sector in NCCS | Reductions/Potential Reductions of Measures Underway in 2001 |
|--------------------------------------|--|
| 5.65 Mt CO ₂ | 1.86+ Mt CO ₂ |

TRANSPORT SECTOR

Fuel Economy Labelling: Information is now available to help car buyers see at a glance the CO₂ emissions of different new cars, and thus factor climate change into their purchasing decisions, and to compare fuel efficiency across models and makes. Since August 2001, regulations require all new passenger cars for sale to be individually labelled with fuel economy and CO₂ emissions information. Posters must also be displayed in showrooms giving the information for all models for sale, and fuel consumption and CO₂ emissions data must now be included in promotional material. A guide is produced and regularly updated by the Society of the Irish Motor Industry (SIMI) for all models of new passenger car offered for sale or lease in the State, and is available free of charge from showrooms or SIMI.

The impact of energy/CO₂ labelling on the entire car fleet's fuel consumption and CO₂ emissions is estimated at a 4% - 5% reduction over the next 10 years. This is equivalent to 380,000 tonnes CO₂ per annum by 2010.

Rural Transport Initiative

In 2002 funding of €3.8 million has been provided for this initiative. 33 community groups are to receive funding.

Public Transport

There is to be €3 billion investment in public transport under the NDP.

Dublin Bus – 125 additional buses (along with 156 replacement buses) have been delivered to Dublin Bus under the NDP to date. The fleet will be expanded by 275 vehicles over the period to 2006 (a further 80 in 2003 and 70 in 2004) which will expand the fleet by some 28% and the carrying capacity by 22,000 passengers. Q-time, a real-time passenger information system is being piloted in West Dublin by Dublin Bus at present.

Bus Éireann - 129 additional commuter coaches were delivered up to the end of 2001. Work has also started on construction of new bus stations at Athlone and Skibbereen and refurbishment is underway in Tralee and Busarus in Dublin.

National Rail - In 2001, under the National Rail Safety Programme, 120 km of track were re-laid, on the Mayo, Rosslare, Cork/Cobh, Tralee and Waterford lines. In addition, 21 bridges and 30 level crossings were upgraded and much remedial work on embankments and cuttings was undertaken. Beginning in June 2002 Irish Rail will take delivery of 80 new diesel rail cars designed to both replace older rolling stock and to improve frequency and capacity on the network. Irish Rail is also examining tenders for the supply of up to 67 mainline rail carriages for use on InterCity routes. Design and planning work continues on the Heuston Station, DART enhancement and Kildare Route projects. When completed these projects will significantly increase capacity on the entire railway network.

Greater Dublin Area: The Dublin Transportation Office (DTO) published *A Platform for Change*, an integrated transport strategy for the greater Dublin Area, in autumn 2001. This comprehensive blueprint includes development of a new metro network, and enhanced bus, light rail and suburban rail networks, improved pedestrian and cyclist facilities, strategic but limited road construction, and traffic management measures.

Implementation of this Strategy will reduce emissions by over 1 Mt of CO₂ per annum by 2016, a 41% reduction on projected emissions.

The following rail based proposals are at the planning/ construction stage at present:

- ▶ **Metro:** Government approval was given in January 2002 to proceed to the tender stage for Phase I of the Metro from Shanganagh to the Airport, via the City Centre with a spur to Blanchardstown. A preferred route is expected to be announced in late spring/early summer 2002.
- ▶ **LUAS:** Good progress has been made toward establishment of Luas lines now incorporated in the DTO Strategy (2000-2016). Work is on schedule for completion of construction of both lines in 2003.

Line A – Tallaght to Abbey Street: This line extends from the Square in Tallaght to Middle Abbey Street. A Light Railway Order was granted in March 1999. Construction commenced in September 1999 and is progressing well, (85% of utility diversion works on Line A are completed). The Red Cow depot (for line A) was completed on schedule in July 2001 and five trams are now being stabled at the depot. 1km of track has been laid in the depot area. The construction of track from Red Cow to Kingswood, which will also serve as the test track, commenced in December 2001 and is almost completed.

Line B – Sandyford Industrial Estate to St. Stephen's Green: A Light Railway Order was granted in September 1999. Preliminary clearance works have been completed and work has begun on the Sandyford depot. Utility diversion works for this line are progressing well in all areas, as well as work on reinforcement of the old railway structures. Construction of the Taney Bridge is also well underway.

Line C - Abbey Street to Connolly Station - This Line is an extension of Line A. Light Railway Orders were granted in November 2000. Utility diversion work and basement works are ongoing in this area.

Work on development of an implementation strategy recognising the planning framework provided by the DTO strategy (2000-2016) has commenced. Appropriate public consultation initiatives will follow in due course in respect of other Luas lines comprising the envisaged network.

- ▶ **Reallocation of Road Space:** 9 radial QBCs have been provided (Malahide Road, Swords, Finglas, Blanchardstown, Lucan, North Clondalkin, Tallaght, Rathfarnham and the N11). *A Platform for Change* anticipates that a comprehensive network of orbital and radial bus priority corridors will be provided in metropolitan Dublin by the end of 2006, with the large majority of transport users within a 10 minute walk of a good quality bus service.
- ▶ **Cycling:** 160km of two-way cycle routes and 2,500 cycle parking spaces have been provided in the Dublin Area. A minimum of 130km of additional strategic cycle routes is planned over the next 2 – 3 years. A minimum of 1500 additional cycle parking spaces is planned over the same period.
- ▶ **Demand Management Study:** The DTO has initiated a study, to be completed in 2003, on the implementation of Demand Management Measures in the Greater Dublin Area to reduce the growth in motorised travel, effect further modal transfer from private car to public transport modes, reduce peak hour car journeys forecast for 2016 to approximately 1997 levels, and assist in the development of the centres identified in the Strategic Planning Guidelines for the Greater Dublin Area.

Consultants will examine and develop potential demand management measures for:

- ▶ Land use policies: including advice relating to the location, scale and mix of development; parking standards; appropriate development layout and densities, sustainable travel catchment areas.
- ▶ Economic/fiscal instruments: including vehicle and fuel charges and taxes; public transport fares – structure and levels; road pricing/congestion charging; road tolling; parking charges, including charging for workplace parking.
- ▶ Management and control of public parking: on-street and public off-street parking control and management.
- ▶ Other traffic management measures.
- ▶ Mobility Management Plans – including IT related measures, and re-organisation of work practices.

Traffic Management

Park and Ride: The Finance Acts 1999 and 2001 provided tax incentives for the development of park and ride facilities and associated commercial and residential development. Guidelines on park and ride facilities and associated developments have been issued, setting out the criteria and requirements to be complied with to avail of the tax incentives.

The tax incentive scheme applies to the cities and environs of Cork, Dublin, Galway, Limerick and Waterford. The DTO is shortly to begin a review of park and ride strategy for the Greater Dublin Area, with a view to identifying its role in demand management and traffic management, and suitable strategic sites for its implementation.

Demand Management

Retail Planning Guidelines: The Government has a policy of encouraging more sustainable urban development, the avoidance of excessive suburbanisation and the promotion of higher density development in appropriate locations in harmony with improved public transport systems. The *Retail Planning Guidelines* published in January 2001 set a cap of 3,000 m² of net retail floorspace in supermarkets (3,500 m² in the Greater Dublin Area). They also provide that insofar as is practicable, retail developments should be located near town centres, leading to reduced energy costs resulting from reduced transport demand.

Childcare Guidelines: These were published in July 2001 and should also lead to reduced transport demand as they recommend that the childcare facilities should be located as close as possible to where the demand for childcare arises (i.e. in housing estates, near workplaces etc).

The Planning and Development Act 2000 provides that planning authorities and An Bord Pleanála must have regard to the Guidelines in the performance of their planning functions.

Intelligent Transport Systems (Telematics): The National Roads Authority is participating in telematics projects, INSTANT and STREETWISE.

The **INSTANT** project (Information and Management System for Multimodal Transport in the Republic of Ireland and Northern Ireland) based on a multimodal traffic management and information system for cross-border traffic between Dublin and Belfast, is examining three principal components –

- ▶ A pre-trip planning tool,
- ▶ Creation and dissemination of real-time, traveller information,
- ▶ Traffic control and management.

The Feasibility Study phase began in August 2001.

STREETWISE aims at providing seamless and effective travel information on the Trans European Transport Network between Ireland, Northern Ireland, and the UK and will act as a bridge to form part of a pan-European network of services. This is a multi-annual programme which began in 2001 and will conclude in 2006. The programme for 2002 will study user needs, journey time estimation, and data exchange between the national authorities.

The NRA is also examining the use of telematics on the M50 motorway. As a first measure the grade separated rotary junctions on the M50 are being converted to automatic controllers under the management of the Dublin City Council Traffic Control Centre (SCATS operation). This will mean that the traffic signals on the roundabouts will be controlled dynamically reflecting the changes in traffic volumes.

BUILT ENVIRONMENT & RESIDENTIAL SECTORS

Building Regulations: In September 2001 consultation documents on the revision of Part L of the national Building Regulations relating to the conservation of fuel and energy were issued. These envisage moving to improved standards in a *single step*, by the currently proposed operative date of 1 July 2002, rather than on a phased basis in 2002 and 2005 as originally proposed. The new standards are estimated to reduce the requirements for space and water heating by 23% to 33%, depending on the type and size of the dwelling. In the context of a requirement for 50,000 houses per annum to 2012, bringing forward the date of implementation means the greatest proportion of these new houses will benefit from the improved standards.

On current patterns of fuel use, a reduction of 300,000 tonnes CO₂ per annum for 2012 will be delivered by this measure, more than meeting the target of 250,000 tonnes CO₂ set in the Strategy

National House Conditions Survey: An Energy Module has been included in the current survey, with a strong focus of energy use and energy conservation, allowing a greater integration of energy efficiency considerations into housing policy in the future. A number of questions on heating and types of heating (e.g. gas, electricity, solar) fuel consumption and methods of insulation have been included. It is expected that the fieldwork will continue until May 2002, and the final report will be published in the autumn.

New House Grants: The Housing (Miscellaneous Provisions) (No 2) Bill 2001, published in December 2001, contains a provision enabling the making of regulations providing for greater flexibility for the payment of new house grants in the future, including differential rates to encourage more efficient use of energy, and the use of renewable forms of energy.

New Building Methods: To promote sustainable energy efficiency in housing there are currently two pilot energy efficient schemes underway which include elements of social housing.

- ▶ At Brookview (Tallaght) construction on 430 houses is underway based on a 'bio-climate' approach which seeks to integrate local climate studies, the enhancement of local natural features, windbreaks, shelter belts and optimum orientation, with energy efficient estate layout and house design in a comprehensive and innovative neighbourhood approach towards energy efficiency. In addition, standard building specifications and current building practice were reviewed to increase the energy efficiency of individual housing units.
- ▶ A local authority scheme of 20 "low energy houses" is under construction in Navan. These houses include solar heating voids collecting solar energy, used as a heating source for the houses. The houses have a number of other low energy features such as additional roof, wall and other floor insulation and high performance gas boilers.

Regeneration of Housing Areas: The regeneration programmes have a positive impact on greenhouse gas emissions, as all new units are to current standards and refurbished existing units are brought to a higher standard than heretofore.

- ▶ In Dublin major redevelopment works are underway to inner city flat complexes, at a total cost of over €130m spread over a five year period 1999-2003. In total almost 900 new and replacement units and over 260 refurbished units will be provided.
- ▶ The Area Regeneration Programme underway in Dublin, upgrading high density older housing complexes, includes window replacement, the installation of central heating and roof replacement. Since 1997 new windows have been installed in over 2,000 dwellings, central heating installed in over 5,500 dwellings and roof replacement has been completed on 12 flat complexes.
- ▶ Phase I of the Glen project in Cork City, estimated to cost over €50m, includes the demolition of one block of flats, the refurbishment of the remaining 12 blocks and the construction of almost 50 new houses.
- ▶ The local authority *Remedial Works Scheme* continues to upgrade, renovate and redevelop publicly owned housing stock, with 15,000 dwellings refurbished since the scheme began. The extent of works carried out to dwellings varies from project to project. Where an extensive programme of refurbishment works is carried out, measures are taken to improve thermal insulation in accordance with the Building Regulations.

Ballymun Regeneration

Ballymun is the biggest housing regeneration project in the State. It includes the demolition of all the flat complexes in the area and their replacement by over 2,800 new housing units. The Government is committing €450m to the regeneration of Ballymun over the coming years to fund housing and housing related elements.

To maximise energy efficiency and reduce CO₂ emissions, best practice is being employed in the construction and fitting out of all homes, with innovative and experimental measures in a proportion of homes to assess the applicability of these technologies for future use in Ireland.

It is expected that CO₂ emissions will be reduced for all homes, 40% in the case of two bedroom dwellings, with site wide reductions in CO₂ emissions in the region of 4,000 tonnes/year targeted by the estimated completion date of the project in 2010

Public Sector Buildings: There are an estimated 4,500 – 5,000 buildings in the non-commercial public sector, of which approximately 650 are of significant size. The total energy spend is €180m, and annual CO₂ emissions are estimated at 2.9 Mt per annum.

The **Office of Public Works** has 60% of targeted public buildings connected to BMS (Building Management System) and preparations are in hand for introduction of green auditing in all new projects. During initial surveys of buildings to establish what will be connected to BMS, any obvious areas of energy wastage are being addressed.

The IEC has prepared a strategy for design, investment and management in the public sector with a budget of €12.7m in the period 2001 – 2006 under three lines of action: -

- ▶ Design Studies (€2m) through additional design exercise, to highlight the opportunities for energy efficient solutions in the refurbishment and construction of public sector buildings.
- ▶ Selective support for investment in model solutions (€9.1m) to underwrite risk, highlight opportunities, promote good practice and allow the evaluation of results of investment in new and existing buildings.
- ▶ Support for energy management bureau operations (€1.6m) to encourage the development of energy management service companies to provide off-site energy control and management for public sector buildings which lack critical mass to provide these services from internal resources.

INDUSTRY, COMMERCIAL AND SERVICES SECTOR

Study on cross-sectoral measures: A substantial research project was commissioned by the Department of Enterprise, Trade and Employment, with Forfás, on the implementation of the cross-sectoral measures (taxation and emissions trading) potentially impacting on enterprise. The project is being undertaken by Indecon and ERM, with Indecon dealing with the taxation and negotiated agreements elements and ERM focusing on the emissions trading and project-based mechanisms. A Steering Committee, with representation from relevant Departments and agencies and the business community, was established to guide and oversee the research. The project is due to be completed in the first half of 2002.

Negotiated Agreements: The Department of Enterprise, Trade and Employment established a group to co-ordinate work on developing and implementing negotiated agreements. Representation includes the IEC, Enterprise Ireland, IDA Ireland, Forfás, IBEC, An Taisce and relevant Government Departments.

Investment Decisions: The Department of Enterprise, Trade and Employment has engaged with Enterprise Ireland and IDA Ireland to ensure the establishment of appropriate mechanisms for the assessment of the sustainable development dimension of inward and indigenous investment projects.

Licensing: All existing power generation plants have now been brought into the IPC licensing system; coal and oil plants from March 2001, peat from January 2002. Arrangements are currently being made to update the legislation on IPC licensing to bring it fully into line with EU Directive 96/61/EC on integrated pollution prevention and control. Among the amendments being made are the inclusion of specific provisions on energy efficiency and the reduction of greenhouse gas emissions.

AGRICULTURE SECTOR

Reform of agricultural policy at EU level: Environmental considerations are central to EU agricultural policy; Ireland is fully committed to this integration process.

A number of measures have been taken to reduce stocking densities on land, encouraging less intensive farming methods and lower CH₄ emissions.

- ▶ **Extensification Premia:** Payment from 2002 onwards will be on the basis of stocking density between 1.4 and 1.8 livestock units per hectare (ha) (lower rate of payment) and less than 1.4 units (higher rate of payment), 0.2 livestock units per ha lower than 2001.
- ▶ **Special Beef Premium:** The stocking density for qualifying animals will be limited to 1.9 livestock units per ha in 2002 and to 1.8 livestock units per ha in 2003. The national quota for Special Beef Premium will be reduced by 4.6% below 2001 levels for 2002 and 2003.
- ▶ **Disadvantaged Areas Compensatory Allowances:** Up to 2000, headage grants were paid on cattle, sheep, goats and horses in designated areas. Payments moved from animal

based schemes to an area-based system in 2001. Farmers are now paid a flat rate per ha, removing the incentive to maximise stocking densities.

Younger animals produce less CH₄ emissions, and measures have been taken to reduce the age of the national herd.

- ▶ **Suckler Cow Premium:** From 2002, the rules forbidding more than 20% heifers in qualifying herds has been relaxed to 40%, and applications in respect of 14 or more animals must comprise at least 15% heifers. These provisions will facilitate a reduction in the numbers of suckler cows, lower the average age of the suckler herd and reduce the number of calves born leading to a reduction in CH₄ emissions from the beef sector.
- ▶ **Lower Age at Slaughter:** As a result of the BSE crisis, higher prices at slaughter are now paid for cattle under 30 months, leading to a reduction in the number of cattle retained for slaughter over 30 months.

Measures are also being taken which will reduce N₂O emissions

- ▶ **REPS:** The new REPS scheme is expected to increase active participants from 45,500 in 1999 to 70,000 by 2006, with an extra 25,000 farmers anticipated to be following nutrient management plans. This will lead to a more sustainable farming environment, improving the management of organic manures and chemical fertilisers and reducing N₂O emissions. Farmers in REPS operate to standards which are higher than good farming practice.
- ▶ **Good Farming Practice:** All farmers in receipt of Compensatory Allowances, On-Farm Investment Schemes, Livestock Premia Schemes, Arable Aid and transferees under the Early Retirement Scheme must practice farming in accordance with the environmental requirements set out in the Good Farming Practice rules published in August 2001. Compliance with this code is compulsory, and over 100,000 farmers will be affected in the period 2000-2006. Penalties will be imposed for breaches of the Code up to a 100% maximum for serious non-compliance. Key aspects of the Good Farming Practice include nutrient management and restrictions on applications of organic and chemical fertilisers.
- ▶ **Environmental Legislation:** Proposals are being developed to provide a statutory basis for the application of good agricultural practice in all areas. Regulations are being drafted for this purpose. The Regulations will provide

a higher level of protection for the environment, give further effect to EU directives in relation to waste and water quality, including the Nitrates Directive, and should lead to a reduction in N₂O emissions. Agricultural activities in certain areas are already subject to local bye-laws made by local authorities and IPC licensing has been applied to intensive pig and poultry units.

Strengthening Relationship between Agricultural and Forestry Policy: The administration of REPS now places greater emphasis on forestry as an option and the need for a closer integration between the forestry planting programme and REPS. Planners are now required to identify areas suitable for forestry during preparatory work for REPS plans, identifying farm areas appropriate for afforestation on environmental, agricultural, forestry and socio-economic grounds.

FORESTRY SECTOR

The NDP has made €688m available to encourage greater participation and conversion of agricultural land to forestry with an emphasis on afforestation as a complementary farm enterprise rather than as a competing land use alternative.

Afforestation Grant and Premium: rates were increased by 30% from January 2000 and there is to be a mid-term review of current rates in 2003. Approximately 10,000 landowners benefited from the increases, providing the sector with a confidence boost and an extra incentive to those considering planting for the first time as well as others considering further afforestation.

Afforestation Rate: The national planting target is 20,000ha per annum from 2001 to 2030, doubling forest cover to 17%. Indications suggest that the total area of afforestation grant-aided in 2001 was in excess of 15,000ha. Afforestation figures for 1998, 1999 and 2000 show the total area grant-aided was 12,926ha, 12,667ha and 15,895ha respectively. Taking the upward trend in planting rate into account, there is a degree of confidence that the target of 20,000ha of afforestation per annum may be reached in 2003 or 2004.

15,000ha planted in 2001 will provide for a sequestration of 38,000 tonnes of CO₂ equivalent per annum during the Kyoto period 2008 – 2012, and increasing the planting rate to 20,000ha per annum will increase the sequestration rate to 50,000 tonnes CO₂ equivalent per annum during the Kyoto period.

Research:

- ▶ A pilot examination of the options for planting a higher proportion of faster growing and shorter rotation forestry crops is ongoing. Two projects, with an emphasis on the establishment of short-rotation coppiced willow for biomass, have been approved to date.
- ▶ The Council for Forest Research and Development (COFORD) is funding R&D in UCD on refining estimates of the carbon sequestration potential of Irish forests and the potential for the use of wood in energy generation (CARBIFOR).
- ▶ The Forest Service and COFORD are formulating a new national forest inventory that will more accurately estimate carbon stocks in Irish forests. This work will incorporate the findings of the CARBIFOR project in arriving at new estimates for sequestration in forests planted since 1990 and from forest management in forests planted up to 1990.

COFORD is promoting the use of timber frame housing and improved building insulation through the Irish Specifiers Timber Guide – Woodspec.

COMMUNICATIONS AND AWARENESS

In view of the need to heighten public awareness of climate change through a specific campaign to help public identification of necessary actions to tackle climate change, Comhar prepared initial proposals on how best to communicate the Strategy in 2001.

The national Environmental Awareness Campaign, which is built around ten key steps to protect the environment, has been extended for 2002. It will now incorporate a significant climate change element building on the recommendations made by Comhar. Over €1.2 million is provided for the overall campaign during 2002, and the climate element of the campaign will provide the basis for further actions to address awareness over the coming years.

ENFO: In addition to the ongoing work of the environmental information service in relation to public awareness of environmental issues, ENFO hosted two climate change related exhibitions in 2001.

- ▶ The IEC Exhibition to promote Energy Awareness Week in 2001. To coincide with the exhibition the IEC and ENFO ran a series of workshops, which explored the connections between climate change and energy use.
- ▶ A major international photographic exhibition, entitled "Images Beyond the Naked Eye", prepared by the Worldwide Fund for Nature. Professional photographers from around the world contributed photographs showing their artistic interpretation of the impact that climate change could have on the world around us.



Ireland, along with all EU Member States, will ratify the Kyoto Protocol by June 2002, to allow its entry into force by the World Summit on Sustainable Development (Johannesburg, September 2002).

Implementation of the National Climate Change Strategy will be pursued vigorously, and where additional opportunities arise to ensure reductions in emissions in the implementation of other areas of Government policy, these will be pursued.

During the latter half of 2002, the first review of the National Climate Change Strategy will be undertaken to monitor performance and to assess whether additional action is necessary to meet Ireland's target. This review will be undertaken by the cross-Departmental Climate Change Team in consultation with Comhar. The results of this review will be published.

Work will also continue to develop and publish a robust and comprehensive set of indicators at a sectoral and national level to help measure progress towards meeting the Kyoto target. These indicators will be published.

At an international level, Ireland will continue to participate actively in international negotiations, including in relation to emissions trading, to ensure that the Kyoto Protocol is fully implemented and that Ireland is in the best position to play our part in meeting the global challenge of tackling climate change.

