Ireland

Sources of information

The primary source of information for this chapter is the National Climate Change Strategy. Previous and additional sources of information are also listed below.

The information in this appendix is therefore based on:

- A study on the Limitation and Reduction of CO_2 and other greenhouse gas emissions in Ireland (work carried out by Environmental Resources Management (ERM), in association with Bryne O Cleirigh and the Economic and Social Research Institute, Dublin). Report dated April 1998
- Ireland's National Climate Change Strategy (2000)
- Progress Report: Implementation of the National Climate Change Strategy (April 2002)

For the purposes of this chapter, the National strategy is used as the basis of information relating to projections and policies and measures, and supersedes previous information. Additional information from the Progress Report is included where relevant.

Quality and transparency of reporting

The National Climate Change Strategy has been used as the basis for the reporting of Ireland's strategy within this report. The strategy document outlines the measures that will need to be implemented in order that a target of 60.74 Mt CO_2 can be met during the commitment period 2008–2010.

This strategy outlines the different policies and measures for each sector that are going to be used as part of the overall strategy to reduce greenhouse gases. Each policy and measure is quantified in terms of its reduction potential.

The strategy document also includes projections for 2010, based on a scenario in which no strategy measures have been implemented. An overall projection is also made which uses a scenario in which all policies and measures are taken into account in reducing overall greenhouse gases.

The table below provides an indication as to what level of information is provided in the Climate Change Strategy document.

Table 1: Information provided on policies and measures

Information provided	Level provided	Comments
Policy names	++	The Climate Change Strategy particularly focuses on policy options. Some specific technology measures are also identified.
Objectives of policies	+++	These are well covered in the narrative.
Which GHGs?	CO_2, CH_4, N_2O[a]	
Status of Implementation	++	Associated with existing historic measures but also some new initiatives.
Implementation body specified	++	
Quantitative assessment of	–	A quantitative assessment is made

implementation		
Interaction with other P&Ms discussed	–	Not examined

[a] Industrial gases are addressed in the context of voluntary agreements.
+, ++, +++ level of information available increases as the number of + signs increases

In the Climate Change Strategy, a significant amount of information is provided at the sector level for each greenhouse gas in terms of the 'without strategy measures' projection. The other projection made is based on potential reductions through policies and measures outlined in the strategy document. The potential reductions are outlined in each sector chapter.

Modelling approaches are not described in any detail.

Table 2: Information provided on projections

Category of information	Level of information provided	Comments
Scenarios considered	Scenarios are based on 'business as usual / without strategy measures' basis and on a 'with strategy measures' basis	
Expressed relative to inventory for previous years	+	Not clear
Starting year	1990	
Split of projections	++	Shown for all gases
Presentation of results	++	
Description of model (level of detail, approach and assumptions)	+	Growth assumptions discussed. Wide set of forecasts depends upon growth assumptions.
Discussion of uncertainty	+	Uncertainty discussion limited
Details of parameters and assumptions	+	Assumptions reported

+, ++, +++ level of information available increases as the number of + signs increases

Assessment of policies and measures

The information provided by the Climate Change Strategy is based on 'before strategy measures' and 'with strategy measures'. 'Before strategy measures' is a business as usual scenario while the 'with strategy measures' takes into account the measures proposed in the Climate Change Strategy.

Table 3: Summary of the effect of policies and measures Included in the projections ($MtCO_2$)

	With measures	With additional measures
Energy supply		5.65
Industry, Commercial and Services		2.175
Built environment and residential		0.9
Transport		2.67
Agriculture		2.41
Waste		0.85
Sinks		0.76
Total without sink		14.655
Total with sink		15.415

Energy supply is projected to have the largest saving from the additional measures, with a reduction of 5.65Mt CO_2 eq. Policies and measures for industry, transport and agriculture are also forecast to have significant effects on cutting GHG emissions.

Policies and measures are described in detail in the following table.

Table 4: Detailed information on polices and measures

Sector	Name	Objective	GHG affected	Type of instrument	Status	Implementing entity	Estimate of savings ($MtCO_2$)		CCPM
							2010	2020	
Policies and measures in the with additional measures projection									
Cross sector	Carbon taxes	Demand reduction at least cost	Mainly CO_2	Fiscal	Planned	not given	not given		N
Cross sector (Business / Firms and utilities?)	Tradable permits	Least cost market approach	Mainly CO_2	Economic	Planned	not given	not given		Y
Energy supply	Fuel switching to gas	Lower CO_2 of electricity generation	Mainly CO_2	Other	Ongoing	not given	4.15		N
Energy supply	Renewables	Expansion of systems	Mainly CO_2	Other	Approved	not given	1[a]		Y
Energy supply	CHP	Expansion of systems	Mainly CO_2	Fiscal (CHP grant)	Ongoing		0.25		N
Energy supply	Improving efficiencies and DSM	Demand reduction	Mainly CO_2				0.25		N
Industry	Industrial energy efficiency	Demand reduction	Mainly CO_2	Negotiated agreement	Planned	Irish Energy Centre	1		N
Industry	Process substitution for cement	Emission reduction	Mainly CO_2	Negotiated agreement	Planned	Government and cement industry	0.5		N
Industry	Industrial gases	Emission reduction	HFC, PFC, SF6	Negotiated agreement	Planned	Government and industry	0.5		N
Business and residential	Commercial and residential energy efficiency	Demand reduction	Mainly CO_2	Set of economic instruments	Planned/implemented	Irish Energy Centre	0.175		N

Sector	Name	Objective	GHG affected	Type of instrument	Status	Implementing entity	Estimate of savings ($MtCO_2$) 2010	2020	CCPM
Transport	Transport efficiency improvements	Demand reduction	Mainly CO_2	Voluntary agreement and fiscal (taxation)	not given	not given	0.77		Y
Transport	Alternative transport fuels	Reduced emissions	Mainly CO_2		not given	not given	0.9		Y
Transport	Public transport measures	Switching modes	Mainly CO_2	Fiscal (investment)	Adopted/implemented		0.15		Y
Transport	Freight	Switch to rail and increase road haulage efficiency	Mainly CO_2	Education, fiscal (taxation) and negotiated agreement	not given	Irish Energy Centre and Department of Public Enterprise	0.05		Y
Transport	VRT, Taxes	Encourage more efficient car purchase	Mainly CO_2	Fiscal (taxation)	not given	not given	0.5		Y
Transport	Traffic management	Reduced congestion and emissions	Mainly CO_2	Fiscal (taxation and investment)	Implemented	Government	0.2		N
Transport	Labelling	Improve fuel efficiency of car fleet	Mainly CO_2	VA/regulatory	Implemented	Car manufacturers, government	0.1		Y
Residential	Residential building standards and fuel switching	Demand reduction	Mainly CO_2	Regulatory	Adopted	Government and Irish Energy Centre	0.9[b]		Y
Agriculture	Reduction of CH_4 from herd	Reduced emissions	CH_4	Fiscal (subsidies) and regulatory	Implemented and adopted	Government and the agriculture sector	1.2		Y
Agriculture	Farm forestry sequestration	Reduced emissions	Mainly CO_2	Fiscal (subsidies)	Implemented	Government, Forest Service and the agriculture sector	0.25		N
Agriculture	Fertiliser use	Reduced emissions	N_2O	Regulatory	Planned	Government	0.9		Y

Sector	Name	Objective	GHG affected	Type of instrument	Status	Implementing entity	Estimate of savings ($MtCO_2$)		CCPM
							2010	2020	
Agriculture	Manure management	Reduced emissions	CH_4	Not given	not given	not given	0.06		Y
Agriculture	Biogas	Fuel substitution	CH_4	Regulatory (IPC licensing)	not given	not given	Not given		Y
Waste (check)	Energy recovery from landfill and thermal treatment	Switching fuels	Mainly CO_2	Fiscal (investment)	not given	Local Authorities	0.85		Y
Sinks	Additional Sequestration	Carbon sink	CO_2	Fiscal (grant) and Research	Implemented	not given	0.76		N

a) The new total for renewables is 2.1Mt CO_2 equivalent (approved wind farm to save 1.1Mt PA in addition to the 500MW renewables target to save 1MT).
b) The contribution to this reduction from revised Building Regulations has increased from 0.25Mt to 0.3Mt per annum for 2012.

The Progress Report summarises the recent developments of policies set out in the National Climate Change Strategy. The policies reported on are based on those set out in the Strategy — during 2001, no policies were reported in addition to the Strategy. All policies and measures are taken to be 'additional measures' and thus there are no policies and measures in the with measures projection

Evaluation of projections

The latest projections [1] show total greenhouse gases increasing by 38–40 % between 1990 and 2010. This compares to Irelands' commitment under the EU burden sharing agreement of +13 %. This increase is higher than the range identified in previous reports. With the additional measures, the increase is reduced to between 10–13 %.

Table 5: Summary of projections by gas in 2010 ($MtCO_2$)

	Base year	With measures	With additional measures
CO_2	31.6	51.4	40.3
CH4	12.8	12.2	10.1
N_2O	9.1	9.7	8.8
HFC, PFC, SF_6 (low)[a]	0.3	0.7	0.2
HFC, PFC, SF_6 (high)[b]	0.3	1.9	1.4
Total (low) without sinks	53.8	74.0	59.3
Total (high) without sinks	53.8	75.2	60.6
% change relative to base year (low)		38 %	10 %
% change relative to base year (high)		40 %	13 %
Total (low) with sinks[c]	53.8	72.6	58.6
Total (high) with sinks	53.8	73.8	59.8

a) The low projection uses the "actual" emissions approach where only amounts of substances released in Ireland are included in the net total emissions and removals
b) The high projection emissions are allocated against the national limitation target using the "potential" emissions approach, where all amounts of substances used in Ireland are included in the net total emissions and removals
c) The sink saving under with measures assumes 50 % planting rate The sink saving under 'with additional measures' is the extra saving gained from 100 % planting rate.

According to the Climate Change Strategy, the largest percentage increase is projected for the halogenated gases although these are still a small fraction of the total. Methane emissions are projected to reduce by a small amount and N_2O emissions to grow by a small amount. The most growth in GHG emissions is projected to come from CO_2.

The Climate Change Strategy report provides assessments of the contribution and costs of a range of measures. Not all options can be assessed and in some cases the opportunities have a relatively high cost.

Table 6: Summary of projections by sector in 2010 ($MtCO_2$)

	Base year	With measures	% change relative to 1990	With additional measures	% change relative 1990 (additional measures)
Energy	11.6	18.8	62 %	13.0	12 %
Industry	4.3	6.0	40 %	4.3	0 %
Process	3.0	5.0	68 %	4.4	47 %
Transport	5.1	14.2	178 %	11.4	123 %
Commercial/Institutional	2.4	4.1	68 %	3.6	48 %
Residential	7.0	6.8	–4 %	6.2	–11 %
Agriculture	18.6	19.2	3 %	16.6	–11 %
Waste	1.8	1.1	–36 %	1.1	–39 %
Total (high, without sinks)	53.8	75.2	40 %	60.6	13 %

With Ireland's existing policies and measures, an increase in GHG emissions of 40 % from 1990 to 2010 is forecast, and the Kyoto commitment is exceeded by 14.5Mt CO_2 equiv. Additional measures bridge this gap and thus Ireland is predicted to meet its commitment.

[1] The projections are from Ireland's Climate Change Strategy. Section 9.5 provides some description of the projection methodology.

Table 7: Assessment of the target

	$MtCO_2$ equiv.	% of 1990 level (six gas basket)
Base year (from projections)*	53.8	
Commitment	60.7	13.0 %
With existing P&Ms*	75.2	39.8 %
Gap (-ve means no gap)	14.4	26.8 %
Effect of additional P&Ms*	14.7	27.3 %
Effect of additional P&Ms inc. sinks	15.4	28.7 %

* The target is assessed assuming the upper limit for halogenated gases and excluding carbon sinks.

Description of modelling approach

The projections for 2050 have been developed by the EPA based on activity data from official sources, in accordance with IPCC guidelines. They are also based on ESRI energy projections and also include non-energy sources of CO_2. The range in projections is due to two possible scenarios for halogenated gases — therefore, a low and high projection has been made. Economic growth assumptions are those found in the ESRI M*edium-term Review 1999–2005*. No details of the parameters used in the modelling have been provided.

Modelling parameters

Parameter	2000	2010	Unit

Country conclusions

Ireland's limitation target of 13 % corresponds to a quantitative limitation target of 60.7 Mt CO_2 equivalent per annum for the period 2008–2012. Ireland will need to achieve annual emissions savings of 14.5 Mt CO_2 equivalent per annum during the commitment period, this saving is forecast to be covered by additional policies and measures in the Climate Change Strategy.