



Irish Government Economic and Evaluation Service

Climate Change – Expenditure Impacts

Expenditure Report 2013

The analysis contained within this paper was carried out by members of the Irish Government Economic and Evaluation Service (IGEES). Those views contained within do not necessarily represent those of the Department, the Minister for Public Expenditure and Reform or the Government.



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Summary

Ireland has challenging Climate and Energy targets for the period to 2020. These targets are legally binding. They are relevant to the analysis of policies and/or measures in a range of sectors. They need to be factored into future plans and policy developments, across a range of Government Departments, to ensure a coordinated and cost-effective approach.

In relation to climate finance, which refers to financial flows from developed to developing countries to cover the additional costs associated with climate change adaptation and mitigation, Ireland is expected to meet its Fast-Start Finance commitment (2010 to 2012) of up to €100m from public funds. There is also a collective Long-Term Climate Finance (2013 to 2020) commitment at UN level to mobilise US\$100bn per annum by 2020 from developed to developing countries from a variety of sources including public, private, bilateral, multilateral and alternative sources of finance. Ireland will need to ensure that our existing channels of financing and support are tracked.

1. Overall context for climate and energy policy in Europe

The *Climate and Energy Package* adopted in 2009¹ is a set of binding European Union legislation which aims to ensure that the EU meets its climate change and energy targets for 2020. The overall ambition of the *Climate and Energy Package* is to implement an integrated approach to climate and energy policy that has the simultaneous aims of combating climate change, increasing the EU's energy security and strengthening its competitiveness. It also notes that tackling the climate and energy challenge offers an opportunity for the creation of jobs, the generation of "green" growth and a strengthening of Europe's competitiveness.

The Package sets binding legislation that aims to ensure the EU meets its ambitious climate and energy targets for 2020. These targets, known as the "20-20-20" targets, set three key objectives for 2020:

- A 20 percent reduction in EU greenhouse gas emissions from 1990 levels to be achieved by:
 - 21 percent reduction in Emission Trading Scheme (ETS)² emissions from 2005 levels;
 - 10 percent reduction in non-ETS³ emissions from 2005 levels (the 10 percent is met by different national targets as set by the Commission) as legislated for under the Effort Sharing Decision (ESD);
- A 20 percent improvement in the EU's energy efficiency;
- Raising the share of EU energy consumption produced from renewable resources to 20 percent.

The main sectoral Departments involved in the development of policies to address our climate change and energy targets are: the Department of the Environment, Community & Local Government (D/ECLG) [Vote 25] who lead on overall policy, the Department of Communications, Energy & Natural Resources (D/CENR) [Vote 29] who formulate national energy policy including on expenditure proposals on energy efficiency measures, the Department of Agriculture, Food & the Marine (D/AFM) [Vote 30], the Department of Transport, Tourism & Sport (D/TTS) [Vote 31], and the Department of Finance (D/F) [Vote 7] who lead on environmental taxes. The expenditure on climate relevant measures is mainly through Votes for D/CENR, D/AFM, D/ECLG, D/TTS, and the Office of Public Works (OPW) [Vote 13]. Fast Start Climate Finance in the period 2010 to 2012 has been sourced from the D/ECLG, Irish Aid [International Cooperation, Vote 27], and D/AFM Votes.

D/ECLG worked closely with the Department of Public Expenditure & Reform (D/PER), the National Procurement Service (NPS) in the OPW, and in conjunction with other Government Departments, to draft *Green Tenders – An Action Plan on Green Public Procurement*⁴ which was published in January 2012 and outlines a range of means that could be progressed across the Government sector.

¹ http://www.consilium.europa.eu/uedocs/cms_Data/docs/pressdata/en/misc/107136.pdf and associated links

² About 100 Irish installations fall within the scope of the EU Emissions Trading Scheme (EU-ETS). These are installations such as power generation, cement manufacturers, food producers, etc.

³ Mainly emissions from the agriculture, transport, residential and commercial sectors

⁴ <http://etenders.gov.ie/Media/Default/SiteContent/LegislationGuides/27.%20Green%20Tenders%20-%20An%20Action%20Plan%20on%20Green%20Public%20Procurement.pdf>

2. Ireland's national targets for energy and emissions reduction

2.1 Ireland's non-ETS targets

Under the *Climate and Energy Package*, and in particular the ESD, Ireland is required to deliver a 20 percent reduction in non-ETS greenhouse gas (GHG) emissions by 2020 (relative to 2005 levels) and keep emissions below annual limits over the period 2013 to 2020. The majority of the non-ETS emissions come from agriculture, transport, residential and commercial activities. The non-ETS sector excludes installations which produce large scale CO₂ emissions, such as power generation and industrial activities, as these are covered under the EU ETS.

Ireland's 20 percent reduction target is very challenging for the economy given the particular configuration of our non-ETS emissions (See Section 2.1.1). The target was agreed in the context of the 2008 Impact Assessment by the Commission⁵⁶. There was a subsequent Impact Assessment undertaken for the Commission which was published in 2012⁷⁸ and which should help inform future approaches. It is welcome that there are improvements and more transparency in the modelling process for the 2012 round of analysis.

Although the 2013 to 2020 targets for Member States are legally binding, there are a number of options for Member States to use flexibilities to meet shortfalls in domestic mitigation. For example, Member States who over-achieve their targets have the option to sell the excess to other Member States who are short of their targets. There is also the option of purchasing carbon credits via Clean Development Mechanism (CDM) and Joint Implementation (JI) (See Section 2.1.2).

2.1.1 Ireland's emission profile by sector

Provisional inventories published by the Environmental Protection Agency⁹ (EPA) indicate that GHG emissions in Ireland in 2011 were 57.34 Mt CO₂e¹⁰. The largest contributor to emissions is the Agriculture sector at 32.1 percent. Emissions from Energy and Transport are 20.8 percent and 19.7 percent respectively, with Industry and Commercial representing 14.0 percent. The Residential sector represents 11.5 percent, while Waste represents 1.8 percent of emissions. The contributions from each of the sectors are shown in Figure 1.

Figure 1 Ireland's Greenhouse Gas Emissions profile by sector (2011)

⁵ http://ec.europa.eu/clima/policies/package/docs/sec_2008_85_ia_en.pdf

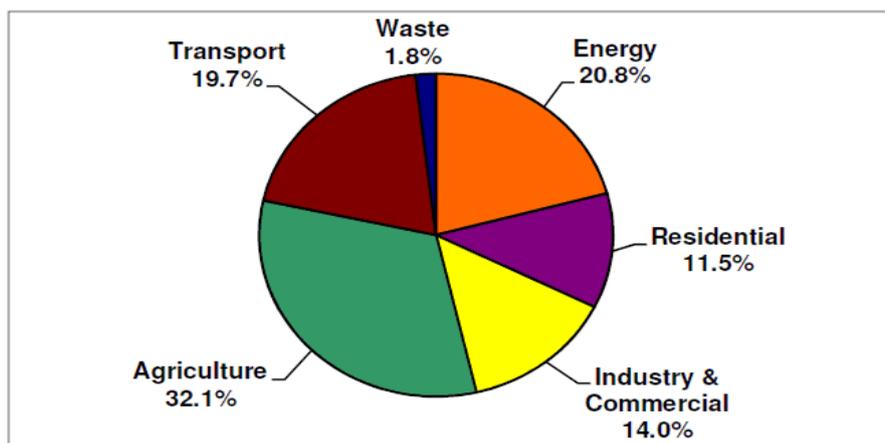
⁶ http://ec.europa.eu/clima/policies/package/docs/climate_package_ia_annex_en.pdf

⁷ http://ec.europa.eu/clima/policies/package/docs/technical_report_analysis_2012_en.pdf

⁸ http://ec.europa.eu/clima/policies/package/docs/swd_2012_5_en.pdf

⁹ http://www.epa.ie/downloads/pubs/air/airemissions/GHG_1990_2011_October_Final.pdf

¹⁰ Million tonnes of Carbon Dioxide (CO₂) equivalent



Source: EPA, 2012¹¹

Agriculture is the largest sector for emissions in the non-ETS sector and a high share of emissions from this sector is from agricultural livestock where there is limited availability of cost effective mitigation options. Stable or increased emissions from agriculture in the period to 2020 will put increased pressure on other sectors on the non-ETS side of the economy to reduce emissions and increase energy efficiency in order to meet our legally binding commitments.

2.1.2 Addressing Ireland's emissions targets to 2020

In the event that the total emissions of our non-ETS sector exceed our legally binding targets in the 2013 to 2020 period, compliance may have to be reached by availing of the flexibilities provided for in the Effort Sharing Decision (ESD). The NESC Secretariat's Interim Report¹² (2012), undertaken on foot of a request by Government, cites the EPA projections of Ireland's emissions (2010) and includes an estimate of the scale that could be associated with purchasing compliance.

Such estimates are strongly sensitive to the price projections used. The Report used the EPA's "With Measures" (WM) projection, which was based on existing policies in place by the end of 2010, to estimate cost of purchasing compliance. Under this scenario, Ireland's non-ETS emissions were projected to fall by in the region of 3.4 percent by 2020. This would have resulted in Ireland missing its 2020 target by approximately 7.8 Mt CO₂e. The Report also cited the possible cost of compliance under a "With Additional Measures" scenario where Ireland's non-ETS emissions fall by 11.3 percent and would have resulted in Ireland missing its 2020 target by approximately 4.1 Mt CO₂e.

On-going policy development is aimed at closing the gap to target. Should Ireland achieve its 2020 targets for Energy Efficiency and Renewables the costs of achieving compliance through flexible

¹¹ http://www.epa.ie/downloads/pubs/air/airemissions/GHG_1990_2011_October_Final.pdf

¹² *Towards a New National Climate Policy: Interim Report of the NESC Secretariat.*

<http://www.environ.ie/en/Publications/Environment/ClimateChange/FileDownload,31202,en.pdf>

mechanisms under the ESD would be lower as the gap to target would be lower. Such a scenario is modelled by the EPA and is known as the “With Additional Measures” (WAM) scenario. Achieving the Energy Efficiency and Renewable targets also has associated cost implications.

The estimated cost of purchasing compliance in the NESC Secretariat’s Interim Report is based on estimates of prices which might prevail in the carbon market. If there are structural changes to the carbon market which affect price, this would impact on compliance costs; it would also change the profile of returns from auctioning of allowances.

2.1.3 Increased emissions reduction target at EU level

In the years after 2020, Ireland – like all EU Member States – will have to manage a significant greenhouse gas mitigation challenge. Subject to the pace of technology and other developments key to mitigation, and even in a scenario where there is no increase in ambition in the 2013 to 2020 period, Ireland could face the possibility of considerably higher and rising annual costs of compliance after 2020.

It is to be expected that beyond 2020 the EU as a whole will adopt a more ambitious emissions–reduction target with attendant implications for cost. In the absence of increasing level of mitigation action, the costs of compliance will increase substantially.

2.2 Ireland’s Energy Efficiency targets

Improving Ireland’s energy efficiency is an essential part of Ireland’s sustainable energy policy, and will play a vital role in reducing our dependence on fossil fuels. The Government’s energy policy is designed to steer Ireland to a new and sustainable energy future, one that helps us reduce greenhouse gas emissions and energy costs. Efficient energy use directly contributes to security of energy supply, sustainable transport, affordable energy, competitiveness and environmental sustainability.

The Irish Government has committed to achieving, by 2020, a 20 percent reduction in energy demand across the whole of the economy through energy efficiency measures.

2.2.1 National Energy Efficiency Action Plan

The first steps to help achieving this target were set out in Ireland’s first *National Energy Efficiency Action Plan (NEEAP)* which was published in May 2009¹³. The *NEEAP* set out 90 actions that Ireland was already taking or would take in the future to help achieve the required energy savings across the public, business, residential, transport, and energy supply sectors. The savings identified in the first

¹³<http://www.dcenr.gov.ie/energy/energy+efficiency+and+affordability+division/national+energy+efficiency+action+plan.htm>

Action Plan were projected to represent approximately €1.6bn in avoided energy cost reductions for the economy in 2020 and to reduce Ireland's CO₂ emissions by approximately 5.7 Mt¹⁴.

Ireland's second NEEAP, *NEEAP 2*, has gone through consultation phase and has received Cabinet approval. It is anticipated that *NEEAP 2* will be published in the coming weeks. *NEEAP 2* will emphasise the role of the public sector as a key element of the plan. The Government recognises that it must lead by example and is committed to achieving a 33 percent reduction in public sector energy use.

2.2.2 Energy Efficiency Directive

On 25 October 2012¹⁵, the EU adopted the *Directive 2012/27/EU*¹⁶ on energy efficiency. This Directive establishes a common framework of measures for the promotion of energy efficiency within the Union in order to ensure the achievement of the Union's 2020 20 percent headline target on energy efficiency and to pave the way for further energy efficiency improvements beyond that date. It lays down rules designed to remove barriers in the energy market and overcome market failures that impede efficiency in the supply and use of energy, and provides for the establishment of indicative national energy efficiency targets for 2020. Member States are required to have the Directive transposed by June 2014, eighteen months after its entry into force.

Some of the key features of the Directive are:

- Member States are to ensure that, as from 1 January 2014, 3 percent of the total floor area of buildings over 500m² owned and occupied by central Government is renovated annually to meet at least the minimum energy performance requirements set in current building regulations;
- With regards to the purchase of certain products and services and the purchase and rent of buildings, central governments which conclude public works, supply or service contracts should lead by example and make energy efficient purchasing decisions;
- Member States must establish an energy efficiency obligation scheme to ensure that obligated energy distributors and/or retail energy sales companies operating in each Member State's territory achieve a cumulative end-use energy savings target by 31 December 2020. That target shall be at least equivalent to achieving new savings each year from 1 January 2014 to 31 December 2020 of 1.5 percent of the annual energy sales to final customers of all energy distributors or all retail energy sales companies by volume, averaged over the most recent three-year period prior to 1 January 2013;
- Where the roll-out of smart meters is assessed positively, at least 80 percent of consumers should be equipped with intelligent metering systems by 2020.

¹⁴ Source: National Energy Efficiency Action Plan (NEEAP) – (See aforementioned link)

¹⁵ http://ec.europa.eu/energy/efficiency/eed/eed_en.htm

¹⁶ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:315:0001:0056:EN:PDF>

Progressive steps have already been made on individual elements of the *Energy Efficiency Directive* in Ireland. Following pilot schemes and results from cost-benefit analyses¹⁷, the roll-out of smart meters (both electric and gas) to domestic homes and commercial premises is anticipated to proceed in 2015 and be completed by 2019 to meet the 80 percent roll-out requirement of the Directive¹⁸.

2.3 Ireland's Renewable Energy targets

Under the EU Commission's *Climate and Energy Package* Ireland has a target of 16 percent of total final domestic energy consumption to come from renewable energy in 2020. This target is made up of contributions from renewable energy in electricity (RES-E), renewable energy in transport (RES-T) and renewable energy for heat and cooling (RES-H). Individual targets for RES-E, RES-T and RES-H also exist. The targets to be achieved by 2020 are as follows¹⁹:

- RES-E: 40 percent of gross electricity consumption to come from renewable sources;
- RES-T: 10 percent of the energy used in transport to come from renewable sources;
- RES-H: 12 percent renewable contribution to heat (Thermal requirement - heating and cooling).

In May 2012, the Minister for Energy, Communications and Natural Resources published Ireland's *Strategy for Renewable Energy 2012 - 2020*²⁰ setting out five strategic goals that can help Ireland meet its 2020 renewable energy targets. These strategic goals involve; increasing on-shore and off-shore wind for domestic and export markets, building a sustainable bioenergy sector, fostering research and development in renewables such as wave and tidal, growing sustainable transport, and building out robust and efficient networks.

3. International commitments to Climate Finance

3.1 Background

In simple terms Climate Finance could be considered to be financial flows from developed to developing countries to cover the additional costs associated with climate change adaptation and mitigation. Climate finance can be from a wide variety of sources such as public, private, bilateral, multilateral, and innovative sources, although to date has generally been counted from public funds.

¹⁷ <http://www.cer.ie/en/information-centre-reports-and-publications.aspx?article=1c6fdd02-da48-44b8-8703-7f0916c2de7a> and associated links

¹⁸ Commission for Energy Regulation (CER) – Press Release 4th July 2012

¹⁹ http://www.seai.ie/Publications/Statistics_Publications/Statistics_FAQ/Energy_Targets_FAQ/

²⁰ http://www.dcenr.gov.ie/NR/rdonlyres/C0498ADB-362B-449C-B381-0099B552EBD1/0/RenewableEnergyStrategy2012_2020.pdf

3.2 UN Climate Finance commitments

At the UNFCCC²¹ climate conferences in Copenhagen (2009) and Cancún (2010), the European Union and other developed countries pledged jointly:

- to provide US \$30bn in Fast Start Finance (from public funds) over the years 2010 to 2012, and
- in the longer term to mobilise US \$100bn a year by 2020 from a variety of sources: public, private, bilateral, and multilateral, including alternative sources²², to help developing countries deal adequately with climate change, both to reduce their greenhouse gas emissions and to adapt to the consequences of climate change.

3.2.1 Fast Start Finance (2010 to 2012)

The first phase of Climate Finance, known as the “Fast Start Finance” (FSF) phase, runs from 2010 to 2012. Over this 3-year period, the EU has a collective commitment to contribute €7.2bn of Climate Finance to developing countries. Ireland made a voluntary commitment of public funds towards meeting the total EU commitment for the initial FSF period (2010 to 2012). The EU is on course to substantially meet its full FSF commitment.

For the FSF commitment period, Ireland pledged to contribute up to €100m in Climate Finance. In fact, Ireland's final contribution of Climate Finance over the FSF commitment period is expected to total approximately €110m which is in excess of the original pledge and further in excess of the €92m to €93m which would have been expected based on a strictly pro-rata burden-sharing approach by EU Member States to the overall EU pledge. The FSF contributions were sourced from D/ECLG, Irish Aid and D/AFM Votes.

3.2.2 Long term Finance (2013 to 2020)

As yet there is no clarity or agreement on a pathway or pathways to reach the 2020 goal for developed country support, as provided for in the 2009 Copenhagen Accord, or what the EU's share of the US\$100bn target for 2020 might be. If we use a similar distribution key to that for the FSF period, Ireland's contribution could potentially be of much greater scale in overall terms, although such a share would be derived from a wide variety of sources as outlined in the Cancún Agreement (2010)²³.

Public sources such as grant aid from the Exchequer could be counted, as could private, bilateral, multilateral and innovative sources of climate finance which are leveraged, mobilised, catalysed or

²¹ United Nations Framework Convention on Climate Change (UNFCCC)

²² <http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf#page=17>

²³ <http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf#page=17>

facilitated by Government action. Further work is on-going at UNFCCC level regarding the potential streams of long-term climate finance.

Common issues that countries will grapple with:

- Identifying the various financial flows that can be counted towards climate finance contributions and determining the State's role in facilitating these finance flows;
- Countries may also have to illustrate how these flows are "new and additional" – issues and implications;
- On-going monitoring, tracking and validation of climate finance flows – particularly for private climate finance flows, which are likely to account for the largest proportion of flows, but where the least amount of information is currently available;
- Issues surrounding double counting - initial investigation shows that there is large potential for double counting e.g. market-traded units and investment funds;
- Bottom up vs top down approach to monitoring - implications and considerations of each.

Pending further progress at EU and International level in identifying a pathway or pathways to scaling up climate finance, Ireland would aspire to maintain up to existing levels of climate relevant expenditure in 2013.

3.3 Scoping paper on Climate Finance

An initial scoping study is underway by the Irish Government Economic and Evaluation Service (IGEES) to scope out what internal information is available in Departments on Climate Finance flows from Ireland to developing countries. The study will also take account of work being carried out under the UNFCCC process in respect to Long-Term Climate Finance Issues.

4. Conclusion

Ireland faces challenging targets and commitments at both EU and UN level in relation to emissions reduction, energy efficiency, renewable energy generation and climate finance in the period to 2020 and likely beyond. Comprehensive analysis of the potential policies and measures required to meet these targets and commitments across all sectors is essential to ensure that Ireland meets its legally-binding requirements in a cost-efficient manner.