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Report of the technical review of the first biennial report of Ireland

Developed country Parties are requested, in accordance with decision 2/CP.17, to submit their first biennial report to the secretariat by 1 January 2014. This report presents the results of the technical review of the first biennial report of Ireland conducted by an expert review team in accordance with the "Guidelines for the technical review of information reported under the Convention related to greenhouse gas inventories, biennial reports and national communications by Parties included in Annex I to the Convention".

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I. Introduction and summary

A. Introduction

1. For Ireland the Convention entered into force on 19 July 1994. Under the Convention, Ireland will, as a member State of the European Union (EU) take on a quantified economy-wide emission reduction target jointly with all EU member States to reduce its greenhouse gas (GHG) emissions by 2020. The EU and its member States have communicated an independent quantified economy-wide emission reduction target of a 20 per cent emission reduction by 2020 compared with 1990 levels.[1]

2. Under the EU climate and energy package, this target will be met by the EU and its member States through a 21 per cent reduction, compared with 2005 levels, in GHG emissions from installations under the European Union Emissions Trading System (EU ETS) and a 10 per cent reduction, compared with 2005 levels, in GHG emissions in the non-ETS sectors (primarily the transport sector, as well as some emissions in the industrial processes, agriculture and waste sectors). According to the EU effort-sharing decision regarding the non-ETS target (EU decision 406/2009/EC), Ireland is to reduce its GHG emissions from the non-ETS sectors by 20 per cent by 2020 compared with the 2005 level.

3. This report covers the in-country technical review of the first biennial report (BR1)[2] of Ireland, coordinated by the secretariat, in accordance with the "Guidelines for the technical review of information reported under the Convention related to greenhouse gas inventories, biennial reports and national communications by Parties included in Annex I to the Convention" (decision 23/CP.19).

4. The review took place from 19 to 24 May 2014 in Dublin, Ireland, and was conducted by the following team of nominated experts from the UNFCCC roster of experts: Mr. Sangay Dorji (Bhutan), Ms. Violeta Hristova (Bulgaria), Ms. Balgis Osman-Elasha (Sudan) and Mr. Christophe Schramm (France). Ms. Hristova and Ms. Osman-Elasha were the lead reviewers. The review was coordinated by Mr. Bernd Hackmann (UNFCCC secretariat).

5. During the review, the expert review team (ERT) examined each section of the BR1.

6. In accordance with decision 23/CP.19, a draft version of this report was communicated to the Government of Ireland, which provided comments that were considered and incorporated, as appropriate, into this final version of the report.

B. Summary

7. The ERT conducted a technical review of the information reported in the BR1 of Ireland according to the "UNFCCC biennial reporting guidelines for developed country Parties" (hereinafter referred to as the UNFCCC reporting guidelines on BRs).

8. During the review, Ireland provided further relevant information on its reporting in the common tabular format (CTF) tables, including information on the quantified economy-wide emission reduction target (see para. 23 below), the progress made towards the

[1] FCCC/SB/2011/INF.1/Rev.1 and FCCC/AWGLCA/2012/MISC.1.

[2] The biennial report submission comprises the text of the report and the common tabular format (CTF) tables. Both the text and the CTF tables have been subject to the technical review.

achievement of the quantified economy-wide emission reduction target (see paras. 33 and 43 below), projections (see paras. 51 and 52 below) and provision of support to developing country Parties (see paras. 57, 58, 60, 64, 66, 68 and 71 below).

1. Completeness and transparency of reporting

9. Gaps and issues related to the reported information identified by the ERT are presented in table 1 below.

2. Timeliness

10. The BR1 was submitted on 7 March 2014, after the deadline of 1 January 2014 mandated by decision 2/CP.17. The CTF tables were submitted on 20 February 2014. Ireland informed the secretariat about its difficulties with the timeliness of its BR1 and CTF tables on 23 December 2013 in accordance with decision 23/CP.19, paragraph 65. The ERT noted with concern the delay in the submission of the BR1.

3. Adherence to the reporting guidelines

11. The information reported by Ireland in its BR1 is mostly in adherence to the UNFCCC reporting guidelines on BRs as per decision 2/CP.17 (see table 1 below).

Table 1
Issues related to completeness and transparency of reported information in the first biennial report of Ireland[a]

Sections of the biennial report	*Completeness*	*Transparency*	*Reference to paragraphs*
Greenhouse gas emissions and trends	Complete	Transparent	
Assumptions, conditions and methodologies related to the attainment of the quantified economy-wide emission reduction target	Complete	Transparent	
Progress in achievement of targets	Mostly complete	Transparent	40, 46
Projections	Complete	Mostly transparent	49, 51
Provision of support to developing country Parties	Mostly complete	Mostly transparent	61, 65, 69, 70

[a] A list of recommendations pertaining to the completeness and transparency issues identified in this table is included in the chapter on conclusions and recommendations.

II. Technical review of the reported information

A. All greenhouse gas emissions and removals related to the quantified economy-wide emission reduction target

12. Ireland has provided a summary of information on GHG emission trends for the period 1990–2011in its BR1 and CTF table 1. This information is fully consistent with the 2013 national GHG inventory submission. During the review, the ERT took note of the 2014 annual submission. The relevant information therein is reflected in this report.

13. Total GHG emissions[3] excluding emissions and removals from land use, land-use change and forestry (LULUCF) increased by 5.9 per cent between 1990 and 2012, whereas

[3] In this report, the term "total GHG emissions" refers to the aggregated national GHG emissions expressed in terms of carbon dioxide equivalent excluding land use, land-use change and forestry,

total GHG emissions including net emissions and removals from LULUCF increased by 4.6 per cent over the same period. This growth was mainly attributed to an increase of 17.2 per cent in carbon dioxide (CO_2) emissions. Emissions of methane (CH_4) and nitrous oxide (N_2O) decreased by 11.7 and 18.6 per cent, respectively, between 1990 and 2012. CO_2 emissions accounted for 58.7 per cent of total GHG emissions without LULUCF in 1990 and 64.9 per cent in 2012, while CH_4 emissions accounted for 24.8 per cent in 1990 and 20.6 per cent in 2012 and N_2O emissions accounted for 16.5 per cent in 1990 and 12.7 per cent in 2012. Emissions of fluorinated gases (F-gases) accounted for about 0.1 per cent of total GHG emissions without LULUCF in 1990 and 1.8 per cent in 2012.

14. The increasing trend of total GHG emissions between 1990 and 2012 was mainly owing to rising emissions from fuel combustion in the energy sector, with emissions from energy industries increasing by 13.8 per cent to account for 21.9 per cent of total GHG emissions in 2012, and emissions from transport increasing by 112.8 per cent to account for 18.6 per cent of total GHG emissions in 2012. The agriculture sector remained the largest source of emissions in 2012, accounting for 30.7 per cent of total GHG emissions; however, emissions from agriculture decreased by 8.5 per cent between 1990 and 2012.

15. Further information on the review of emissions and emission trends is provided in chapter II.A of the report of the technical review of the sixth national communication of Ireland (IDR/NC6).

B. Assumptions, conditions and methodologies related to the attainment of the quantified economy-wide emission reduction target

16. In its BR1 and CTF table 2, Ireland reported a description of its quantified economy-wide emission reduction target, referred to henceforth as the target, including associated conditions and assumptions. Under the Convention, Ireland will, as an EU member State, take on a quantified economy-wide emission reduction target jointly with the remaining EU member States to reduce its GHG emissions by 2020. The EU and its member States have communicated an independent quantified economy-wide emission reduction target of a 20 per cent reduction by 2020 compared with 1990 levels. The joint EU target is implemented through binding legislation in place since 2009 (climate and energy package), including the EU ETS and the effort-sharing decision.

17. Under the EU climate and energy package, this target will be met by the EU and its member States through a 21 per cent reduction, compared with 2005 levels, in GHG emissions from installations under the EU ETS and a 10 per cent reduction, compared with 2005 levels, in GHG emissions in the non-ETS sectors (primarily the transport sector, as well as some emissions in the industrial processes, agriculture and waste sectors). According to the EU effort-sharing decision regarding the non-ETS target, Ireland is to reduce its GHG emissions from the non-ETS sectors by 20 per cent between 2005 and 2020.

18. In its BR1, Ireland described the joint EU target and its scope covering emissions of CO_2, CH_4, N_2O, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6) and nitrogen trifluoride (NF_3). Further, it sets the period for achieving the target for 2013–2020. It covers the energy sector, including the transport sector, the industrial processes sector, including the solvent and other product use sector, the agriculture sector, the waste sector and the aviation sector (within the EU). For all included

unless otherwise specified.

gases, the global warming potential (GWP) values from the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report are used.[4]

19. With regard to the role of LULUCF, the EU pledge under the Convention does not include emissions and removals from LULUCF, while Ireland's commitment under the second commitment period of the Kyoto Protocol includes emissions and removals associated with forestry activities (i.e. afforestation, reforestation and deforestation and forest management) in accordance with decisions 2/CMP.7, 1/CMP.8 and 2/CMP.8.

20. Ireland further reported that the use of carbon credits from international market-based mechanisms can generally be used for compliance purposes under the EU quantified economy-wide emission reduction target.

21. In its BR1, Ireland also reported that the European Council reiterated the conditional offer of the EU to move to a 30 per cent emission reduction by 2020 compared to 1990 levels as part of a global and comprehensive agreement for the period beyond 2012, provided that other developed countries commit themselves to comparable emission reductions and that developing countries contribute adequately according to their responsibilities and respective capabilities.

22. The ERT noted that in CTF table 2(b) Ireland reported the base year as "BY-2020". The ERT noted that the base year for the joint EU economy-wide emission reduction target is 1990 for all gases excluding NF_3.

23. During the review, Ireland presented additional information, explaining that the EU will meet its quantified economy-wide emission reduction target for 2020 based on joint fulfilment as allowed under Article 4 of the Kyoto Protocol. The approach used and the base year selected for each of the 28 EU member States will be included in the ratification instrument for the Doha Amendment. The ERT encourages Ireland to improve the transparency of its reporting by including this information in its next biennial report.

C. Progress made towards the achievement of the quantified economy-wide emission reduction target

24. In its BR1 and CTF tables 3 and 4, Ireland reported information on its mitigation actions implemented and planned since its fifth national communication (NC5) to achieve its target. Ireland also reported on the use of units from market-based mechanisms and LULUCF to achieve its target.

25. The ERT reviewed the reported information and provided its assessment of progress made towards achieving the target. The ERT noted the progress made by Ireland. According to the presented inventory data and projections provided during the review, the ERT noted that Ireland is on track to achieve its Kyoto Protocol target for the period 2008–2012 with a likely small requirement for the use of additional units totalling some 2,060 kt CO_2 eq. The ERT noted that this progress could form a stepping stone for further emission reductions in the period until 2020, during which Ireland will contribute to the achievement of the joint EU quantified economy-wide emission reduction target for 2020.

26. With regard to the joint EU target under the Convention, Ireland reported that EU policies and the 2008 EU climate and energy package are central elements of Ireland's

[4] The quantified economy-wide emission reduction target for Ireland is expressed using the GWP values from the IPCC Fourth Assessment Report, while emission levels are assessed using the values from the IPCC Second Assessment Report, as per the "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual greenhouse gas inventories".

policy response to climate change and provide a legislative backdrop for actions across a range of sectors, in particular regarding energy efficiency and renewable energy policy development.

27. At the domestic level, Ireland's policies have thus far been guided by the National Climate Change Strategy for the period 2007–2012, which set objectives aimed at the achievement of the target for the Kyoto Protocol first commitment period. In April 2014, the Irish Government published its National Policy Position on Climate Change as well as the general outline of its new Climate Action and Low-Carbon Development Bill, the adoption of which is planned for late 2014 or early 2015. The Bill provides an institutional framework for the development of iterative national mitigation and adaptation plans in order to enable the Party to pursue and achieve transition to a low-carbon, climate-resilient and environmentally sustainable economy in the period up to and including the year 2050.

28. This legislation will set the stage for the National Low-Carbon Roadmap, which is currently being developed with special focus on key identified sectors, namely electricity generation, the built environment, transport and agriculture. The primary objective of the National Low-Carbon Roadmap is to set out the process through which the Party will pursue and aim to achieve transition to a competitive, low-carbon and environmentally sustainable economy by 2050. The Roadmap will specify measures aimed at achieving this objective and complying with any climate-related existing obligation of the State under EU law or any international agreements.

29. The ERT encourages Ireland to continue reporting on the development and implementation of its National Low-Carbon Roadmap in its next biennial report.

1. Mitigation actions and their effects

30. Ireland has provided in its BR1 and CTF table 3 comprehensive and mostly well-organized information on its package of mitigation actions introduced to achieve its target. The BR1 provided information on mitigation actions organized by sector and by gas. A detailed review of the reported information is provided in chapter II.B of the IDR/NC6.

31. Ireland reported on its national policies and measures (PaMs) through CTF table 3 only and provided cross-references to more detailed information on the national PaMs contained in its NC6. The information provided in CTF table 3 is consistent with the overview information in Ireland's portfolio of PaMs provided in its NC6.

32. In CTF table 3, Ireland provided an estimate of the mitigation impact of its PaMs for 2020. The ERT noted that, in chapter 5.6 of its NC6, Ireland provided the effect of its PaMs for 2010, 2015 and 2020. To enhance the transparency of its reporting, the ERT encourages Ireland to also include in CTF table 3 of its next biennial report an estimate of the mitigation impact of its PaMs for a year prior to 2020 (either 2010 or 2015) in addition to 2020.

33. During the review, Ireland provided additional and updated information on the quantitative estimates of the emission reduction impacts of its PaMs for 2020 (see table 2 below). The ERT considered this information to be transparent and useful and commended Ireland for providing the updated information.

34. The ERT noted that, similar to the information provided in the NC6, Ireland did not provide in CTF table 3 some of the required information, including estimates of the mitigation impact of some of its most significant PaMs, such as the EU ETS and the domestic carbon tax. The ERT encourages Ireland to report, in CTF table 3, complete information on all its PaMs, in particular for all PaMs with a significant impact, such as the EU ETS and the carbon tax, and to include this information in its next biennial report.

35. In its BR1, Ireland reported that climate policies in Ireland have shifted in recent years towards stronger EU integration and closer international cooperation. To that end, Ireland's key policies and policy instruments are developed in the context of the policies of the EU, including the EU burden-sharing agreement (EU decision 2002/358/EC), the EU ETS (EU directive 2003/87/EC) and the EU effort-sharing decision regulating GHG emissions in the non-ETS sectors (EU decision 406/2009/EC), as well as the EU climate and energy package with its "20-20-20 in 2020" targets established in 2008 and its national implementation in Ireland.

36. Ireland further reported information on the measures taken at the EU level to achieve the joint target of a quantified economy-wide emission reduction. Under the Convention, the EU has committed to a 20 per cent GHG emission reduction by 2020. This target is in line with the objectives contained in the 2008 EU climate and energy package. Since the negotiations between EU member States on the instrument of ratification of the amendment to the Kyoto Protocol for the second commitment period at the EU level are currently ongoing, the ERT noted that it is difficult to assess the extent to which the PaMs planned, adopted and implemented by Ireland will contribute to the joint EU target under the Convention (see also para. 54 below).

37. In its NC6, the Party has reported that the EU ETS covers around 29 per cent of Ireland's total GHG emissions. Under the EU effort-sharing decision, the EU's emissions from sectors not covered under the EU ETS (namely, transport, agriculture, heating in buildings, waste and small industry) have to decrease by 10 per cent by 2020 compared with 2005 emission levels. For Ireland, where the sectors concerned represent about 71 per cent of national emissions, the target is a total GHG emission reduction of 20 per cent by 2020 compared with 2005 emission levels.

38. The effect of these key measures has been complemented by the effect of a number of other domestic measures, such as the carbon tax on motor fuels and liquid heating fuels, the National Renewable Energy Action Plan and the 2012 National Energy Efficiency Action Plan, including a commitment to achieve energy savings of 20 per cent by 2020 compared to the levels during the period 2001–2005.

39. Table 2 below provides a concise summary of the key mitigation actions implemented by Ireland to achieve its target.

Table 2
Summary of information on policies and measures reported by Ireland

Sectors affected	*List of key policies and measures*	*Estimate of mitigation impact by 2020 (kt CO_2 eq)*
Policy framework and cross-sectoral measures		
	European Union Emissions Trading System (EU ETS)	
	European Union effort-sharing decision for non-ETS sectors	
	Carbon tax	
Energy		
Energy supply	Electricity generation efficiency improvements (since 2008)	960
	Electricity savings in the industry, services, residential and transport sectors (planned)	344
Renewable energy	National Renewable Energy Plan	NA

Sectors affected	*List of key policies and measures*	*Estimate of mitigation impact by 2020 (kt CO_2 eq)*
	Renewable energy to contribute 23 per cent (planned 40 per cent) of gross electricity consumption (targets set in the Irish Government's Energy White Paper of 2007) (planned)[a]	1 975 (2 750)
Energy efficiency	National Energy Efficiency Action Plan	NA
	Reduced electricity demand	451
Residential, commercial and institutional sectors	Retrofit scheme (Better Energy Homes) (planned)	1 413
	Building regulations for dwellings (2002, 2008, 2011, nearly zero energy buildings for 2020)	759
	Efficient boiler standards (2008, 2011)	284
	Domestic lighting (2008)	179
	Better Energy Retrofit (public sector) (planned)	190
	Public sector energy efficiency target (planned)	177
	Building regulations for buildings other than dwellings (planned for 2015, 2018, nearly zero energy buildings for 2020)	133
Transport		
	Improved fuel economy of privately owned cars (2009)	783
	Renewables in transport: 10% by 2020 (planned)	641
	Vehicle registration tax and motor tax changes (2008)	237
	Electric vehicle deployment (planned)	125
Industrial sectors		
	Renewable heat measures (planned)	561
	Sustainable Energy Authority of Ireland – Large Industry Programme	417
	Combined heat and power efficiency	104
Agriculture		
	Food Harvest 2020 plan and abolition of the European Union milk quota	–
Forestry		
	National Forest Programme (Afforestation)	4 639[b]
Waste management		
	EU directive 1999/31/EC on the landfill of waste	378

Note: The greenhouse gas emission reduction estimates given in the right-hand column are reductions in carbon dioxide or carbon dioxide equivalent for 2020, based on data provided by Ireland during the review (unless otherwise indicated).

Abbreviation: NA = not applicable.

[a] The policies to achieve 23 per cent renewable energy contribution to gross electricity consumption in 2020 have been in operation for wind and hydro power since 2006, whereas the objective to achieve 40 per cent renewable energy contribution to gross electricity consumption in 2020 are planned and not yet implemented. The 40 per cent target is set in the Irish Government's Energy White Paper of 2007 and compliments the Renewable Energy Directive (28/EC/2009).

[b] Data from Ireland's NC6.

40. In its BR1, Ireland did not provide information on changes in its domestic institutional arrangements, including institutional, legal, administrative and procedural arrangements used for domestic compliance, monitoring, reporting, archiving of information and evaluation of the progress towards its target. The ERT recommends that Ireland include this information in its next biennial report.

41. Ireland did not provide information on the assessment of the economic and social consequences of response measures, including the consequences of the response of developing countries. The ERT encourages Ireland to provide this information in its next biennial report.

2. Estimates of emission reductions and removals and the use of units from the market-based mechanisms and land use, land-use change and forestry

42. Ireland only partially reported in its BR1 and CTF table 4 on its plans to use market-based mechanisms under the Convention and other mechanisms and on the contribution from LULUCF. However, in its BR1, Ireland referred to the relevant sections in its NC6 where further information on its plans to use market-based mechanisms under the Convention and other mechanisms and on the contribution from LULUCF are reported.

43. The ERT noted that CTF tables 4, 4(a) and 4(b) are not filled in and that the textual part of the BR1 did not provide further information on this. During the review, Ireland provided additional information, explaining that CTF tables 4 and 4(a)I (2011 and 2012) are not filled in because the EU joint target does not include the LULUCF sector.

44. Further, Ireland reported that CTF table 4(b) has not been filled in as no decisions have yet been made on the use of units from mechanisms for meeting Ireland's share of the EU joint fulfilment target for the period 2013–2020. For the first commitment period under the Kyoto Protocol, the definite use of mechanisms will be known only at the end of the true-up period in 2015 or 2016. Information on the number and type of units held or surrendered in the Irish registry is available in Ireland's 2013 standard electronic format table as part of the Party's 2014 annual GHG inventory submission.

45. In its NC6, Ireland reported information that it does not plan to use market-based mechanisms to meet its Kyoto Protocol target for the first commitment period, based on its 2012 GHG inventory data. During the review, Ireland provided additional information clarifying that Ireland's gap towards reaching its target for the first commitment period is approximately 2,060 kt CO_2 eq, arising from the necessary adjustments for ETS and LULUCF Article 3.3. In this context, the ERT noted that Ireland is on track to meet its commitment under the first commitment period of the Kyoto Protocol with a use of additional units totalling some 2,060 kt CO_2 eq.

46. The ERT acknowledges this information and recommends that Ireland improve the completeness of its reporting by including this information in its next biennial report (either in textual format or as a footnote to the relevant CTF tables).

47. Table 3 illustrates how Ireland reported on the use of units from market-based mechanisms and LULUCF to achieve its target.

Table 3
Summary information on the use of units from the market-based mechanisms and land use, land-use change and forestry as part of the reporting on the progress made towards achievement of the target by Ireland

Year	*Emissions excluding LULUCF ($kt\ CO_2\ eq$)*	*LULUCF emissions/removals ($kt\ CO_2\ eq$)*[a]	*Emissions including LULUCF ($kt\ CO_2\ eq$)*[a]	*Use of units from the market-based mechanisms*[b] *($kt\ CO_2\ eq$)*
Base year (1990)	55 246.27	NA	NA	NA
2010	61 894.90	NA	NA	0
2011	57 749.96	NA	NA	0
2012	58 531.24	NA	NA	0

Abbreviations: LULUCF = land use, land-use change and forestry, NA = not applicable.

[a] The unconditional commitment of the European Union (EU) to reduce greenhouse gas emissions by 20 per cent by 2020 compared with 1990 does not include emissions/removals from land use, land-use change and forestry.

[b] In common tabular format table 4, Ireland did not report on units that it intends to use to achieve the target. As a proxy, the expert review team reported the average annual value of the total units that Ireland intends to use.

3. Projections

48. Ireland has provided in its BR1 and CTF tables 5 and 6 comprehensive and well-organized information on its updated projections for 2020 and 2030 using a 'with measures' and a 'with additional measures' scenario. A detailed review of the reported information is provided in chapter II.C of the IDR/NC6.

49. The ERT noted that in CTF table 5 Ireland reported empty cells regarding information on the international oil, coal and gas price for some years, without providing any further clarification. The ERT therefore recommends that Ireland improve the transparency of its reporting by providing all of the information required by CTF table 5 or by transparently explaining why it did not report the values for these cells in its next biennial report.

50. The information provided in the BR1 regarding the projections until 2020, as well as the models and methodologies used to prepare the projections, is consistent with the information provided in Ireland's NC6. With regard to the projections until 2030 contained in CTF tables 6(a) and 6(c), Ireland reported in its BR1 that emissions post-2020 are only included on the basis that they provide a point of discussion rather than any particular policy-setting, as no long-term PaMs exist post-2020. The ERT encourages Ireland to prepare projections until 2030 using similar models and methodologies as for the preparation of the projections until 2020.

51. The ERT noted that there are no differences between the total GHG emissions with LULUCF and the total GHG emissions without LULUCF in CTF tables 6(a) and 6(c) for the projected years 2020 and 2030, while projections for activities under Article 3, paragraph 3, of the Kyoto Protocol have been reported in Ireland's NC6 for 2020. During the review, Ireland provided an explanation for the two projected years, explaining that projected data are available for total GHG emissions excluding LULUCF only, as there are currently no projected data for the emissions including LULUCF under the Convention. The value reported in these two tables for total GHG emissions with LULUCF for 2020 and 2030 should therefore read "NA" (not applicable). The ERT recommends that Ireland

improve the transparency of its reporting by including footnotes to the tables in its next biennial report.

52. During the review, Ireland provided the latest projection scenarios until 2030, prepared by the Environmental Protection Agency (EPA) on an annual basis for all sectors of the economy; the models have been updated and calibrated based on the most recent available data. The ERT commends Ireland for updating the projections.

53. Under the 'with measures' scenario, Ireland's total GHG emissions excluding LULUCF are projected to amount to 62,832.80 kt CO_2 eq in 2020 and 67,058.41 kt CO_2 eq in 2030, which is an increase in total GHG emissions of 13.7 and 21.4 per cent respectively compared with the 1990 level and an increase of 7.3 and 14.6 per cent compared with 2012. For the 'with additional measures' scenario, Ireland's total GHG emissions excluding LULUCF are projected to amount to 57,997.40 kt CO_2 eq in 2020 and 56,169.76 kt CO_2 eq in 2030, which is an increase in total GHG emissions of 5.0 and 1.7 per cent respectively compared with the 1990 level and a decrease of 0.9 and 4.0 per cent respectively compared with 2012.

54. Based on Ireland's GHG emission estimates provided in the 2014 annual inventory submission, as well as on the projected emissions for 2020, both under the 'with measures' and the 'with additional measures' scenarios that suggest an increase in emissions up to 2030, the ERT notes that the challenge for Ireland will be to reduce its emissions significantly towards future emission reduction obligations such as its target under the EU effort-sharing decision to reduce GHG emissions in the non-ETS sectors (namely, transport, agriculture, heating in buildings, waste and small industry) by 20 per cent below 2005 levels by 2020, in particular since emissions from the agriculture sector are projected to remain almost constant until 2020 and emissions from the transport sector are projected to continue increasing between 2012 and 2020.

D. Provision of financial, technological and capacity-building support to developing country Parties

1. Provision of financial support to developing country Parties

55. In its BR1 and CTF tables 7, 7(a) and 7(b), Ireland reported information on its provision of financial, technological and capacity-building support required under the Convention. The information provided is mostly complete and mostly transparent. A comprehensive review of the reported information is provided in chapter II.D.1 of the IDR/NC6.

56. During the review, Ireland provided updated information on the financial support it has provided to developing countries to mitigate GHG emissions and to adapt to the adverse effects of climate change for the years 2011 and 2012. The ERT welcomed this information.

57. In its updated information, Ireland reported that in 2011 it contributed climate-specific financial support to developing countries of around EUR 14.8 million (USD 20.6 million) through multilateral channels and of around EUR 29.3 million (USD 40.8 million) through bilateral, regional and other channels. Ireland reported that in 2012 it contributed climate-specific financial support to developing countries of around EUR 5.1 million (USD 6.6 million) through multilateral channels and of around EUR 28.1 million (USD 36.1 million) through bilateral, regional and other channels.

58. With regard to the most recent financial contributions (fast-start finance) to enhance the implementation of the Convention by developing country Parties, Ireland reported that its fast-start finance contributions in 2011 and 2012 were drawn from exchequer grant and

other non-refundable contributions provided by the Department of the Environment, Community and Local Government, the Department of Agriculture, Food and the Marine and climate-related official development assistance (ODA). In its NC6 and during the review, Ireland further clarified that all financial resources related to climate change between 2010 and 2012 are accounted for under the umbrella of the political commitment of the EU and its member States to provide fast-start finance to support actions by developing countries to strengthen their resilience to climate change and mitigate their GHG emissions, including those from deforestation. In this context, Ireland committed to provide EUR 100 million in public finance. The Party has exceeded its pledge, having contributed around EUR 110.2 million in fast-start finance. These resources consisted entirely of grant funding with approximately 95 per cent going towards adaptation activities, mainly to Ireland's partner countries.

59. Table 4 below includes some of the information reported by Ireland on its provision of financial support.

Table 4
Summary of information on provision of financial support in 2011–2012
(Millions of United States dollars)

	Years of disbursement	
Allocation channel of public financial support	*2011*	*2012*
Official development assistance[a]	656.29[b]	629.17[c]
Climate-specific contributions through multilateral channels, including:	14.83	5.13
Contributions to Global Environment Facility	1.42	1.42
Climate-specific contributions through bilateral, regional and other channels	29.34	28.09
Fast start finance (total climate-related contributions)	44.17	33.22

[a] Query Wizard for International Development Statistics, available at <http://stats.oecd.org/qwids/>.
[b] The exchange rate used in 2011 is the Central Bank of Ireland annual average exchange rate: EUR 1 = USD 1.392.
[c] The exchange rate used in 2012 is the Central Bank of Ireland annual average exchange rate: EUR 1 = USD 1.2848.

60. In its BR1, Ireland indicated what "new and additional" financial resources it has provided pursuant to Article 4, paragraph 3, of the Convention and clarified how it has determined such resources as being "new and additional". During the review, Ireland provided additional information, explaining that it considers all climate-related financial resources as "new and additional", in particular since it has delivered and exceeded its political commitment to provide up to EUR 100 million in public funding during the period 2010–2012, despite its reduced national budget due to the economic recession. In addition, Ireland indicated during the review that it is in the process of developing a climate finance mapping approach which is intended to help the Party to formulate a country-specific definition to determine resources as "new and additional".

61. To improve the transparency of its reporting, the ERT recommends that Ireland provide further information clarifying how it has determined financial resources as being "new and additional", including any relevant information from its climate finance mapping exercise, in its next biennial report.

62. In its BR1, Ireland provided information on how it seeks to ensure that the resources it provides effectively address the needs of developing countries with regard to climate change adaptation and mitigation. Ireland reported that it focuses its cooperation with partner countries primarily on adaptation issues, with bilateral grants focusing on the areas

of sustainable food and nutrition security, particularly climate-resilient agriculture, improved natural resource management, disaster risk reduction, improving efficient and sustainable energy at the household level and gender equality.

63. In CTF table 7(b), Ireland distinguishes between financial support provided for adaptation and mitigation activities and indicates the specific sector for which the resources are provided. CTF table 7(b) shows that Ireland provides most of its financial resources for adaptation activities in the agriculture sector.

64. In its BR1, Ireland reported on ongoing work to further develop and enhance the tracking of private financial flows aimed at mitigation and adaptation activities in developing countries. During the review, Ireland elaborated on its efforts to further enhance its tracking mechanism. The ERT welcomed this information and encourages Ireland to report this information in its next biennial report.

2. Approach used to track support provided

65. In its BR1, Ireland did not report information on its national approach to tracking its provision of financial, technological and capacity-building support to developing country Parties, including the indicators and allocation channels tracked, and the underlying assumptions and methodologies used to produce information on finance, as required by the UNFCCC reporting guidelines on BRs. The ERT recommends that Ireland provide this information in its next biennial report.

66. During the review, Ireland provided additional information, clarifying that it is in the process of developing a climate finance mapping approach. The mapping entails the examination of expenditures for their climate relevance and subsequent validation against project documentation according to the Organisation for Economic Co-operation and Development (OECD) Development Assistance Committee (DAC) Rio Marker definitions of mitigation and adaptation, as well as other funds for other multilateral environmental agreements and disaster risk management (DRM) based on existing DAC Rio Marker definitions and the proposed definition for a DRM OECD DAC Marker. The final output will be a report on the total disbursements in these areas and individual reports on each of the key partner countries of Irish Aid. The projections of disbursements for 2014 and 2015 will also be included.

67. The ERT welcomes this additional information and encourages Ireland to provide information on the outcome of its climate finance mapping approach in its next biennial report, when reporting information on its national approach to track its provision of financial, technological and capacity-building support to developing country Parties, in order to improve the transparency of its reporting.

3. Technology development and transfer

68. In its BR1, Ireland has provided information on activities related to the transfer of technology to developing countries. Ireland did not provide information on its provision of technology development and transfer support in CTF table 8, as required by the UNFCCC reporting guidelines on BRs. In its BR1 and during the review, Ireland further explained that information on some projects that have been fully or partially targeted for "technology development and transfer" is provided in CTF table 9.

69. The ERT therefore recommends that Ireland provide full information on its measures and activities related to technology transfer in CTF table 8, as required by the UNFCCC reporting guidelines on BRs, in order to improve the transparency of its reporting.

70. The BR1 does not include information required by the UNFCCC reporting guidelines on BRs on technology transfer with a clear distinction between activities undertaken by the public and private sectors. The ERT recommends that, when reporting on measures and activities related to technology transfer, Ireland distinguish between activities undertaken by the public and private sectors, in order to improve the completeness of its biennial report.

71. During the review, Ireland provided additional information on activities related to the transfer of technology to developing countries. The ERT noted that technology transfer is an integral part of Ireland's support provided to developing countries and it is therefore difficult to clearly separate it from other activities that are part of Ireland's development cooperation. Ireland reported that its climate-related ODA commitments include almost no stand-alone technology transfer or capacity-building activities and that support for climate-related activities often includes capacity-strengthening and technology-related components.

72. In its BR1, Ireland reported that technology transfer in Ireland includes both 'hard' and 'soft' technologies, with a focus on improving the resilience of communities to climate change in Irish partner countries, mainly those located in sub-Saharan Africa. Technology transfer activities are often deployed in the agriculture sector and include watershed management systems, agricultural irrigation systems and climate forecasting systems.

4. Capacity-building

73. In its BR1 and CTF table 9, Ireland has included information on how it has provided capacity-building support for mitigation, adaptation and technology. Ireland reported that the examples of capacity-building support provided in CTF table 9 are only a small part of the total number of ongoing projects that contain a capacity-building dimension.

74. Similar to Ireland's technology transfer related support, capacity-building is a key component of almost all support activities provided to developing countries and, as such, it is difficult to clearly distinguish between capacity-building support and technology transfer support. Ireland reported that its climate-related ODA commitments include almost no stand-alone technology transfer or capacity-building activities and that support for climate-related activities often includes capacity-strengthening and technology-related components.

III. Conclusions

75. The ERT conducted a technical review of the information reported in the BR1 and CTF tables of Ireland in accordance with the UNFCCC reporting guidelines on BRs. The ERT concludes that the BR1 and CTF tables provide a good overview of information on emissions and removals related to the quantified economy-wide emission reduction target, a description of the target, progress made by Ireland to achieve its target, and provision of support to developing country Parties. During the review, Ireland provided further relevant information on its reporting in the CTF tables, including information on the quantified economy-wide emission reduction target (see para. 23 above), the progress made towards the achievement of the quantified economy-wide emission reduction target (see paras. 33 and 43 above), projections (see paras. 51 and 52 above) and provision of support to developing country Parties (see paras. 57, 58, 60, 64, 66, 68 and 71 above).

76. Ireland's emissions and removals related to the target were estimated for 2012 to be 5.9 per cent above its 1990 level excluding LULUCF and 4.6 per cent above including LULUCF.

77. The increasing trend of total GHG emissions between 1990 and 2012 was mainly owing to strong economic and population growth and resulting growth in emissions from

fuel combustion in the energy sector, with emissions from energy industries increasing by 13.8 per cent to account for 21.9 per cent of total GHG emissions in 2012, and emissions from transport increasing by 112.8 per cent to account for 18.6 per cent of total GHG emissions in 2012. The agriculture sector remained the largest source of emissions in 2012, accounting for 30.7 per cent of total GHG emissions; however, emissions from agriculture decreased by 8.5 per cent between 1990 and 2012.

78. During the period 1990–2011, Ireland's population and gross domestic product (GDP) increased by 30.8 and 166.9 per cent, respectively, while GHG emissions per GDP and GHG emissions per capita decreased by 60.7 and 19.0 per cent, respectively. The ERT noted Ireland's efforts to decouple total GHG emissions from economic growth and encourages the Party to continue its efforts to decouple economic growth from GHG emissions.

79. Under the Convention, the EU and its member States, including Ireland, communicated a quantified economy-wide emission reduction target of a 20 per cent reduction in emissions by 2020 compared with 1990 (base year) levels. The target for the EU and its member States will be achieved through the EU 2020 climate and energy package, which includes the EU ETS and the effort-sharing decision.

80. The joint EU target defines 1990 as the base year for CO_2, CH_4 and N_2O, and 1995 as the base year for HFCs, PFCs and SF_6. Further, it sets the period for achieving the target for 2013–2020. It covers the energy sector, including the transport sector, the industrial processes sector, including the solvent and other product use sector, the agriculture sector, the waste sector and the aviation sector (within the EU). For all included gases, the GWP values from the IPCC Fourth Assessment Report are used. The contribution of emissions and removals from LULUCF in the base year is excluded from the joint target.

81. Across the EU, it is expected that the EU ETS will guarantee that the sectors that fall under this scheme (mainly large point sources such as power plants and industrial facilities) will achieve a 21.0 per cent emission reduction compared with 2005 by 2020. For the non-ETS sectors (excluding LULUCF), through the effort-sharing decision, the 2020 EU target o has been translated to a 20.0 per cent emission reduction target (compared with the 2005 level) for Ireland. In absolute terms, this means that Ireland has to reduce emissions from non-ETS sectors from about 469.00 kt CO_2 eq (2005) to about 375.00 kt CO_2 eq in 2020. In 2012, emissions from non-ETS sectors were at about 414.00 kt CO_2 eq, or 12 per cent below the 2005 level.[5]

82. In its BR1 and CTF tables 5 and 6, Ireland presented its GHG projections for 2020 and 2030 using a 'with measures' and a 'with additional measures' scenario. During the review, Ireland provided the latest projection scenarios until 2030. Under the 'with measures' scenario, Ireland's total GHG emissions excluding LULUCF are projected to amount to 62,832.80 kt CO_2 eq in 2020 and 67,058.41 kt CO_2 eq in 2030, which is an increase in total GHG emissions of 13.7 and 21.4 per cent respectively compared with the 1990 level and an increase of 7.3 and 14.6 per cent compared with 2012. For the 'with additional measures' scenario, Ireland's total GHG emissions excluding LULUCF are projected to amount to 57,997.40 kt CO_2 eq in 2020 and 56,169.76 kt CO_2 eq in 2030, which is an increase in total GHG emissions of 5 and 1.7 per cent respectively compared with the 1990 level and a decrease of 0.9 and 4.0 per cent respectively compared with 2012.

83. In its BR1 and CTF tables 7, 7(a) and 7(b), Ireland reported information on its financial, technological and capacity-building support to developing country Parties required under the Convention. For the reporting period 2011–2012, Ireland provided financial resources related to climate change of around EUR 57.4 million (USD 76.9

[5] European Environment Agency (EEA) report "Trends and projections in Europe 2013" available at <http://www.eea.europa.eu/publications/trends-and-projections-2013>.

million) through bilateral channels and around EUR 22.8 million (USD 31.0 million) through multilateral channels to developing country Parties. Ireland also indicated what "new and additional" financial resources it has provided pursuant to Article 4, paragraph 3, of the Convention and how it has determined such resources as being "new and additional".

84. With regard to technology transfer and capacity-building support for developing country Parties, the ERT noted that both means of support are an integral part of Ireland's support provided to developing countries and that it is difficult to clearly separate this kind of support from other activities that are part of Ireland's development cooperation.

85. In the course of the review, the ERT formulated several recommendations relating to the completeness and transparency of Ireland's reporting under the Convention. The key recommendations[6] are that Ireland:

(a) Improve the completeness of its reporting by including the following information in the next biennial report:

(i) Information on changes in its domestic institutional arrangements, including institutional, legal, administrative and procedural arrangements used for domestic compliance, monitoring, reporting, archiving of information and evaluation of the progress towards its target (see para. 40 above);

(ii) Information in CTF tables 4, 4(a) and 4(b), or information relevant to CTF tables 4, 4(a) and 4(b) in textual format (see para. 46 above);

(iii) Information on its national approach to tracking its provision of financial, technological and capacity-building support to developing country Parties, including the indicators and allocation channels tracked, and the underlying assumptions and methodologies used to produce information on finance (see para. 65 above);

(iv) When reporting on measures and activities related to technology transfer, provide information that shows a clear distinction between activities undertaken by the public and private sectors (see para70 above);

(b) Improve the transparency of its reporting by including the following information in the next biennial report:

(i) Transparent data in CTF table 5 (see para. 49 above);

(ii) Transparent information in CTF tables 6(a) and 6(c) on projections for 2020 and 2030 with regard to projected data for the LULUCF sector (see para. 51 above);

(iii) Transparent information clarifying how it has determined financial resources as being "new and additional", including any relevant information from its climate finance mapping exercise (see para. 61 above);

(iv) Transparent information on measures and activities related to technology transfer in CTF table 8 (see para. 69 above).

[6] The recommendations are given in full in the relevant sections of this report.

Annex

Documents and information used during the review

A. Reference documents

"UNFCCC biennial reporting guidelines for developed country Parties". Annex to decision 2/CP.17.
Available at <http://unfccc.int/resource/docs/2011/cop17/eng/09a01.pdf#page=4>.

"Guidelines for the technical review of information reported under the Convention related to greenhouse gas inventories, biennial reports and national communications by Parties included in Annex I to the Convention". Annex to decision 23/CP.19. Available at <http://unfccc.int/resource/docs/2013/cop19/eng/10a02.pdf#page=20>.

FCCC/ARR/2012/IRL. Report of the individual review of the annual submission of Ireland submitted in 2012. Available at <http://unfccc.int/resource/docs/2013/arr/irl.pdf>.

FCCC/ARR/2013/IRL. Report of the individual review of the annual submission of Ireland submitted in 2013. Available at <http://unfccc.int/resource/docs/2014/arr/irl.pdf>.

FCCC/IDR.5/IRL. Report of the in-depth review of the fifth national communication of Ireland. Available at <http://unfccc.int/resource/docs/2010/idr/irl05.pdf>.

Sixth national communication of Ireland. Available at <http://unfccc.int/files/national_reports/annex_i_natcom/submitted_natcom/application/pdf/nc6_br1_ire.pdf>.

First biennial report of Ireland. Available at <http://unfccc.int/files/national_reports/annex_i_natcom/submitted_natcom/application/pdf/nc6_br1_ire.pdf>.

Common tabular format tables of Ireland. Available at <http://unfccc.int/files/national_reports/biennial_reports_and_iar/submitted_biennial_reports/application/pdf/irl_2014_v1.0_formatted.pdf>.

2013 GHG inventory submission of Ireland. Available at <http://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/7383.php>.

2014 GHG inventory submission of Ireland. Available at <http://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/8108.php>.

EEA, 2013. Trends and projections in Europe 2013. Tracking progress towards Europe's climate and energy targets until 2020. EEA Report. No 10/2013. Available at <http://www.eea.europa.eu/publications/trends-and-projections-2013>.

B. Additional information provided by the Party

Responses to questions during the review were received from Mr. Steven Fadian (Department of the Environment), including additional material on updated policies and

measures, greenhouse gas projections, the national registry and recent climate policy developments in Ireland. The following documents[1] were also provided by Ireland:

Convery, F. J., L. Dunne and D. Joyce. 2013. *Ireland's Carbon Tax and the Fiscal Crisis: Issues in Fiscal Adjustment, Environmental Effectiveness, Competitiveness, Leakage and Equity Implications*. OECD Environment Working Papers, No. 59, OECD Publishing. Available at <http://dx.doi.org/10.1787/5k3z11j3w0bw-en>.

EirGrid and SONI. 2013. *All-Island Generation Capacity Statement 2013-2022*. Dublin. EirGrid and SONI. Available at <http://www.eirgrid.com/media/All-Island_GCS_2013-2022.pdf>.

Department of the Environment, Community and Local Government. 2012. *TOWARDS NEARLY ZERO ENERGY BUILDINGS IN IRELAND - PLANNING FOR 2020 AND BEYOND. Dublin.* Available at <http://nzeb-opendoors.ie/sites/www.nzeb-opendoors.ie/files/page-files/Towards%20NZEBs%20in%20Ireland_Nov%202012.pdf>.

Markandya, A., González-Eguino, M., Escapa, M. 2013. *From shadow to green: Linking environmental fiscal reforms and the informal economy*. Energy Economics 40, pp. 108–118. Elsevier.

[1] Reproduced as received from the Party.