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

According to decision 2/CP.17, developed country Parties are requested to submit their second biennial reports by 1 January 2016, that is, two years after the due date for submission of a full national communication. This report presents the results of the technical review of the second 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. This report covers the centralized technical review of the second biennial report (BR2)¹ of Ireland. The review was organized 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”, particularly “Part IV: UNFCCC guidelines for the technical review of biennial reports from Parties included in Annex I to the Convention” (annex to decision 13/CP.20). In accordance with the same decision, a draft version of this report was communicated to the Government of Ireland, which provided comments that were considered and incorporated with revisions into this final version of the report.

2. The review took place from 30 May to 4 June 2016 in Bonn, Germany, and was conducted by the following team of nominated experts from the UNFCCC roster of experts: Ms. Diana Barba (Colombia), Mr. Viorel Nelu Bellmondo Blujdea (Romania), Mr. Luis Caceres (Ecuador), Mr. Hoy Yen Chan (Malaysia), Mr. Amnat Chidthaisong (Thailand), Ms. Balgis Osman-Elasha (Sudan), Mr. Sabin Guendehou (Benin), Ms. Lisa Hanle (United States of America), Ms. Elsa Hatanaka (Japan), Mr. Harry Vreuls (Netherlands) and Mr. Jongikhaya Witi (South Africa). Mr. Guendehou and Mr. Vreuls were the lead reviewers. The review was coordinated by Mr. Bernd Hackmann, Ms. Sylvie Marchand and Ms. Kyoko Miwa (UNFCCC secretariat).

B. Summary

3. The expert review team (ERT) conducted a technical review of the information reported in the BR2 of Ireland in accordance with the “UNFCCC biennial reporting guidelines for developed country Parties” (hereinafter referred to as the UNFCCC reporting guidelines on BRs). During the review, Ireland provided the following additional relevant information on: clarification of gases included in its quantified economy-wide emission reduction target; individual mitigation actions including descriptions of the methods and data used to estimate the impacts of reported mitigation measures; changes in the status of some mitigation actions and measures; the split of the estimated impacts of policies and measures (PaMs) between those covered under the European Union Emissions Trading System (EU ETS) and those not under the EU ETS (non-ETS sectors); historical emissions and emission projections data from the sectors under the EU ETS and non-ETS sectors separately; corrected data on greenhouse gas (GHG) emission projections to replace common tabular format (CTF) tables 6(a) and 6(c); measures to address large emissions sources under the non-energy sectors; and measures that promote the scaling up of private investment in mitigation and adaptation activities in developing country Parties.

1. Timeliness

4. The BR2 was submitted on 19 January 2016, after the deadline of 1 January 2016 mandated by decision 2/CP.17. The CTF tables were submitted on 19 January 2016. Ireland informed the secretariat about its difficulties with submitting its BR2 and CTF tables by 1 January 2016. The ERT noted the delay in the submission of the BR2 and CTF tables.

¹ The biennial report submission comprises the text of the report and the common tabular format (CTF) tables. Both the text and the CTF tables are subject to the technical review.

2. Completeness, transparency of reporting and adherence to the reporting guidelines

5. Issues and gaps related to the reported information identified by the ERT are presented in table 1 below. The information reported by Ireland in its BR2 is mostly in adherence with the UNFCCC reporting guidelines on BRs as per decision 2/CP.17. However, the ERT observed some errors in the information provided in the CTF tables (see paras. 13 and 44 below) and inconsistencies in the information provided in the BR2 and CTF tables (see paras. 39 and 45 below), which could be avoided by the Party taking additional measures to prevent erroneous reporting.

Table 1

Summary of completeness and transparency issues related to mandatory reported information in the second biennial report of Ireland

<i>Section of the biennial report</i>	<i>Completeness</i>	<i>Transparency</i>	<i>Paragraphs with recommendations</i>
Greenhouse gas emissions and trends	Complete	Transparent	
Assumptions, conditions and methodologies related to the attainment of the quantified economy-wide emission reduction target	Complete	Partially transparent	12–14
Progress in achievement of targets	Mostly complete	Partially transparent	22, 23, 38, 39, 44, 45
Provision of support to developing country Parties	Complete	Mostly transparent	65

Note: A list of recommendations pertaining to the completeness and transparency issues identified in this table is included in chapter III.

II. Technical review of the reported information

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

6. Ireland has provided a summary of information on GHG emission trends for the period 1990–2013 in its BR2 and CTF tables 1(a)–(d). The BR2 makes reference to the national inventory arrangements, which are explained in more detail in the national inventory report included in Ireland’s 2015 annual inventory submission (in section 1.3). The national inventory arrangements were established in accordance with the reporting requirements related to national inventory arrangements contained in 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” that are required by paragraph 3 of the UNFCCC reporting guidelines on BRs. Further, Ireland provided information in the BR2 indicating that there have been no changes in the national inventory arrangements since its first biennial report (BR1).

7. The information reported in the BR2 on emission trends is consistent with that reported in the 2015 annual inventory submission of Ireland. To reflect the most recently available data, version 1 of the common reporting format (CRF) tables (submitted on 4 November 2015) of Ireland’s 2015 annual inventory submission has been used as the basis for discussion in chapter II.A of this review report.

8. Total GHG emissions² excluding emissions and removals from land use, land-use change and forestry (LULUCF) increased by 3.6 per cent between 1990 and 2013, whereas total GHG emissions including net emissions or removals from LULUCF increased by 2.3 per cent over the same period. The increase in the total GHG emissions can be attributed mainly to carbon dioxide (CO₂) emissions, which increased by 13.2 per cent (excluding LULUCF) between 1990 and 2013. Over the same period, emissions of methane (CH₄) decreased by 11.1 per cent, while emissions of nitrous oxide (N₂O) decreased by 20.8 per cent. The combined fluorinated gases (F-gases), such as perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), sulphur hexafluoride (SF₆) and nitrogen trifluoride (NF₃), increased by 3,743.6 per cent over the same period.

9. The increase in total GHG emissions between 1990 and 2013 was due mainly to rising emissions from fuel combustion in the energy sector, which accounted for 60.8 per cent of the total GHG emissions. Emissions from energy industries peaked in 2001 (17,334.22 kt carbon dioxide equivalent (CO₂ eq)) and then declined to 11,370.18 kt CO₂ eq in 2013, resulting in a 1.3 per cent increase above the 1990 level. Emissions from manufacturing and industries peaked in 2007 (5,811.68 kt CO₂ eq), then declined to 4,230.93 kt CO₂ eq in 2013, resulting in a 6.8 per cent increase above the 1990 level. Fugitive emissions from fuels decreased by 79.4 per cent between 1990 and 2013. The recent general declining trend of emissions from these energy subsectors was offset by the upward trend of emissions from the transport subsector since 1990, which increased by 115.5 per cent (5,932.50 kt CO₂ eq) between 1990 and 2013, accounting for 18.8 per cent of the total GHG emissions in 2013. The agriculture sector was the second largest source of emissions in 2013 (18,964.61 kt CO₂ eq), accounting for 32.2 per cent of the total GHG emissions; however, emissions from agriculture decreased by 8.5 per cent between 1990 and 2013. Ireland explained that this was because of the fall in livestock numbers since 1998 due to the reform of the Common Agricultural Policy of the European Union (EU).

10. The ERT noted that, during the period 1990–2013, Ireland’s gross domestic product (GDP) per capita increased by 116.9 per cent, while GHG emissions per GDP and GHG emissions per capita decreased by 63.5 and 20.8 per cent, respectively. Table 2 below illustrates the emission trends by sector and some of the economic indicators relevant to GHG emissions for Ireland.

Table 2

Greenhouse gas emissions by sector and some indicators relevant to greenhouse gas emissions for Ireland for the period 1990–2013

Sector	GHG emissions (kt CO ₂ eq)					Change (%)		Share by sector (%)	
	1990	2000	2010	2012	2013	1990–2013	2012–2013	1990	2013
	1. Energy	31 117.76	42 525.09	40 359.13	36 950.03	35 737.69	14.8	–3.3	54.9
A1. Energy industries	11 223.13	16 116.30	13 326.90	12 774.63	11 370.18	1.3	–11.0	19.8	19.4
A2. Manufacturing industries and construction	3 961.76	5 642.39	4 497.04	4 176.96	4 230.93	6.8	1.3	7.0	7.2
A3. Transport	5 135.18	10 788.52	11 528.15	10 836.69	11 067.68	115.5	2.1	9.1	18.8

² 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 and including indirect carbon dioxide emissions, unless otherwise specified. Values in this paragraph are calculated based on the CRF tables in the 2015 inventory submission, version 1.

Sector	GHG emissions (kt CO ₂ eq)					Change (%)		Share by sector (%)	
	1990	2000	2010	2012	2013	1990–2013	2012–2013	1990	2013
	A4.–A5. Other	10 585.87	9 849.21	10 948.17	9 112.64	9 025.16	–14.7	–1.0	18.7
B. Fugitive emissions from fuels	211.82	128.66	58.87	49.11	43.74	–79.4	–10.9	0.4	0.1
C. CO ₂ transport and storage	NO	NO	NO	NO	NO	NA	NA	NA	NA
2. IPPU	3 173.30	4 491.39	2 577.97	2 650.44	2 708.17	–14.7	2.2	5.6	4.6
3. Agriculture	20 735.38	20 246.85	18 758.03	18 750.34	18 964.61	–8.5	1.1	36.6	32.3
4. LULUCF	4 524.58	5 831.59	4 316.73	5 607.91	3 873.25	–14.4	–30.9	NA	NA
5. Waste	1 645.71	1 751.62	1 174.42	1 184.94	1 344.27	–18.3	13.4	2.9	2.3
6. Other	NO	NO	NO	NO	NO	NA	NA	NA	NA
Indirect CO ₂	79.33	76.32	67.15	63.59	66.15	–16.6	4.0	NA	NA
Total GHG emissions without LULUCF	56 672.15	69 014.95	62 869.55	59 535.75	58 754.73	3.7	–1.3	100.0	100.0
Total GHG emissions with LULUCF	61 196.73	74 846.54	67 186.28	65 143.67	62 627.98	2.3	–3.9	NA	NA
Total GHG emissions without LULUCF, including indirect CO₂	56 751.48	69 091.27	62 936.70	59 599.34	58 820.88	3.6	–1.3	NA	NA
Total GHG emissions with LULUCF, including indirect CO₂	61 276.06	74 922.85	67 253.43	65 207.26	62 694.13	2.3	–3.9	NA	NA
<i>Indicators</i>									
GDP per capita (thousands 2011 USD using PPP)	21.29	39.84	44.68	45.64	46.18	116.9	1.2		
GHG emissions without LULUCF per capita (t CO ₂ eq)	16.13	18.14	13.79	12.98	12.78	–20.8	–1.6		
GHG emissions without LULUCF per GDP unit (kg CO ₂ eq per 2011 USD using PPP)	0.76	0.46	0.31	0.28	0.28	–63.5	–2.7		

Sources: (1) GHG emission data: Ireland's 2015 annual inventory submission, version 1; (2) GDP per capita data: World Bank.

Note: The ratios per capita and per GDP unit as well as the changes in emissions and the shares by sector are calculated relative to total GHG emissions without LULUCF using the exact (not rounded) values, and may therefore differ from the ratio calculated with the rounded numbers provided in the table. GHG emissions without LULUCF per capita and GHG emissions without LULUCF per GDP unit are calculated relative to Ireland's GHG emissions without LULUCF not including indirect CO₂.

Abbreviations: GDP = gross domestic product, GHG = greenhouse gas, IPPU = industrial processes and product use, LULUCF = land use, land-use change and forestry, NA = not applicable, NO = not occurring, PPP = purchasing power parity.

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

11. In its BR2 and CTF tables 2(a)–(f), Ireland reported a description of its target, including associated conditions and assumptions. CTF tables 2(a)–(f) contain the required

information in relation to the description of the Party's emission reduction target, such as its commitment under the Convention, as an EU member State, to taking on a quantified economy-wide emission reduction target jointly with the other EU member States to reduce its GHG emissions by 2020 to 20 per cent below the 1990 level. Further information on the target and the assumptions, conditions and methodologies related to the target is provided in section 3 of the BR2.

12. The BR2 and CTF tables 2(a)–(f) include the information required by the UNFCCC reporting guidelines on BRs. However, the ERT noted that in the BR2, it is not transparently reported whether the target includes indirect CO₂ emissions. During the review, Ireland provided additional information, elaborating that its target does include indirect CO₂ emissions. The ERT recommends that Ireland clearly indicate whether its target includes indirect CO₂ emissions in its explanation of the target's coverage in its next biennial report (BR) submission (see paras. 44 and 45 below).

13. The following points were also noted by the ERT: (1) CTF table 2(b) contains a “yes” for LULUCF (as a sector covered by the target), while the target description in the BR2 excludes LULUCF (and so “no” would be consistent) (see paras. 16 and 37–39 below); and (2) CTF table 2(c) indicates values from the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report (AR4) as the global warming potential (GWP) values used for NF₃, although NF₃ is not included in the target (as indicated in table 3.1 of the BR2 and CTF table 2(b)). The ERT recommends that Ireland rectify these errors in CTF tables 2(b) and 2(c) in its next BR submission in order to improve the transparency of its reporting.

14. Ireland reported “NA” (not applicable) in CTF table 2(e)I for the possible scale of contribution of units from market-based mechanisms or left cells blank. The ERT noted that the Party implied in its BR2 the need to use units from market-based mechanisms to achieve its target (see paras. 42 and 56 below). The ERT also noted that the use of certified emission reductions (CERs) and emission reduction units (ERUs) within the EU is limited to 3 per cent of the 2005 level of emissions from non-ETS sectors.³ According to the ERT's estimation, the potential use of CERs and ERUs that were carried over from the first commitment period of the Kyoto Protocol by Ireland could be up to around 1,278 kt CO₂ eq.⁴ The ERT recommends that Ireland improve the transparency of its reporting and provide information in its next BR submission on the possible scale of contributions from market-based mechanisms under the Convention and other market-based mechanisms in its description of its emission reduction target and in CTF table 2(e)I.

15. For Ireland, the Convention entered into force on 19 July 1994. Under the Convention, Ireland committed to contributing to the achievement of the joint EU economy-wide emission reduction target of 20 per cent below the 1990 level by 2020. The EU offered to move to a 30 per cent reduction on the condition that other developed countries commit to a comparable target and developing countries contribute according to their responsibilities and respective capabilities under a new global climate change agreement.

³ Decision No 406/2009/EC of the European Parliament and of the Council of 23 April 2009 on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020.

⁴ According to the report on the individual review of the report upon expiration of the additional period for fulfilling commitments (true-up period) for the first commitment period of the Kyoto Protocol of Ireland (FCCC/KP/CMP/2016/TPR/IRL), in the true-up period report submission Ireland requested to carry over 7,816,073 assigned amount units, 5,255,000 CERs and 74,964 ERUs to the second commitment period of the Kyoto Protocol.

16. The target for the EU and its member States is formalized in the EU 2020 climate and energy package. This legislative package regulates emissions of CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ using GWP values from the IPCC AR4 to aggregate the GHG emissions of the EU up to 2020. Emissions and removals from the LULUCF sector are not included in the quantified economy-wide emission reduction target under the Convention. The EU generally allows its member States to use units from the Kyoto Protocol mechanisms as well as new market mechanisms for compliance purposes, subject to a number of restrictions in terms of origin and type of project and up to an established limit. Companies can make use of such units to fulfil their requirements under the EU ETS.

17. The EU 2020 climate and energy package includes the EU ETS and the effort-sharing decision (ESD) (see chapter II.C.1 below). Further information on this package is provided in section 3 of the BR2. The EU ETS covers mainly point emissions sources in the energy, industry and aviation sectors. For the period 2013–2020, an EU-wide cap has been put in place with the goal of reducing emissions by 21 per cent below the 2005 level by 2020. Emissions from sectors covered by the ESD are regulated by targets specific to each member State, which leads to an aggregate reduction at the EU level of 10 per cent below the 2005 level by 2020.

18. Under the ESD, Ireland has a target to reduce its total emissions to 20 per cent below the 2005 level by 2020 from sectors covered by the ESD (non-ETS sectors). National emission targets for non-ETS sectors for 2020 have been translated into binding quantified annual emission allocations (AEAs) for the period 2013–2020. Ireland’s AEAs change following a linear path from 46,891.93 kt CO₂ eq in 2013 to 38,974.87 kt CO₂ eq in 2020.⁵

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

19. This chapter provides information on the review of the reporting by Ireland on the progress made in reducing emissions in relation to the target, mitigation actions taken to achieve its target, and the use of units from market-based mechanisms and LULUCF.

1. Mitigation actions and their effects

20. In its BR2 and CTF table 3, Ireland reported on its progress in the achievement of its target and the mitigation actions implemented and planned since its sixth national communication (NC6) and BR1 to achieve its target. However, the BR2 does not include, in the section on mitigation actions and their effects, descriptions of mitigation actions, neither on major actions of those, nor the relevant information organized by sector and by gas (see para. 22 below). Further information on the mitigation actions related to the Party’s target is provided in this report (see paras. 26–36 below).

21. This report highlights the changes made since the publication of Ireland’s NC6 and BR1. In its BR2, Ireland provided 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 made towards its target. Some significant progress for Ireland

⁵ European Commission decision 2013/162/EU of 26 March 2013 “on determining member States’ annual emission allocations for the period from 2013 to 2020 pursuant to Decision No. 406/2009/EC of the European Parliament and of the Council” and European Commission implementing decision 2013/634/EU of 31 October 2013 “on the adjustments to member States’ annual emission allocations for the period from 2013 to 2020 pursuant to Decision No. 406/2009/EC of the European Parliament and of the Council”.

was the signing into law of its Climate Action and Low Carbon Development Act in 2015,⁶ which requires the Minister for the Environment and other relevant ministers to report regularly and transparently on how Ireland is performing towards meeting the objectives and measures set down in the National Mitigation Plans (NMP). During the review, Ireland informed the ERT that the first NMP under the act is foreseen for June 2017, and is expected to have a particular focus on the necessary measures putting in place for the 2020 target.

22. As indicated in paragraph 20 above, Ireland did not provide, in its BR2, information on its individual mitigation actions, not even on the major mitigation actions to achieve its emission reduction target. Instead, it reported a brief overview of changes made to some of the key cross-sectoral measures (in section 4), describing its progress in achieving its target. Analyses of the total effect of PaMs by sector are provided in the projections section (section 5) of the BR2; however, for information on individual mitigation actions, reference is made to CTF table 3 and the NC6 for a detailed overview. During the review, Ireland provided additional information, elaborating on mitigation actions in place that are targeted to the non-ETS sectors. The information included the status and estimated impacts by 2020 for actions planned or adopted prior to 2015 and the effects of actions for the years prior to 2020. Considering that the inclusion of such information in the BR will improve the transparency of the reporting on Ireland's efforts to meet its target, the ERT recommends that the Party provide information on individual mitigation actions, organized by sector and by gas, to the extent appropriate, in its next BR submission.

23. The ERT noted that Ireland reported in CTF table 3 the status of several actions as 'planned' or 'adopted', while reporting their starting year of implementation as prior to 2015 and estimating their impacts by 2020. During the review, Ireland informed the ERT that the implementation of some actions was delayed due to its economic situation and that for other actions, an updated description would be more appropriate. The ERT recommends that Ireland include up-to-date information on its mitigation actions, in order to improve the transparency of its reporting, in its future BR submissions.

24. Ireland reported on the domestic arrangements established for the process of self-assessment of compliance with emission reductions required by science, and on the progress made in the establishment of national rules for taking action against non-compliance with emission reduction targets. The Climate Action and Low Carbon Development Act 2015 (see para. 21 above) requires the Climate Change Advisory Council (CCAC) to conduct an annual review of progress made in the previous year in achieving GHG emission reductions. This review is to be followed by an annual report to be submitted to the relevant minister. The timing of the annual review and annual report is entirely a matter for CCAC, which is independent in the performance of its functions.

25. In its reporting on the assessment of the economic and social consequences of response measures in its BR2, Ireland included brief information from its 2014 national inventory report, and indicated that there has been no change to the information since then. However, the ERT noted that the information on this topic is identical in the Party's 2013, 2014 and 2015 national inventory reports. Considering that, over the years, some changes might be expected in this area, the ERT encourages Ireland to check its assessment of the economic and social consequences of response measures and provide more detailed information in its next BR/NC submission, if appropriate.

26. The key overarching cross-sectoral policy in the EU is the 2020 climate and energy package, adopted in 2009, which includes the revised EU ETS and the ESD. This package is supplemented by renewable energy and energy efficiency legislation and legislative

⁶ Available at <<http://www.irishstatutebook.ie/eli/2015/act/46/enacted/en/html>>.

proposals on the 2020 targets for CO₂ emissions from cars and vans, the carbon capture and storage directive, and the general programmes for environmental conservation, namely the 7th Environment Action Programme and the Clean Air Policy Package (see table 3 below).

27. In operation since 2005, the EU ETS is a cap-and-trade system that covers all significant energy-intensive installations (mainly large point emissions sources such as power plants and industrial facilities), which produce 40–45 per cent of the GHG emissions of the EU. It is expected that the EU ETS will guarantee that the 2020 target (a 21 per cent emission reduction below the 2005 level) will be achieved for sectors under the scheme. The third phase of the EU ETS started in 2013 and the system now includes aircraft operations (since 2012) as well as N₂O emissions from chemical industries, PFC emissions from aluminium production and CO₂ emissions from industrial processes (since 2013).

28. The ESD became operational in 2013 and covers sectors outside the EU ETS, including the transport (excluding domestic and international aviation, and international maritime transport), residential and commercial buildings, agriculture, waste and other sectors, together accounting for 55–60 per cent of the GHG emissions of the EU. The ESD aims to decrease GHG emissions in the EU by 10 per cent below the 2005 level by 2020 and includes binding annual targets for each member State for 2013–2020, which are underpinned by the national policies and actions of the member States.

29. CTF table 3 includes information on measures to address the EU-wide mitigation actions, such as the European Commission renewable energy directive (2009/28/EC) and the European Commission energy efficiency related directive (2012/27/EC). The mitigation actions that provide a foundation for significant additional actions that are critical for Ireland to attain the EU-wide 2020 emission reduction target are actions to achieve the overall renewable energy target of 16 per cent by 2020 and the energy efficiency improvement target nationally by 20 per cent by 2020, in accordance with these EU directives (see para. 32 below). The National Renewable Energy Action Plan (NREAP)⁷ of Ireland was prepared to meet the requirements of directive 2009/28/EC to set the national targets for the share of energy from renewable energy sources for transport, electricity and heating and cooling in 2020, and demonstrates how to meet such a target (see para. 49 below). Ireland's National Energy Efficiency Action Plan (NEEAP) is updated regularly to meet the requirements under the energy efficiency directive to set and monitor the progress towards the targets with a description of the measures (see para. 49 below).

30. At the national level, Ireland introduced policies to meet its obligation under the ESD and achieve domestic emission reduction targets. The key policies reported in CTF table 3 include those relating to renewable energy penetration, energy savings and energy efficiency improvements. For the promotion of energy from renewable sources, in its BR2 Ireland indicated that the share of the total final consumption of electricity provided by renewable energy sources increased from 7.2 per cent to 20.9 per cent between 2005 and 2013. The Party expects a 20.6 per cent increase in renewable fuels for electricity generation over the period 2013–2020. With the measures contained in the mitigation action “Renewables – with measures scenario (electricity generation)”, it is expected that Ireland will achieve 22 per cent of electricity consumption from renewable energy sources by 2020 and the estimated mitigation impact in 2020 is 1,525.91 kt CO₂ eq. For the transport sector, under the mitigation action “Renewables – with measures scenario (transport)”, the expected mitigation impact is 636.16 kt CO₂ eq in 2020.

31. For an example of energy savings, under the mitigation action “Building regulations: part L conservation of fuel and energy”, a series of standards imposed on building fabric, thermal bridging reduction; heating and hot water system controls, etc. have incrementally

⁷ Available at <<http://www.dcenr.gov.ie/energy/en-ie/Renewable-Energy/Pages/Action-Plan.aspx>>.

improved energy savings since 2002, and the effort is now moving towards low- to zero-carbon housing, and the expected mitigation impact of related regulations combined could be 632.2 kt CO₂ eq in 2020. For energy efficiency, the mitigation impact of the action “Energy efficiency in electricity generation” is the most significant (979.11 kt CO₂ eq in 2020). A regulatory measure to address the transport sector under EU regulation 443/2009/EU, “Improved fuel economy of the private car fleet”, is designed to improve new car efficiency and its expected mitigation impact is 908.07 kt CO₂ eq in 2020. Fiscal measures include a carbon tax for the use of fuel for heating and transport that started in 2008 and of which the expected mitigation impact in 2020 is 325.05 kt CO₂ eq.

32. CTF table 3 also highlights the domestic mitigation actions that are under development, almost all of which are related to EU policies. The estimated impacts by 2020 of these actions under development are substantively higher than for the implemented actions (see para. 29 above). Examples of the promotion of the use of energy from renewable energy sources are the “Directive 2009/28/EC – electricity component”, “Directive 2009/28/EC – heat component” and “Directive 2009/28/EC – transport component”. The statuses of these three large actions are indicated as ‘planned’, referring to the starting year of implementation as 2014. Ireland has set targets of 40 per cent in electricity consumption, 12 per cent in heat and 10 per cent in fuel in transport from renewable energy sources by 2020. Combining the impacts estimated by Ireland for those related actions, the overall impact could be 3,511.87 kt CO₂ eq in 2020. On the demand side, energy efficiency actions to reduce energy usage by homeowners and the general public, indicated as “Residential retrofit” (planned) in CTF table 3, have been prepared to meet the requirement under Article 7 of the energy efficiency directive (2012/27/EU), such as funding for the installation of approved building fabric and energy-efficient heating system upgrades in existing dwellings, and are expected to contribute emission reductions of 732.97 kt CO₂ eq by 2020 (see table 3 below).

33. The ERT noted that the report on Ireland’s 3rd NEEAP (NEEAP3) contains information on CO₂ emission reductions for 2012 (achieved), 2016 (expected) and 2020 (see para. 22 above), including information on individual impacts, descriptions of the methods and data used to estimate the impacts of reported mitigation measures, in its appendix 1. The ERT found the information helpful in assessing the progress made by the Party towards its target by 2020. The ERT considers that the inclusion of the information on estimated impacts in the years prior to 2020, where applicable, in future BR submissions could increase the transparency of the reporting on the progress of Ireland in its achievement of the target.

34. Table 3 below provides a concise summary of the key mitigation actions and estimates of their mitigation effects reported by Ireland to achieve its target. The table also contains information on the mitigation effects reported in appendix 1 to Ireland’s NEEAP3 (see paras. 22 and 33 above).

Table 3
Summary of information on mitigation actions and their impacts reported by Ireland

<i>Sector affected</i>	<i>List of key mitigation actions</i>	<i>Estimate of mitigation impact by 2012 (kt CO₂ eq)</i>	<i>Estimate of mitigation impact by 2016 (kt CO₂ eq)</i>	<i>Estimate of mitigation impact by 2020 (kt CO₂ eq)</i>
Policy framework and cross-sectoral measures	Carbon tax ^a	306	330	325.05
Energy, including:				
Transport	Improved fuel economy of the private	133	353	908.07

<i>Sector affected</i>	<i>List of key mitigation actions</i>	<i>Estimate of mitigation impact by 2012 (kt CO₂ eq)</i>	<i>Estimate of mitigation impact by 2016 (kt CO₂ eq)</i>	<i>Estimate of mitigation impact by 2020 (kt CO₂ eq)</i>
	car fleet (regulation 443/2009/EU) ^a			
	Directive 2009/28/EC – transport component	–	–	468.3
	Renewables – with measures scenario (transport) ^a	–	–	636.16
	Vehicle registration tax and annual motor tax ^a	128	236	172.19
Renewable energy	Renewables – with measures scenario (electricity generation) ^a	–	–	1 525.91
	Directive 2009/28/EC – electricity component	–	–	2 438.5
Energy efficiency	Energy efficiency in electricity generation ^a	–	–	979.11
	Building regulations for dwellings (2002 ^a , 2005 ^a , 2008 ^a , 2011, 2012 and nearly zero energy buildings for 2020)	371	489	710.01
	Residential retrofit	–	–	732.97
	Public sector retrofit (including Sustainable Energy Authority of Ireland Public Sector Programme)	19	330	497.16
	CHP deployment – public and business sectors ^a	107	128	149.15
IPPU	Large industry energy programme ^a	449	539	417.92
	Directive 2009/28/EC – heat component	–	–	605.07
	Accelerated capital allowance for energy-efficient equipment ^a	46	113	119.34
Agriculture	Nitrogen fertilizer use efficiency in agriculture	–	–	155.51
Waste	Landfill directive (1999/31/EC) ^a	–	–	488

Sources: (1) Data on estimates of mitigation impact by 2012 and 2016: appendix 1 to the 3rd National Energy Efficiency Action Plan of Ireland; (2) Data on estimates of mitigation impact by 2020: Ireland’s common tabular format table 3.

Note: The estimates of mitigation impact are estimates of emissions of carbon dioxide or carbon dioxide equivalent avoided in a given year as a result of the implementation of mitigation actions.

Abbreviations: CHP = combined heat and power, IPPU = industrial processes and product use.

^a Included in the ‘with measures’ projections.

35. CH₄ is currently the most-emitted gas from the agriculture sector (62.2 per cent) in Ireland, accounting for 20.1 per cent of the Irish national total GHG emissions (see para. 9 above). However, the ERT noted that the measures taken to address this emissions source were not reported in CTF table 3. During the review, Ireland provided additional

information indicating that a Rural Development Programme 2014–2020 was recently introduced to address these emissions and that it plans to include related information in its next BR submission. The ERT encourages Ireland to include such information on the measures to address large emissions sources in its next submission.

36. For F-gas emission projections, the BR2 explains that they will decrease by 26.0 per cent between 2013 and 2020; however, the ERT noted the recent increase in HFC emissions (from 0.29 kt CO₂ eq in 1991 to 2,155.65 kt CO₂ eq in 2013), particularly from refrigeration and air-conditioning, which is the largest source of F-gas emissions, and the lack of corresponding PaMs reported in CTF table 3. Ireland provided additional information during the review on F-gas projections, which included information that there are other policies in place and planned to reduce F-gas emissions, such as the EU F-gas regulation. The ERT noted that transparency could be further enhanced if such information were included in CTF table 3, and encourages Ireland to include such information on measures to address significant emissions sources in its next BR submission.

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

37. Ireland did not report in its BR2 and CTF tables 4, 4(a)I, 4(a)II and 4(b) information on its use of units from market-based mechanisms under the Convention and other mechanisms and the contribution of LULUCF to achieving its target. However, the reasons for this can be inferred from the technical review report of the Party's BR1⁸ and the BR2, section 4.2, where Ireland reported that CTF table 4(b) was not filled in as no decisions had yet been made on the use of units from mechanisms for meeting its share of the joint EU economy-wide emission reduction target for the period 2013–2020, and that CTF tables 4 and 4(a)I (for 2013 and 2014) were not filled in because the joint EU economy-wide emission reduction target does not include the LULUCF sector (see paras. 13 and 16 above and paras. 38 and 39 below). During the review, Ireland provided additional information, elaborating on future timelines and actions for compliance under the ESD, which supports the above-mentioned findings on the use of market-based mechanisms. Further relevant information on emissions and removals and the use of units is provided in section 4.2 of the BR2.

38. The ERT acknowledged the information provided in the BR1, BR2 and the report of the technical review of the BR1 and the additional information provided during the review, collectively; however, the ERT recommends that Ireland improve the completeness of its reporting by directly including the reasons for not reporting information on its use of units from market-based mechanisms under the Convention and other mechanisms and the contribution of LULUCF to achieving its target in its next BR submission, as well as in CTF tables 4, 4(a)I, 4(a)II, and 4(b), for example in the form of footnotes to the CTF tables and using the notation key "NA" (not applicable) for information related to the contribution of LULUCF and "zero" for information related to the use of mechanisms.

39. Additionally, the ERT noted that, in section 4.2.2 of the BR2, Ireland referred to CTF table 4 for information on emissions related to the LULUCF sector; however, the columns on the contribution from LULUCF in CTF table 4 and CTF table 4(a)I are empty. During the review, Ireland explained that the reference in the BR2 to information on emissions in CTF table 4 is inaccurate and clarified that Ireland's quantified emission limitation or reduction commitment does not include LULUCF. The ERT recommends that Ireland correct this reference in its next BR submission to improve the transparency of its reporting.

⁸ FCCC/TRR.1/IRL, paragraphs 42 and 43.

40. For 2013, Ireland reported in CTF table 4 annual total GHG emissions excluding LULUCF with indirect CO₂ of 58,820.88 kt CO₂ eq, or 3.6 per cent above the 1990 level.⁹ In 2013, emissions from the non-ETS sectors relating to the target under the ESD were 42,606.76 kt CO₂ eq and emissions from sources covered under the EU ETS were 15,673.73 kt CO₂ eq.¹⁰

41. Table 4 below illustrates Ireland's total GHG emissions, the contribution of LULUCF and the use of units from market-based mechanisms to achieve its target.

Table 4

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

<i>Year</i>	<i>Emissions excluding LULUCF (kt CO₂ eq)</i>	<i>Contribution from LULUCF (kt CO₂ eq)^a</i>	<i>Emissions including contribution from LULUCF (kt CO₂ eq)</i>	<i>Use of units from market-based mechanisms (kt CO₂ eq)^b</i>
1990	56 751.48	NA	NA	NA
2010	62 936.70	NA	NA	0
2011	58 827.88	NA	NA	0
2012	59 599.34	NA	NA	0
2013	58 820.88	NA	NA	0

Sources: Ireland's second biennial report and common tabular format tables 1, 4, 4(a)I, 4(a)II and 4(b).

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

^a The European Union's unconditional commitment to reduce greenhouse gas emissions by 20 per cent below the 1990 level by 2020 does not include emissions/removals from LULUCF.

^b At the time of reporting, no decisions had yet been made on the use of units from mechanisms for meeting Ireland's share of the joint European Union economy-wide emission reduction target for the period 2013–2020.

42. To assess the progress towards the achievement of the 2020 target, the ERT noted that Ireland's emission reduction target for sectors not covered by the EU ETS is 20 per cent below the 2005 level (see paras. 17, 18 and 28 above). Actual GHG emissions from the non-ETS sectors for 2013 were around 12 per cent below the 2005 level and were 4,285.17 kt CO₂ eq (9.1 per cent) below the allocated AEAs in 2013 under the ESD. In the BR2, it was reported that provisional inventory data for 2014 suggest that emissions from non-ETS sectors were about 13 per cent below the 2005 level. However, Ireland also reported it is likely that there will be deficits in the later years of the period 2013–2020. For these likely deficits, Ireland explained that the Irish target can be achieved because, under the ESD, surpluses accumulated in the earlier years of the period can be carried forward for use in the later years. Furthermore, Ireland implied the use of units other than AEAs for compliance under the ESD, for example the possible use of carry-over CERs and ERUs, by indicating that, at the point of compiling the BR, no AEAs (or any other unit type) had been surrendered for compliance but the first such transactions are expected to take place in late 2016.

⁹ Ireland elected to include indirect emissions in the total emissions when reporting on progress made towards its emission reduction target, as presented in CTF table 4; therefore, for consistency reasons, the ERT chose to present the aggregate findings on progress made towards the target using the totals including indirect emissions.

¹⁰ Reporting Obligation Database under the Greenhouse Gas Monitoring Mechanism Regulation. Available at <http://cdr.eionet.europa.eu/ie/eu/mmr/art04-13-14_lcds_pams_projections/envvt4x3a>.

3. Projections

43. Ireland reported in its BR2 and CTF table 6(a) updated projections for 2020 and 2030 relative to actual inventory data for 2013 under the ‘with measures’ (WEM) scenario. Projections are presented on a sectoral basis, using the same sectoral categories as used in the section on mitigation actions, and on a gas-by-gas basis for the following GHGs: CO₂, CH₄, N₂O, PFCs, HFCs and SF₆ (treating PFCs and HFCs collectively in each case) as well as NF₃. Projections are also provided in an aggregated format for each sector as well as for a Party total, using GWP values from the IPCC AR4. Emission projections related to fuel sold to ships and aircraft engaged in international transport were reported separately and were not included in the totals. Ireland reported on factors and activities influencing emissions for each sector. Further information on the projections is provided in section 5 of the BR2.

44. The ERT noted that, in CTF table 6(a), Ireland reported estimated GHG emissions for ‘total without LULUCF’ that do not match the actual total for 1995, 2000, 2005 and 2013. This is also the case for ‘total with LULUCF’ for 1995, 2000, 2005, 2013, 2020 and 2030. During the review, Ireland provided corrected data for CTF tables 6(a) and 6(c), mainly by subtracting indirect CO₂ emissions from the industry/industrial processes sector. Additionally, Ireland corrected the information reported on ‘CO₂ emissions without net CO₂ from LULUCF’ and ‘CO₂ emissions with net CO₂ from LULUCF’, and added ‘NF₃’ in the same table 6(a). The ERT noted that there was some difficulty faced by the Party in the handling of inventory data and their classification into CTF categories for historical years and in the handling of indirect CO₂ emissions and new gases such as NF₃. The ERT considers that NF₃ can be reported using the row “Other” in CTF tables 6(a)–(c). The use of custom footnotes to indicate the inclusion of indirect CO₂ emissions could also improve the transparency of reporting on projections in CTF tables 6(a)–(c). The ERT recommends that Ireland take measures to prevent the erroneous reporting of emission data in the CTF tables in future BR submissions, as the lack of accuracy in data reported leads to a lack of transparency (see para. 12 above and para. 45 below).

45. The ERT also noted that although Ireland indicated, in its BR2, the inclusion of NF₃ in its projections, the gas was omitted from table 5.4 of the BR2 which presents historical emissions and projections of F-gases and non-methane volatile organic compounds in the WEM scenario, and CTF tables 6(a) and 6(c). Therefore, the ERT recommends that Ireland present all gases included in its projections, including NF₃, in table 5.4, and also report indirect CO₂ emissions in table 5.3 of the BR2 which presents historical emissions and projections by gas for the WEM scenario, separately from CO₂ emissions, in order to ensure consistency between the BR2 and the CTF tables to improve the transparency of its reporting in its next BR submission.

46. As Ireland explained in section 3 of its BR2, the EU ETS and the ESD to address non-ETS sectors emissions are the two main pillars for the attainment of its target (see paras. 17, 18 and 26–28 above). In particular, the progress made in the non-ETS sectors depends on the PaMs undertaken by the Party. However, there is no information on the projections presented separately in the BR2 for the EU ETS and non-ETS sectors. In response to a question raised by the ERT during the review, Ireland provided references to information on projected emissions for the ESD sectors (see para. 42 above). Although projections were provided at the level of aggregation required by the UNFCCC reporting guidelines on BRs (i.e. at the sector level and on a gas-by-gas basis), the ERT noted that transparency would be enhanced if the information were directly provided in Ireland’s BR, in order to facilitate reviews to assess whether Ireland is making progress towards the achievement of its emission reduction target.

47. In addition to the WEM scenario, Ireland reported in its BR2 and CTF table 6(c) the ‘with additional measures’ (WAM) scenario. The projections are presented by sector and

by gas in the same way as for the WEM scenario for the following years: 1990–2030. Ireland also reported in its BR2 emission projections for non-methane volatile organic compounds. Ireland provided information on the changes made since the submission of its NC6/BR1 in the assumptions, methodologies, models and approaches used and on the key variables and assumptions used in the preparation of the projection scenarios using CTF table 5 (see para. 54 below). To explain the changes, Ireland provided supporting documentation. Ireland also provided information on the sensitivity analyses in section 5.9 of its BR2 (see para. 55 below).

Overview of projection scenarios

48. The WEM scenario reported by Ireland includes implemented and adopted PaMs up to the end of 2013. Ireland also reported on a WAM scenario, which includes planned PaMs. Ireland provided a definition of its scenarios, explaining that its WEM scenario includes existing PaMs that were in place prior to the end of 2013, while its WAM scenario includes existing and planned PaMs. The definitions indicate that the scenarios have been prepared according to the “Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications”.

Methodology and changes since the previous submission

49. The methodology used in the BR2 is identical to that used for the preparation of the emission projections for the NC6/BR1, except for the application of some updated data for modelling and the GHG emission data prepared using the *2006 IPCC Guidelines for National Greenhouse Gas Inventories* (see paras. 50, 51 and 54 below). The projections for the energy sector were prepared based on a macroeconomic model (HERMES),¹¹ forecasting energy demand, while those for the agriculture sector were prepared using a multisectoral approach, which comprises econometrically estimated equations for all major variables in the Irish agriculture sector (the FAPRI–Ireland model, a partial equilibrium model of the Irish agricultural sector). The NEEAP/NREAP energy forecast is built on the baseline forecast but reflects an alternative view of future energy demand that accounts for additional PaMs for NREAP¹² (see para. 29 above) and NEEAP3; therefore, it was used to develop a WAM scenario.

50. A dynamic national model (CARBWARE)¹³ was used for the projections of emissions and removals from the forestry sector. The projections of emissions from the industrial processes sector were developed for cement and lime production, other process uses of carbonates and F-gas use. Projections for the cement and lime industries were based on the projected GDP data used in the energy forecasts.¹⁴ Emission projections of solvent use were based on GDP growth forecasts, and for F-gas projections, the impacts of EU policies such as directive 2006/40/EC relating to emissions from air-conditioning systems in motor vehicles and population, GDP and other assumptions were applied depending on the source.¹⁵ The projections of emissions from the waste sector were based on the

¹¹ See <<http://www.esri.ie/publications/the-hermes-model-of-the-irish-energy-sector/>>.

¹² See <<http://www.dcenr.gov.ie/energy/en-ie/Renewable-Energy/Pages/Action-Plan.aspx>>.

¹³ See <<http://www.coford.ie/researchprogramme/thematicareapolicyandpublicgoods/forestsandclimatechange/carbware/>>.

¹⁴ See <http://www.seai.ie/Publications/Statistics_Publications/Energy_Forecasts_for_Ireland/Energy_Forecasts_for_Ireland_for_2020_-2011_Report.pdf>.

¹⁵ See table 9 of Ireland’s national greenhouse gas emission projections for 2015, available at <http://cdr.eionet.europa.eu/ie/eu/mmr/art04-13-14_lcds_pams_projections/envvt4x3a/GHG_Projections_Methodology_for_MM_2015v1_final.pdf/manage_document>.

assumption that Ireland will meet the relevant targets for the disposal of municipal waste under European Commission directive 1999/31/EC on the landfilling of waste.

51. In its BR2, Ireland indicated that the macroeconomic projections incorporate the recent strong return to growth in the Irish economy, which occurred much earlier than previously expected. The ERT noted, for example, for the projections reported in the NC6, average annual GDP growth for 2016–2020 was assumed to be 3.1 per cent. For the projections reported in the BR2, this was increased to 4.6 per cent. Likewise, the personal consumption (average annual percentage growth) for 2016–2020 was upscaled from 1.0 per cent in the NC6 projections to 2.5 per cent in the BR2 projections.

52. Further, the ERT noted that the estimated impacts of PaMs on emissions savings under the WEM scenario were also upscaled. For example, the impact of PaMs on renewable energy sources by 2020 was estimated as 1,487.3 kt CO₂ eq in the NC6, while it was reported as 1,521.2 kt CO₂ eq in the BR2. Under the WAM scenario, the estimated impact of PaMs on renewable energy sources by 2020 was estimated as 785.2 kt CO₂ eq in the projections reported in the NC6, which was upscaled to 2,438.5 kt CO₂ eq.

53. Considering the differences in the profiles of emission projections between the NC6 and BR2, the ERT encourages the Party to include information on such changes made since the previous submission in the input data and key assumptions used for, and the result of, projections in its next BR submission. The ERT noted that, although information on the differences in the methodologies used between the NC6/BR1 and BR2 was provided in the BR2, transparency would be enhanced if the additional information sources provided during the review of the methodology used for the BR were cited in its next BR submission.

54. To prepare its projections, Ireland relied on the following key underlying variables and assumptions as reported in CTF table 5: populations of 4,837,000 and 5,162,000, numbers of households of 2,062,000 and 2,290,000, international oil prices of 98.90 and 154.20 USD/boe, international coal prices of 20.10 and 27.60 USD/boe, international gas prices of 49.30 and 62.50 USD/boe and GDP growth rates of 4.50 and 0.80 per cent in 2020 and 2030, respectively. Ireland indicated that the assumptions were updated on the basis of the most recent economic developments known at the time of the reporting on projections. For example, in its BR2 the Party explained that the forecasts were based on international fuel imports of oil, coal and gas prices published by the Department of Energy and Climate Change of the United Kingdom of Great Britain and Northern Ireland in October 2014. The CO₂ price assumptions in the non-ETS sectors was based in the medium term on the Finance Bill 2010, which saw the introduction of a carbon tax of EUR 15/t CO₂ on home heating and transport fuels. In the longer term, the carbon price was assumed, for modelling purposes only, to follow the EU ETS carbon price.

55. Sensitivity analyses were conducted by Ireland for various assumptions. In the sensitivity analyses, fuel prices were substantially lower than those used in the emission projections, in particular oil prices (EUR 65.1 versus EUR 154.2 in the period 2026–2030); while the long-term price of EU ETS allowances was assumed to be almost double that used in the emission projections (EUR 66 versus EUR 35 in the period 2026–2030). Lower economic growth in the near future with higher growth in the longer-term future (4.0 per cent versus 4.6 per cent in the projections by 2020 and 2.0 per cent versus 1.3 per cent by 2030) than in the projections was also considered. According to the analyses, the commercial/institutional sectors will be most influenced by such economic conditions assumed in the analyses, while reductions in emissions from the agriculture sector will be small due to, for example, the expected milk quota removal. For the waste sector, the increase in the need for management of municipal waste as a result of stopping the export of waste for incineration will lead to increases in emissions compared with the projections.

Results of projections

56. Ireland's total GHG emissions excluding LULUCF in 2020 and 2030 are projected to be 60,795.44 and 64,098.18 kt CO₂ eq, respectively, under the WEM scenario, which represents an increase of 7.1 and 12.9 per cent, respectively, above the 1990 level (56,751.48 kt CO₂ eq). Under the WAM scenario, emissions in 2020 and 2030 are projected to be lower than those in 1990 by 3.2 and 4.4 per cent and amount to around 54,941.50 and 54,264.90 kt CO₂ eq, respectively. The 2020 projections suggest that Ireland will strive to contribute to the achievement of the EU target under the Convention (see paras. 14 and 42 above).

57. According to the projections under the WEM scenario, emissions from non-ETS sectors are estimated to reach 43,907.57 kt CO₂ eq by 2020. Under the WAM scenario, Ireland's emissions from non-ETS sectors in 2020 are projected to be 41,401.40 kt CO₂ eq. The projected level of emissions under the WEM and WAM scenarios is 12.7 per cent and 6.2 per cent above the AEAs allocated for 2020, respectively. The ERT noted that this suggests that Ireland may face challenges in meeting its target under the ESD under the WEM and WAM scenarios by implementing mitigation actions that may not deliver the necessary emission reductions. For the period 2013–2020, the cumulative amount of AEAs for Ireland is 343,467.22 kt CO₂ eq. The cumulative total emissions from non-ETS sectors under the WEM and WAM scenarios were estimated as 343,845.83 kt CO₂ eq and 333,726.00 kt CO₂ eq, respectively. As explained in paragraph 42 above, in its BR2, Ireland indicated an expected deficit under the WEM scenario and implied the possible use of carry-over CERs and ERUs to fill the gap.

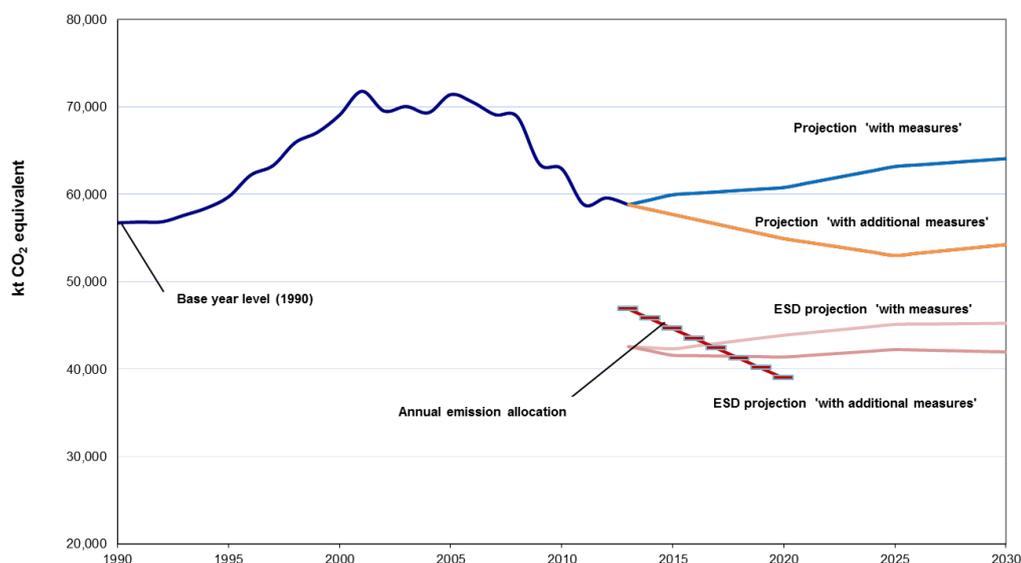
58. According to the projections reported for 2020 under the WEM scenario, the most significant emission reductions are expected to occur in the agriculture sector, amounting to projected reductions of 1,938.91 kt CO₂ eq (9.4 per cent), followed by the energy sector of 838.94 kt CO₂ eq (3.2 per cent) and the waste/waste management sector of 827.80 kt CO₂ eq (44.8 per cent) between 1990 and 2020, while emissions from the transport subsector are projected to increase by 8,042.54 kt CO₂ eq (156.6 per cent). The pattern of projected emissions reported for 2030 under the same scenario remains the same. The projected emissions from the energy and transport sectors continue to increase, and in 2030, emissions from the energy sector will exceed the 1990 level by 551.78 kt CO₂ eq, and those from the transport subsector will almost triple from 5,135.18 kt CO₂ eq in 1990 to 14,966.29 kt CO₂ eq in 2030.

59. In 2020, under the WEM scenario, the most significant reductions are projected for N₂O and CH₄ emissions: 2,120.25 kt CO₂ eq (23.5 per cent) and 1,945.29 kt CO₂ eq (13.1 per cent) between 1990 and 2020, respectively; while CO₂ emissions are projected to increase by 7,239.83 kt CO₂ eq (22.1 per cent). Although HFCs have increased significantly since 1990 to the most recent inventory year of 2013 (see para. 36 above), emissions of HFCs in 2020 are projected to decrease by 362.46 kt CO₂ eq (28.4 per cent) below the 2013 level. CO₂ emissions in 2030 are projected to reach 43,498.12 kt CO₂ eq, which is an increase of 132.9 per cent above the 1990 level.

60. If additional measures are considered (i.e. under the WAM scenario), the patterns of emission reductions by 2020 presented by sector and by gas change slightly, owing to the significant reduction in CO₂ emissions. Under the WEM scenario, CO₂ emissions are projected to increase by 2,924.98 kt CO₂ eq (7.9 per cent) by 2020 from the level in the latest inventory year of 2013 and continue to increase thereafter. Under the WAM scenario, projected CO₂ emissions in 2020 are reduced by 2,734.04 kt CO₂ eq (7.4 per cent) from the 2013 level, and continue to decrease further to be close to the 1990 level (1,105.97 kt CO₂ eq above the 1990 level) in 2030.

61. The projected emission levels under the different scenarios and Ireland's quantified economy-wide emission reduction target are presented in the figure below.

Greenhouse gas emission projections by Ireland



Sources: (1) Data for the years 1990–2013: Ireland's 2015 annual inventory submission, version 1; total GHG emissions excluding land use, land-use change and forestry with indirect CO₂; (2) Data for the years 2014–2030: updated projections provided by the Party during the review; (3) Projections for ESD sectors for the years 2014–2030: Reporting Obligation Database under the Greenhouse Gas Monitoring Mechanism Regulation, available at <http://cdr.eionet.europa.eu/ie/eu/mmr/art04-13-14_lcds_pams_projections/envvt4x3a>; (4) Annual emission allocation: European Commission decision 2013/162/EU, annex II, as adjusted by the amounts in European Commission decision 2013/634/EU, annex II.

Abbreviations: ESD = effort-sharing decision, GHG = greenhouse gas.

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

62. In its BR2, Ireland reported information on the provision of financial, technological and capacity-building support required under the Convention. The BR2 includes information on the national approach to tracking the provision of support, indicators, delivery mechanisms used and allocation channels tracked. Ireland reported a description of the methodology used to report financial support, including underlying assumptions.

63. Ireland provided details on what new and additional support it has provided and explained how this support is new and additional (see paras. 64 and 65 below). Further information on the Party's provision of support to developing country Parties is provided in section 6 of the BR2.

64. The BR2 of Ireland includes the subsection "New and additional" under section 6.1.6, "Information on Ireland's climate finance contributions as reported in CTF", in which Ireland stated that it has delivered climate finance even in the context of seriously reduced national budget spending, and that its contribution in 2013 and 2014 was drawn from grants and other non-refundable contributions provided by: the Department of the

Environment, Community and Local Government; the Department of Agriculture, Food and Marine; and climate-relevant official development assistance.

65. In response to a question raised by the ERT during the review asking for the definition used to determine how its support is new and additional and how the definition was applied to report the financial support, Ireland indicated that the statement provided in section 6.1.6 of the BR2 is its definition. In the absence of any more information provided by the Party, the ERT considered that the information reported by Ireland was not sufficient to conclude that Ireland has shown how it defined support as new and additional. Therefore, the ERT reiterates the recommendation made in the report of the technical review of the NC6 and BR1 that Ireland report a clear definition of what new and additional financial resources it has provided, clarifying how it has determined such resources as being new and additional, in its next BR submission, in order to improve the transparency of its reporting.

66. Ireland reported the financial support it provided to Parties not included in Annex I to the Convention (non-Annex I Parties), distinguishing between support for mitigation and adaptation activities and recognizing the capacity-building elements of such support. Irish capacity-building activities reported in CTF table 9 include various support activities that address multiple areas, including both mitigation and adaptation (see para. 93 below). As the Party explained in its BR2, the majority of bilateral programmes for the technological and capacity-building support presented in CTF table 8 address climate change adaptation and many of them include capacity-building aspects or components.

67. Ireland included in its BR2 information on how it has refined its approach to tracking climate support and methodologies, including through alignment with the EU position,¹⁶ when collecting and reporting information. It provided information on the methodology that it adopted for tracking finance for adaptation and mitigation using the Organisation for Economic Co-operation and Development (OECD) Development Assistance Committee (DAC) Rio Markers. The methodology used for preparing information on international climate support is explained in sections 6.1.2 and 6.1.3 of the BR2. Financial support for activities can be scored as 'principal' (2) or as 'significant' (1). An activity is categorized as adaptation when the scoring against the adaptation marker exceeds the scoring against the mitigation marker and vice versa. When the scoring is equal (and > 0) under both adaptation and mitigation markers, the disbursement is counted as cross-cutting. In reporting bilateral climate finance, different weights are placed on support for principal and significant activities. In aggregating finance for principal and significant activities, principal activities are weighted with a coefficient of 100 per cent, and significant activities are weighted with a coefficient of 50 per cent. When an activity has both adaptation and mitigation benefits, or is cross-cutting, it is weighted according to its highest score (i.e. the weights in mitigation and adaptation are not aggregated).

68. In its BR2, Ireland explained that its support consists of both multilateral support through international funds as well as bilateral support, mainly focused on Ireland's key partner countries mainly located in sub-Saharan Africa. As indicated in its BR2, Ireland prepared specific climate action reports for each country for 2013 and 2014 and made them available on the Irish Aid website.¹⁷ These reports present information on the programmes and projects supported by Ireland, including tables of projects with mapping of bilateral expenditure, together with information on the country context, existing national plans (i.e. national adaptation programmes of actions and national adaptation plans, as well as

¹⁶ See the External Relations Council conclusions of November 2009, available at <http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/gena/111283.pdf>.

¹⁷ Available at <<https://www.irishaid.ie/news-publications/news/newsarchive/2015/december/irish-aid-climate-learning-plaform/>>.

intended nationally determined contributions (INDCs)). The ERT noted that these reports contain information that helps to better understand the efforts made by the Party in assisting its partner countries in mitigation and adaptation, taking into account their needs.

1. Finance

69. In its BR2 and CTF tables 7, 7(a) and 7(b), Ireland reported information on the provision of financial support required under the Convention, including on financial support provided, committed and pledged, allocation channels and annual contributions (see paras. 73–80 below). Summary information on allocation and annual contributions was reported for 2013 and 2014.

70. Ireland described how its resources address the adaptation and mitigation needs of non-Annex I Parties. It also described how those resources assist non-Annex I Parties to mitigate and adapt to the adverse effects of climate change, facilitate economic and social response measures, and contribute to technology development and transfer and capacity-building related to mitigation and adaptation (see chapters II.D.2 and II.D.3 below). Ireland, through Irish Aid's programme development and country strategies, makes efforts to ensure that the resources provided are aligned with national plans and address effectively the needs of developing countries (see para. 68 above).

71. Ireland provided information on the types of instrument used in the provision of its assistance (see para. 76 below). Ireland indicated in the BR2 that its contributions for the BR period (2013–2014) were entirely in grant form (see paras. 73 and 79 below), and therefore, it did not report information on its private financial flows from bilateral sources directed towards mitigation and adaptation activities in non-Annex I Parties. Ireland further explained that this is because Ireland currently does not have systems in place to collect data on private climate finance mobilized by public-sector intervention. It also reported that a cross-government group has been established with a mandate to consider private finance options as well as policy instruments to mobilize further climate finance and for tracking of/reporting on existing and subsequent flows.

72. During the review, Ireland provided additional information on its recent progress. The Technical Research and Modelling (TRAM) Group was established in 2015 to take a coherent approach to the climate change agenda, and the establishment of a Climate Finance Subgroup under the TRAM Group is now under way. Another development is the establishment of a cross-departmental team analysing private climate finance, which was approved by a government decision in December 2015. Ireland also informed the ERT that it is working to promote the provision of financial support to developing countries from the private sector through public funds, which it sees as being pivotal to effectively increasing both mitigation and adaptation efforts in developing countries. The ERT welcomed this information and encourages Ireland to report on the further progress of these initiatives in its next BR submission.

73. With regard to the most recent financial contributions aimed at enhancing the implementation of the Convention by developing countries, Ireland reported that its climate finance has been allocated on the basis of bilateral grants and prioritized towards least developed countries (LDCs) (see para. 68 above). In the BR2, Ireland explained that almost 95 per cent of the contribution for the BR reporting period (2013–2014) was identified as for adaptation, and provided to the agriculture sector, the energy sector, for rural development and for water resources related actions. Ireland's policy on international development (One World, One Future) was launched in 2013, which, for the first time, identified climate change as one of six priority areas for action.

74. Ireland reported on its climate-specific public financial support provided in 2013 and 2014, totalling USD 45.35 million in 2013 and USD 44.74 million in 2014, showing a

stable trend. All contributions reported in CTF tables 7(a) and 7(b) are marked as provided. With regard to the future financial pledges aimed at enhancing the implementation of the Convention by developing countries, Ireland committed itself to providing an additional contribution of EUR 1 million (USD 1.11 million¹⁸) to the Least Developed Countries Fund in 2015, and announced an initial contribution to the Green Climate Fund of EUR 2 million (USD 2.3 million¹⁹) in 2016.

75. The BR2 includes detailed information on the financial support provided through multilateral channels, and bilateral and regional channels in 2013 and 2014. More specifically, Ireland reported its core/general and climate-specific combined contributions through multilateral channels, as reported in its BR2 and CTF table 7(a), of USD 47.61 million and USD 102.52 million for 2013 and 2014, respectively. These contributions were made to specialized multilateral climate change funds, such as the Least Developed Countries Fund, the Global Environment Facility, the United Nations Development Programme and other specialized United Nations bodies, including the World Food Programme and the United Nations Children’s Emergency Fund. Among these, the climate-specific contribution through multilateral channels was 1.69 per cent (USD 0.80 million) of the total contribution in 2013 and 2.25 per cent (USD 2.31 million) in 2014. The BR2 and CTF table 7(b) also include detailed information on the total financial support provided through bilateral and regional channels in 2013 (USD 44.55 million) and 2014 (USD 42.43 million). Table 5 includes some of the information reported by Ireland on its provision of financial support.

Table 5
Summary of information on provision of financial support in 2013–2014 by Ireland
(Millions of United States dollars)

<i>Allocation channel of public financial support</i>	<i>Years of disbursement</i>	
	<i>2013</i>	<i>2014</i>
Official development assistance ^a	845.85	815.79
Climate-specific contributions through multilateral channels, including:	0.80	2.31
Least Developed Countries Fund	0.27	1.20
Trust Fund for Supplementary Activities	0.07	0.13
United Nations bodies	0.47	0.98
Climate-specific contributions through bilateral, regional and other channels	44.55	42.43

^a Source: Query Wizard for International Development Statistics, available at <<http://stats.oecd.org/qwids/>>.

76. The BR2 provides information on the types of support provided. In terms of the focus of climate-specific public financial support, as reported in CTF table 7 for 2013, the shares of total public financial support allocated for mitigation (USD 3.41 million), adaptation (USD 30.20 million) and cross-cutting projects (USD 11.74 million) corresponding to these channels were 7.65, 67.3 and 25.0 per cent, respectively. 1.8 per cent of the total public financial support was allocated through multilateral channels and 98.2 per cent through bilateral, regional and other channels. In 2014, the shares of total

¹⁸ Exchange rate = 0.902 EUR/USD (OECD USD annual exchange rate for 2015).

¹⁹ Exchange rate = 0.898 EUR/USD (average of OECD USD monthly average for the first five months in 2016).

public financial support allocated for mitigation (USD 2.03 million), adaptation (USD 29.59 million), cross-cutting projects (USD 12.72 million) and others (USD 0.40 million) corresponding to these channels were 4.5, 66.1, 28.4 and 0.9 per cent, respectively. 5.2 per cent of the total public financial support was allocated through multilateral channels and 94.8 per cent through bilateral, regional and other channels.

77. The ERT noted that, in 2013, 25.6 per cent of climate-specific financial contributions made through multilateral channels were allocated to agriculture, and the remaining 74.4 per cent to funding for activities that are cross-cutting across mitigation and adaptation and other, as reported in CTF table 7(a). The corresponding figures reported for 2014 were 17.3 per cent for water and sanitation, and 23.0 per cent for others (environment and disaster preparation); however, for the remainder (59.7 per cent), the sectors were not specified in CTF table 7(a). As indicated in paragraph 75 above, the Irish contributions through multilateral channels were predominantly for core/general, and it is not possible for the ERT to separate out the sectoral contributions of Ireland through multilateral channels.

78. As reported in CTF table 7(b), 55.1 per cent (USD 24.57 million) of the total contribution through bilateral, regional and other channels in 2013 (USD 44.55 million) was indicated as "Other". The next largest portion went specifically to the agriculture sector, accounting for 26.3 per cent of the total contribution, which is the largest of the other contributions going to forestry (6.0 per cent), energy (3.9 per cent), and water and sanitation (1.5 per cent). In 2014, 61.3 per cent (USD 26.00 million) of the total contribution through bilateral, regional and other channels (USD 42.43 million) was indicated as "Other", including food security, rural development, social welfare, disaster prevention and preparedness, agroforestry, education, health and multisectoral. The agriculture sector remains the largest sectoral target area, accounting for 34.9 per cent of the total contribution, compared with the other sectoral contributions going to energy (2.8 per cent), and water and sanitation (1.1 per cent).

79. CTF tables 7(a) and 7(b) include information on the types of financial instrument used in the provision of assistance to developing countries. As indicated in paragraphs 71 and 73 above, all contributions reported in those CTF tables are grants.

80. In the BR2, Ireland explained that various government ministries participate in delivering and allocating climate finance, as reported in CTF tables 7(a) and 7(b) using the Rio Marker indicators. In the custom footnotes to CTF table 7(b), Ireland indicated that the scores included in the additional information box (of CTF table 7(b)) refer to the OECD DAC Rio Markers. However, the ERT noted that such information is not actually included in the additional information. The ERT considers that correcting the description in the custom footnotes or the information in CTF table 7(b) would improve the transparency.

2. Technology development and transfer

81. In its BR2 and CTF table 8, Ireland provided information on measures and activities related to technology transfer, access and deployment benefiting developing countries, including information on activities undertaken by the public and private sectors. The BR2 also provides summary information on the main activities of technology development and transfer implemented in its partner countries and contributions made through international initiatives such as the Technology Mechanism under the UNFCCC.

82. The BR2 and CTF table 8 include information on public sources but do not include activities undertaken by the private sectors. During the review, Ireland explained that its reporting in the BR2 and CTF table 8 reflects the government contribution to technology development and transfer; however, this is frequently matched by private-sector industries. For example, the Irish Government contributes to the Climate Technology Centre and Network (CTCN) (around EUR 100,000 per annum), which works with the Private Sector

Advisory Network and multilateral development banks to leverage this finance with private investment.

83. For policies related to the promotion of the contribution of the private sector, Ireland explained, citing the EU policy to promote the role of the private sector in technology transfer, that the vast majority of finance provided to technology transfer in developing countries is private-sector investment, and the role of public funding in this regard is to facilitate unlocking the private funding sources by making the project ideas more bankable so that a (non-public) financial institution can invest. The ERT considers that the inclusion of such information on the role of the Irish Government to stimulate private sector investment in the technology development and transfer to developing countries in future BR submissions would increase the transparency of the reporting on activities undertaken by the public and private sectors.

84. Responding to the recommendation contained in the report of the technical review of the BR1, Ireland provided information on the individual measures and activities on technology development and transfer using CTF table 8 with a brief description of each individual measure and activity. The ERT welcomes this improvement in transparency in reporting on technology development and transfer.

85. The ERT noted that the textual information provided in the BR2 is limited. The examples presented in section 6.2 are not elaborated on, while country climate action reports developed for each partner country by Irish Aid (see para. 68 above) provide information on the main support activities, case studies and financial support provided. These case studies indicate how Ireland and its partner countries are making efforts to incorporate the elements of technology development and transfer and capacity-building support in order to make maximum use of opportunities for its partner countries and their local communities. Therefore, the ERT encourages the Party to include in its BR, to the extent possible, success and failure stories of its support provided for the deployment and enhancement of the endogenous capacities and technologies, in order to improve transparency.

86. The ERT noted that, in its BR2, Ireland explained the challenge of reporting separately on technology transfer and capacity-building support. Ireland indicated that in the UNFCCC context, which is usually understood to include physical technologies, knowledge and techniques, there are very few stand-alone capacity-building or technology transfer projects, and funding for climate-related activities also includes capacity-strengthening and technology-related components. In response to a question raised by the ERT during the review, Ireland provided further information including the results of a mapping exercise on technology transfer and capacity-building activities. The mapping identified EUR 7.94 million (USD 10.53 million²⁰) of support for activities that included climate technology transfer in 2014.

87. Ireland also explained that, for the purpose of BR reporting, it counted activities that have a significant research component, as well as activities that support new technologies, such as the support for innovative thermal electric generator cooking stoves in Malawi, research into agroforestry in Zambia, and support for research into new crop varieties that links with farmers in Ethiopia to employ new technologies. Irish Aid has a web-based Climate Change and Development Learning Platform, and makes these case studies and research programmes available to registered users.²¹

²⁰ Exchange rate = 0.754 EUR/USD (OECD exchange rate for 2014).

²¹ Available at <<https://www.climatelearningplatform.org/messages/view/127>>.

88. The ERT took note of the information provided in CTF table 8 on recipient countries, target areas, measures and focus sectors of technology transfer programmes. For example, a programme was implemented in 2014 to support the Network of Small-Scale Farmers Groups in the United Republic of Tanzania through the strengthening of farmer groups and networks at all levels, including through capacity-building, economic empowerment and advocacy. With a total cost of EUR 300,000 (USD 397,878), the programme builds the knowledge and training of farmers on climate change and introduces adaptive technologies to improve natural resource management. In 2014, Irish Aid disbursed EUR 22,000 (USD 29,178) to Ethiopia.²² For mitigation, energy-related measures include the promotion of improved cooking stoves, and the installation of small-scale photovoltaic systems for facilities such as schools, health centres and community centres.

3. Capacity-building

89. In its BR2 and CTF table 9, Ireland supplied information on how it provided capacity-building support for mitigation, adaptation and technology that responds to the existing and emerging needs identified by non-Annex I Parties.

90. Ireland reported that it supported climate-related capacity development activities relating to adaptation, mitigation, technology transfer and climate financing and other sectors. Ireland also reported that it responded to the existing and emerging capacity-building needs of non-Annex I Parties by country-driven demand, cooperation between donors and across programmes, and others. One of the instruments introduced in the BR2 is the Climate Change and Development Learning Platform,²³ which was developed by Irish Aid in order to provide a website for Irish Aid staff and partner countries to share knowledge on integrating climate change into development.

91. The BR2 and CTF table 9 include information describing individual capacity-building measures and activities carried out during the BR reporting period. One example is the Agroforestry Food Security Programme Phase II at the International Centre for Research in Agroforestry in Malawi. It aims to contribute towards climate-smart agriculture (i.e. agriculture that sustainably increases productivity (food security)), resilience (climate change adaptation) and reducing GHG emissions (mitigation) through the scaling up of government capacity to incorporate agroforestry innovations into agriculture in three districts. Another example is the adaptation project in the United Republic of Tanzania, which aims to strengthen lobbying, farmers networks and the capacity of farmers.

92. In its BR2, Ireland indicated that a climate mapping exercise undertaken by Irish Aid identified EUR 16.82 million (USD 22.34 million²⁴) in 2013 and EUR 17.71 million (USD 23.49 million²⁵) in 2014 as support for activities that included capacity-building for climate change. CTF table 9 provides 10 examples of capacity-building support provided in each of the years 2013 and 2014.

93. The ERT noted that, in CTF table 9, the targeted areas of the majority of capacity-building programmes and projects were indicated as 'multiple areas'. During the review, Ireland explained that multiple areas was used to mean that both mitigation and adaptation were targeted. Ireland also explained that it is particularly difficult to separate with any accuracy the exact adaptation capacity-building components and mitigation capacity-building components, for small- to medium-scale activities, especially where the integration of capacity-building across activities is a stated objective and part of the appraisal criteria.

²² Exchange rate = 0.754 EUR/USD (OECD exchange rate for 2014).

²³ Available at <<https://www.climatelearningplatform.org/>>.

²⁴ Exchange rate = 0.753 EUR/USD (OECD exchange rate for 2013).

²⁵ Exchange rate = 0.754 EUR/USD (OECD exchange rate for 2014).

III. Conclusions

94. The ERT conducted a technical review of the information reported in the BR2 and CTF tables of Ireland in accordance with the UNFCCC reporting guidelines on BRs. The ERT concludes that the reported information is mostly in adherence with the UNFCCC reporting guidelines on BRs and provides an overview on: emissions and removals related to the Party's quantified economy-wide emission reduction target; assumptions, conditions and methodologies related to the attainment of the target; progress made by Ireland in achieving its target; and the Party's provision of support to developing country Parties.

95. Ireland's total GHG emissions excluding LULUCF related to its quantified economy-wide emission reduction target were estimated to be 3.6 per cent above its 1990 level, whereas total GHG emissions including LULUCF were 2.3 per cent above its 1990 level for 2013. The emission increase was driven mainly by increasing emissions from the transport sector, which almost doubled between 1990 and 2013, and offset decreasing emissions in all other energy subsectors (emissions from energy industries peaked in 2001, those from manufacturing and industries peaked in 2007 and fugitive emissions from fuels decreased by 79.4 per cent between 1990 and 2013).

96. Under the Convention, Ireland is committed to contributing to the achievement of the joint EU quantified economy-wide target of a 20 per cent reduction in emissions below the 1990 level by 2020. The target covers all gases CO₂, CH₄, N₂O, HFCs, PFCs and SF₆, expressed using GWP values from the AR4. Emissions and removals from the LULUCF sector are not included in the quantified economy-wide emission reduction target under the Convention. The EU generally allows its member States to use units from the Kyoto Protocol mechanisms as well as new market mechanisms for compliance purposes, subject to a number of restrictions in terms of origin and type of project and up to an established limit. Companies can make use of such units to fulfil their requirements under the EU ETS.

97. Under the ESD, Ireland has a target to reduce its emissions by 20 per cent below the 2005 level by 2020. Irish AEAs, which correspond to its national emission target for non-ETS sectors, change linearly from 46,891.93 kt CO₂ eq in 2013 to 38,974.87 kt CO₂ eq in 2020.

98. Ireland's main policy framework relating to energy and climate change is underpinned by the EU 2020 climate and energy package with the EU ETS and the ESD. Energy-related legislation is supported by NREAP for renewable energy sources and NEEAP3 for energy efficiency. Key legislation supporting Ireland's climate change goals includes the Climate Action and Low Carbon Development Act 2015, which establishes the domestic institutional arrangements for evaluation of the progress made towards the target. The mitigation actions with the most significant mitigation impacts are the promotion of renewable energy sources for electricity generation, transport and heat. The actions relating to energy efficiency improvements (e.g. through regulations and fiscal measures) and energy savings (through end-user behavioural changes) are also expected to have significant impacts.

99. For 2013, Ireland reported in CTF table 4 total GHG emissions excluding LULUCF at 58,820.88 kt CO₂ eq. Ireland did not report on its use of the units from market-based mechanisms to achieve its target, indicating that no decisions have yet been made on the use of units from mechanisms for meeting Ireland's share of the joint EU economy-wide emission reduction target for the period 2013–2020. In 2013, Ireland's emissions from the sectors covered by the ESD were 42,606.76 kt CO₂ eq, which is 9.1 per cent below Ireland's 2013 AEA under the ESD.

100. The GHG emission projections provided by Ireland in its BR2 include those for the WEM and WAM scenarios. Under these two scenarios, emissions are projected to be 7.1

and 3.2 per cent below the 1990 level in 2020, respectively. GHG emissions from non-ETS sectors are projected to be 12.7 per cent above the AEAs allocated for 2020 under the WEM scenario and 6.2 per cent above under the WAM scenario. Although under the ESD, the surpluses accumulated in earlier years can be carried forward for use in later years, in the period 2013–2020, Ireland foresees a deficit in meeting the target under the ESD and implies the use of AEAs, or any other unit type including carry-over CERs and ERUs, to fulfil the requirements. On the basis of the reported information, the ERT concluded that Ireland may face challenges in achieving its target for non-ETS sectors.

101. The ERT noted that Ireland is making progress towards its emission reduction target by implementing mitigation actions that deliver significant emission reductions. However, on the basis of the results of the projections for 2020 under the WEM and WAM scenarios, the ERT noted that Ireland may face challenges in achieving its target, even if all additional PaMs are implemented by 2020, including further strengthening of existing PaMs. In this regard, Ireland indicated in its BR2 that it requires the introduction of new PaMs and possibly the use of units from market-based mechanisms in order to achieve its emission reduction target.

102. Ireland continues to allocate climate financing in line with climate finance programmes such as the Least Developed Countries Fund, the UNFCCC Trust Fund for Supplementary Activities, the Food and Agriculture Organization of the United Nations Livestock Environmental Assessment and Performance, the CTCN and others in order to assist developing country Parties to implement the Convention. It has maintained its contributions at the same level since 2012, as reported in its NC6/BR1, and its public financial support in 2013 and 2014 totalled USD 45.35 million and USD 44.74 million per year, respectively. In those years, Irish support provided for adaptation actions was higher than support provided for mitigation. The highest level of financial support went to cross-cutting projects, followed by projects in the agriculture sector. Ireland provided financial, technological and capacity-building support with particular focus on LDCs, mainly those located in sub-Saharan Africa, through bilateral grants, mostly for adaptation, and is making efforts to maximize the use of opportunities for its partner countries and their local communities.

103. In the course of the review, the ERT formulated the following recommendations for Ireland to improve its adherence to the UNFCCC reporting guidelines on BRs in its next BR:²⁶

- (a) Improve the completeness of its reporting by directly including the reasons for not reporting information on its use of units from market-based mechanisms under the Convention and other mechanisms and the contribution of LULUCF to achieving its target in the BR2 and CTF tables 4, 4(a)I, 4(a)II, and 4(b) (see para. 38 above);
- (b) Improve the transparency of its reporting by:
 - (i) Indicating whether its target includes indirect CO₂ emissions in its explanation of the target's coverage (see para. 12 above);
 - (ii) Rectifying errors in CTF tables 2(b) and 2(c) (see para. 13 above);
 - (iii) Providing information on the possible scale of contributions from market-based mechanisms under the Convention and other market-based mechanisms (see para. 14 above);
 - (iv) Providing information on individual mitigation actions, organized by sector and by gas, to the extent appropriate, in the BR (see para. 22 above);

²⁶ The recommendations are given in full in the relevant chapters of this report.

- (v) Including up-to-date information on mitigation actions (see para. 23 above);
- (vi) Correcting the reference to CTF table 4 in section 4.2.2 of the BR2 (see para. 39 above);
- (vii) Taking measures to prevent the erroneous reporting of emission data in CTF tables 6(a)–(c) (see para. 44 above);
- (viii) Presenting all gases included in its projections, including NF_3 , in table 5.4 and reporting indirect CO_2 emissions separately from CO_2 emissions, in table 5.3 of the BR2, to ensure consistency between the BR and CTF tables (see para. 45 above);
- (ix) Providing a clear definition of what new and additional financial resources it has provided, clarifying how it has determined such resources as being new and additional (see para. 65 above).

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 preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual greenhouse gas inventories”. Annex to decision 24/CP.19. Available at

<<http://unfccc.int/resource/docs/2013/cop19/eng/10a03.pdf#page=2>>.

“Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications”.

FCCC/CP/1999/7. Available at <<http://unfccc.int/resource/docs/cop5/07.pdf>>.

“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 13/CP.20. Available at

<<http://unfccc.int/resource/docs/2014/cop20/eng/10a03.pdf>>.

FCCC/IDR.6/IRL. Report of the technical review of the sixth national communication of Ireland. Available at <<http://unfccc.int/resource/docs/2014/idr/irl06.pdf>>.

FCCC/TRR.1/IRL. Report of the technical review of the first biennial report of Ireland. Available at <<http://unfccc.int/resource/docs/2014/trr/irl01.pdf>>.

FCCC/KP/CMP/2016/TPR/IRL. Report on the individual review of the report upon expiration of the additional period for fulfilling commitments (true-up period) for the first commitment period of the Kyoto Protocol of Ireland.

Available at <<http://unfccc.int/resource/docs/2016/tpr/irl.pdf>>.

2015 greenhouse gas inventory submission of Ireland. Available at

<http://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/8812.php>.

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 the first biennial report 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>.

Second biennial report of Ireland. Available at

<http://unfccc.int/files/national_reports/biennial_reports_and_iar/submitted_biennial_reports/application/pdf/br2_ireland_final.pdf>.

Common tabular format tables of the second biennial report of Ireland. Available at <http://unfccc.int/files/national_reports/biennial_reports_and_iar/submitted_biennial_reports/application/pdf/irl_2016_v1_0_formatted.pdf>.

B. Additional information used during the review

Responses to questions during the review were received from Mr. Colin O’Hehir and Mr. Frank Daly (Department of Communications, Climate Action and Environment, former Department of the Environment, Community and Local Government), including additional material and the following documents¹ provided by Ireland:

Department of Communications, Energy and Natural Recourses, Ireland (2014) *3rd National Energy Efficiency Action Plan*. Available at <<http://www.dcenr.gov.ie/energy/SiteCollectionDocuments/Energy-Efficiency/NEEAP%203.pdf>>.

European Environment Agency’s database on climate change mitigation policies and measures in Europe. Available at <<http://pam.apps.eea.europa.eu/>>.

Environmental Protection Agency, Ireland (2013) *Ireland’s National Greenhouse Gas Emission Projections 2013 - Methodological Approach*. Available at <http://cdr.eionet.europa.eu/ie/eu/ghgmm/envvuhu5a/GHG_Projections_Methodology_for_MM_2013_IE.pdf>.

Jim Scheer, Matthew Clancy and Fiac Gaffney, SEAI Energy Modelling Group, Sustainable Energy Authority of Ireland (2016), *Ireland’s Energy Targets Progress, Ambition & Impacts*. Available at <http://www.seai.ie/Publications/Statistics_Publications/Energy_Modelling_Group_Publications/Ireland%e2%80%99s-Energy-Targets-Progress-Ambition-and-Impacts.pdf>.

Coenen, Peter, et al. (2012), Development of GHG projection guidelines, “*DRAFT GHG Projection Guidelines, Part B: Sectoral Guidance*”, CLIMA.A.3./SER/2010/0004, European Commission. Available at <http://ec.europa.eu/clima/policies/strategies/progress/monitoring/docs/ghg_projection_guidelines_b_en.pdf>.

Schwarz, Winfried, et al. (2012), *Preparatory study for a review of Regulation (EC), No 842/2006 on certain fluorinated greenhouse gases*, No 070307/2009/548866/SER/C4, European Commission. Available at <http://ec.europa.eu/clima/policies/f-gas/docs/2011_study_en.pdf>.

¹ Reproduced as received from the Party.