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Report of the technical review of the second biennial report of the European Union

According to decision 2/CP.17, developed country Parties are requested to submit their second biennial report 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 the European Union, 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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Contents

I. Introduction and summary

A. Introduction

1. This report covers the centralized technical review of the second biennial report (BR2)[1] of the European Union (EU). 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 EU, which provided comments that were considered and incorporated, as appropriate, into this final version of the report.

2. The review took place from 7 to 12 March 2016 in Bonn, Germany, and was conducted by the following team of nominated experts from the UNFCCC roster of experts: Mr. Xiang Gao (China), Mr. Fredrick Kossam (Malawi), Mr. Bundit Limmeechokchai (Thailand), Mr. Nicolo Macaluso (Canada), Mr. Khanyisa Brian Mantlana (South Africa), Mr. Dylan Muggeridge (New Zealand), Ms. Gherghita Nicodim (Romania), Mr. Marcelo Rocha (Brazil), Mr. Christoph Streissler (Austria) and Mr. Alexander Zahar (Australia). Mr. Gao and Mr. Streissler were the lead reviewers. The review was coordinated by Ms. Ruta Bubniene and Ms. Veronica Colerio (UNFCCC secretariat).

B. Summary

3. The expert review team (ERT) conducted a technical review of the information reported in the BR2 of the EU 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, the EU provided the following additional relevant information:

(a) The reasons for not reporting the mitigation effects of all mitigation actions;

(b) The strengths and weaknesses of the EU approach to developing an EU-level greenhouse gas (GHG) emission projection, including the development of a new EU-level reference scenario;

(c) The challenges in reporting EU-wide sensitivity analyses;

(d) EU policymaking processes and supplemental information on the monitoring mechanism regulation, which are used to enhance the quality of reporting by individual member States and to track progress towards meeting their targets;

(e) EU blending facilities for the leveraging of private resources to support developing countries;

(f) The methodology used for counting the amount of financial support, as well as information on funding sources and financial instruments.

[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.

1. Timeliness

4. The BR2 was submitted on 17 December 2015, before the deadline of 1 January 2016 mandated by decision 2/CP.17. The common tabular format (CTF) tables were also submitted on 17 December 2015.

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 the EU in its BR2 is mostly in adherence with the UNFCCC reporting guidelines on BRs as per decision 2/CP.17.

Table 1

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

Section of the biennial report	*Completeness*	*Transparency*	*Paragraphs with recommendations*
Greenhouse gas emissions and trends	Complete	Transparent	
Assumptions, conditions and methodologies related to the attainment of the quantified economy-wide emission reduction target	Complete	Transparent	
Progress in achievement of targets	Complete	Mostly transparent	25, 36
Provision of support to developing country Parties	Complete	Mostly transparent	71, 74, 77, 80

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. The EU 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 the EU 2015 annual inventory submission (in chapter 1). 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 inventories"[2] that are required by paragraph 3 of the UNFCCC reporting guidelines on BRs.

7. Further, the EU provided information on changes in the national inventory arrangements since its first biennial report (BR1). The following changes have occurred in the inventory arrangement: (1) Croatia officially joined the EU on 1 July 2013 and was integrated into the EU annual inventory preparation cycle. The EU inventory submission under the UNFCCC now covers the 28 EU member States (EU-28)[3] aggregate instead of

[2] Decision 24/CP.19.

[3] EU-28 member States include the 27 EU member States (EU-27) plus Croatia.

the 27 EU member States (EU-27)[4] aggregate used in inventory submissions until 2013; (2) The legal basis for the national inventories at the EU level has been replaced by the Monitoring Mechanism Regulation (MMR) 525/2013. (Further information on MMR is provided in section 2.2.2.1 of the BR2 and in paras. 21 and 32 below); (3) A new framework partnership agreement between the European Environmental Agency (EEA) and the European Topic Centre for Air Pollution and Climate Change Mitigation was established. The European Topic Centre for Air Pollution and Climate Change Mitigation is a major partner under the EU inventory system, supporting the technical work of EEA.

8. The information reported in the BR2 on emission trends is consistent with that reported in the 2015 annual inventory submission of the EU. To reflect the most recently available data, version 1.0 of the EU 2015 annual inventory submission has been used as the basis for discussion in chapter II.A of this review report.

9. Total GHG emissions[5] excluding emissions and removals from land use, land-use change and forestry (LULUCF) decreased by 21.2 per cent between 1990 and 2013, whereas total GHG emissions including net emissions or removals from LULUCF decreased by 23.3 per cent over the same period. The decrease in the total GHG emissions can be attributed mainly to carbon dioxide (CO_2) emissions, which decreased by 18.2 per cent (excluding LULUCF and international aviation) between 1990 and 2013. Over the same period, emissions of methane (CH_4) decreased by 37.8 per cent, while emissions of nitrous oxide (N_2O) decreased by 38.2 per cent. The combined fluorinated gases (F-gases), such as perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3) increased by 60 per cent over the same period.

10. EU GHG emissions are the sum of member States' emissions. Thus, trends in EU GHG emissions fully reflect emission trends at the member State level. The emission trends were driven by several factors, the most important of which are: (1) fossil fuel switching measures and increased energy efficiencies in the manufacturing industry and construction, as well as in the public electricity and heat production sector (CO_2); (2) reductions in managed waste disposal on land mainly caused by the increased use of recycling and incineration of waste with energy recovery, reductions in coal mining, and a decrease in cattle production (CH_4); and (3) emission reduction measures in adipic acid production and nitric acid production, as well as the decreased use of fertilizers and manure on agricultural soils (direct and indirect soils emissions) (N_2O). Further, economic factors are also important to explain the emission trends, the main factors for decreasing emissions in new member States (economies in transition) was the decline of energy-inefficient heavy industry and the overall restructuring of the economy, from a centrally planned to a market-based economy in the late 1980s and early 1990s.

11. The ERT noted that, during the period 1990–2013, the EU gross domestic product (GDP) per capita increased by 39.1 per cent, while GHG emissions per GDP and GHG emissions per capita decreased by 46.5 and 25.6 per cent, respectively. These changes are explained by the fact that emissions in the EU have been decreasing while the economy has grown for the same period. The decoupling of economic growth from GHG emissions has

[4] EU-27 member States include: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and United Kingdom of Great Britain and Northern Ireland.

[5] In this report, the term "total GHG emissions" refers to the aggregated EU-28 GHG emissions expressed in terms of carbon dioxide equivalent excluding land use, land-use change and forestry, and excluding international aviation unless otherwise specified. Values in this paragraph are calculated based on the 2015 inventory submission, version 1.0.

been progressing since 1990. The implementation of structural policies in the field of climate and energy has significantly contributed to this successful decoupling. In particular, the implementation of the EU 2020 climate and energy package (see para. 14 below) has resulted in a significant increase in renewable energy and progress in energy efficiency, and is the key driver behind the observed reduction in emissions, with the carbon price acting as a driving force expected to become increasingly stronger in the future. Table 2 below illustrates the emission trends by sector and some of the economic indicators relevant to GHG emissions for the EU.

Table 2

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

	GHG emissions (kt CO_2 eq)					*Change (%)*		*Share by sector (%)*	
Sector	*1990*	*2000*	*2010*	*2012*	*2013*	*1990–2013*	*2012–2013*	*1990*	*2013*
1. Energy	4 356 201.68	4 017 863.09	3 798 118.91	3 604 017.01	3 524 113.34	–19.1	–2.2	76.7	78.7
A1. Energy industries	1 659 946.81	1 510 565.53	1 440 957.88	1 412 579.62	1 331 297.96	–19.8	–5.8	29.2	29.7
A2. Manufacturing industries and construction	865 208.67	687 044.48	545 342.88	510 800.38	503 045.08	–41.9	–1.5	15.2	11.2
A3. Transport	785 891.06	920 626.69	939 458.09	893 042.90	887 484.28	12.9	–0.6	13.8	19.8
A4.–A5. Other	842 026.84	761 299.14	776 653.51	693 800.64	710 617.86	–15.6	2.4	14.8	15.9
B. Fugitive emissions from fuels	203 128.30	138 327.24	95 706.56	93 793.47	91 668.16	–54.9	–2.3	3.6	2.0
C. CO_2 transport and storage	NO	NO	NO	NO	NO	NA	NA	NA	NA
2. IPPU	510 618.38	443 219.46	376 116.78	360 416.95	360 225.89	–29.5	–0.1	9.0	8.0
3. Agriculture	569 201.34	481 023.88	441 567.46	438 891.71	440 675.74	–22.6	0.4	10.0	9.8
4. LULUCF	–259 580.78	–311 189.30	–314 013.10	–312 329.08	–317 944.85	22.5	1.8	NA	NA
5. Waste	244 102.01	235 129.79	170 142.55	159 366.10	151 748.75	–37.8	–4.8	4.3	3.4
6. Other	26.82	17.88	14.90	11.92	11.92	–55.6	0.0	0.0	0.0
Indirect CO_2	8 741.30	6 344.22	4 581.64	4 314.94	4 552.61	–47.9	5.5	NA	NA
Total GHG emissions without LULUCF	**5 680 150.24**	**5 177 254.10**	**4 785 960.60**	**4 562 703.69**	**4 476 775.64**	**–21.2**	**–1.9**	**100.0**	**100.0**
Total GHG emissions with LULUCF	**5 420 569.46**	**4 866 064.79**	**4 471 947.50**	**4 250 374.61**	**4 158 830.79**	**–23.3**	**–2.2**	**NA**	**NA**
Total GHG emissions without LULUCF, including indirect CO_2	**5 688 891.54**	**5 183 598.32**	**4 790 542.24**	**4 567 018.63**	**4 481 328.25**	**–21.2**	**–1.9**	**NA**	**NA**
Total GHG	**5 429 310.76**	**4 872 409.01**	**4 476 529.14**	**4 254 689.55**	**4 163 383.40**	**–23.3**	**–2.1**	**NA**	**NA**

Sector	GHG emissions (kt CO_2 eq)					Change (%)		Share by sector (%)	
	1990	*2000*	*2010*	*2012*	*2013*	*1990–2013*	*2012–2013*	*1990*	*2013*
emissions with LULUCF, including indirect CO_2									
Indicators									
GDP per capita (thousands 2011 USD using PPP)	24.74	30.28	34.03	34.42	34.40	39.1	–0.1		
GHG emissions without LULUCF per capita (t CO_2 eq)	11.88	10.61	9.49	9.03	8.84	–25.6	–2.2		
GHG emissions without LULUCF per GDP unit (kg CO_2 eq per 2011 USD using PPP)	0.48	0.35	0.28	0.26	0.26	–46.5	–2.1		

Sources: GHG emission data: European Union's 2015 annual inventory submission, version 1.0; (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.

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

12. In its BR2 and CTF tables 2(a)–(f), the EU 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: a description of the quantified economy-wide reduction target; the base year; the gases and sectors covered; the global warming potential (GWP) values used to estimate the emissions in units of carbon dioxide equivalent (CO_2 eq); and the approach to counting emissions and removals from the LULUCF sector. Further information on the target and the assumptions, conditions and methodologies related to the target is provided in chapter 2 of the BR2.

13. For the EU, the Convention entered into force on 21 March 1994. Under the Convention, the EU and its member States 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.

14. 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 CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 using GWP values from the Intergovernmental Panel on Climate Change

Fourth Assessment Report (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. Emissions from international aviation (in the scope of the European Union Emissions Trading System (EU ETS)) are included in the target.

15. 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. In addition, the legislation foresees the possible recognition of units from new market mechanisms. Companies can make use of such units to fulfil their requirements under the EU ETS. Under the EU ETS, the limit does not exceed 50 per cent of the required reduction below 2005 levels. In the sectors not covered by the EU ETS, annual use shall not exceed 3 per cent of each member State's non-EU ETS GHG emissions in 2005. A limited number of member States may use an additional 1 per cent, from projects in the least developed countries or small island developing States subject to conditions.

16. 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 chapter 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.

17. Under the ESD, the EU has a target to reduce its total emissions to 10 per cent below the 2005 level by 2020 from sectors covered by the ESD (non-ETS sectors). In absolute terms, this means that under the ESD, the EU-28 has to reduce emissions from 2,914,000 kt CO_2 eq in 2005[6] to 2,644,200 kt CO_2 eq by 2020.

18. This target is broken down to the member State level, which ranges from 20 per cent below to 20 per cent above the 2005 level by 2020. The target levels have been set on the basis of the relative GDP per capita of the member States. In addition, different levels of development in the EU are taken into account by the provision of several flexibility options. Subsequently, the ESD targets have been translated into annual emission allocations by decision 2013/162/EU. Up to a certain limitation, the ESD allows member States to make use of the flexibility provisions for meeting their annual targets: carry-over of overachievements to subsequent years within each member State, transfer of annual emission allocations between member States and the use of international credits (i.e. credits from joint implementation and the clean development mechanism). Since the publication of the BR1, the annual emission allocations have been adjusted to reflect changes in the scope of the EU ETS by decision 2013/634/EU.

[6] The EU chose 2005 as the base year for its 2020 target. The emission level in 2005 is calculated based on data from the EEA report *Trends and Projections in Europe 2015 — Tracking Progress towards Europe's Climate and Energy Targets*, available at <http://www.eea.europa.eu/publications/trends-and-projections-in-europe-2015>.

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 the EU 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, the EU 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. The BR2 and CTF table 3 include information on mitigation actions organized by sector and by gas. Further information on the mitigation actions related to the Party's target is provided in chapter 3 of the BR2, CTF table 3 and in this report (see paras. 27–30 below).

21. This report highlights the changes made since the publication of the Party's NC6 and BR1. In its BR2, the EU 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. The EU reported that two new regulations (Implementing Regulation EU No. 749/2014 and Delegated Regulation EU No. 666/2014) were adopted in 2014 to enable the implementation of several provisions of MMR. The main aim of MMR is to improve the quality of reported data and to assist the EU and its member States in tracking progress towards meeting their emission targets to 2020. The two new regulations specify in more detail the structure of the information, reporting formats and submission procedures under MMR. The EU reported that while these two new regulations were adopted, no new institutions were set up.

22. In its BR2, the EU also reported on changes in domestic institutional arrangements specific to the monitoring, reporting and verification of GHG emissions under the EU ETS. Monitoring, reporting and verification under the EU ETS now requires compliance with two European Commission regulations, one specific to monitoring (EU No. 601/2012) and the other specific to verification and accreditation (EU No. 600/2012). These regulations have direct legal effect in the member States, and their provisions apply to installations and aircraft operators, verifiers and accreditation parties, providing clarity on the roles and responsibilities of all parties, and strengthening compliance processes, creating a framework of rules for the accreditation of verifiers in order to ensure that the verification of an installation's or an aircraft operator's emission report is carried out by a verifier that possesses the technical competence to perform the entrusted task in an independent and impartial manner. More information on these changes can be found in section 2.2.2.2 of the BR2.

23. The EU did not report in CTF table 3 the estimated effects of most of its mitigation actions for 2020, including for some significant policies and measures (PaMs) such as EU ETS and ESD, and it also did not provide an explanation for not reporting this in its BR2 or CTF table 3. Further, the ERT noted that for some PaMs, for example, Regulation EU No. 443/2009 on CO_2 emissions from cars and Regulation EU No. 510/2011 on CO_2 emissions from vans, the EU has reported estimates of mitigation impacts in its BR2, but not in CTF table 3.

24. During the review, the EU provided additional information, elaborating on the reasons why it did not report the estimated effects of all mitigation actions. Owing to the complexity of the EU policymaking system and of the particularities of each EU policy, aggregated data per EU policy implemented by member States cannot be compiled at the

EU level. This is mainly because of the different ways in which policies are implemented by individual member States, and the way in which member States report on the impact of PaMs, which is not always consistent across member States. However, the estimated mitigation impacts of PaMs are, in many cases, reported in the biennial report of each member State.

25. The ERT recommends that the EU improves the transparency of its reporting in its next biennial report and/or CTF tables by: reporting consistent information on its mitigation actions in the biennial report and CTF table 3 and, in cases where the estimated mitigation impacts of some PaMs are not reported in CTF table 3, provide explanations as to why such information is not reported. The latter information could be provided in either the biennial report, or in the footnotes to CTF table 3.

26. The EU provided, to the extent possible, detailed information on the assessment of the economic and social consequences of its response measures. An impact assessment system was established for the development of new policy initiatives through legislative proposals by the European Commission. The impact assessment is based on an integrated approach that analyses both benefits and costs of new policy initiatives, and addresses their economic, social and environmental impacts. The EU reported, to the extent possible, 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. See further information on MMR in paragraphs 21 above and 32 below.

27. 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 proposals on the 2020 targets for CO_2 emissions from cars and vans, and the carbon capture and storage directive (see table 3 below and CTF table 3).

28. In operation since 2005, the EU ETS is a cap-and-trade system that covers energy-intensive installations (mainly large point emissions sources such as power plants and industrial facilities), which produce around 45 per cent of the GHG emissions of the EU. In 2020, in line with the corresponding target, GHG emissions from the EU ETS sectors will be at least 21 per cent lower than in 2005. Since 2012, aviation activities are included in the EU ETS. The third phase of the EU ETS started in 2013 and the system now covers CO_2 emissions from stationary combustion, industrial process and aviation, N_2O emissions from some chemical production and PFC emissions from aluminium production. The legislative proposal on the revision of the EU ETS for its next phase (2021–2030) is now under discussion. The proposal aims to reduce EU ETS emissions by 43 per cent compared to 2005.

29. The ESD became operational in 2013 and covers sectors outside the EU ETS, including 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. For further information on the national policies and actions of individual member States, the BR2 or its technical review report of the EU member State Parties could be considered.

30. With the energy sector (including transport) being the largest source sector of emissions for the EU, the EU has put in place a comprehensive framework to mitigate emissions from this sector. The EU energy policy framework is described in chapter 3 of the BR2. To support this framework, a range of PaMs has been implemented and adopted,

and these are presented comprehensively in CTF table 3. Key to the energy policy framework are measures to promote and increase the use of renewable energy, policies to increase energy efficiency and to decrease transport emissions. The EU directive on renewable energy (directive 2009/28/EC) aims at a share of 20 per cent renewable energy of gross final energy consumption by 2020. The EU has reported that it is on track to meet this target, with the share of renewable energy estimated to be 15.3 per cent in 2014. The EU also has an agreed target of improving energy efficiency by 20 per cent compared to 2005 by 2020. The EU directive on energy efficiency (directive 2012/27/EU) is the main legislation to achieve this target, but the EU has reported that it is expecting to fall short of this target, with the most recent Communication on Energy Efficiency[7] projecting that the EU will achieve energy savings of around 18–19 per cent in 2020.

31. Table 3 below provides a concise summary of the key mitigation actions and estimates of their mitigation effects reported by the EU to achieve its target.

Table 3

Summary of information on mitigation actions and their impacts reported by the European Union

Sector affected	*List of key mitigation actions*	*Estimate of mitigation impact by 2020 (kt CO_2 eq)*	*Estimate of mitigation impact by 2030 (kt CO_2 eq)*
Policy framework and cross-sectoral measures	2020 climate and energy package	NE	NE
	European Union Emissions Trading System	NE	NE
	Effort-sharing decision	NE	NE
	2030 framework for climate and energy	NE	NE
Energy, including:	Energy union strategy	NE	NE
Transport	Regulation on CO_2 from cars	24 900 (2021)	43 600
	Regulation on CO_2 from vans	1 900	5 300
Renewable energy	Renewable energy directive	750 000	NE
Energy efficiency	Energy performance of buildings directive	185 000	NE
	Energy efficiency directive	NE	NE
IPPU	F-gas regulation	NE	72 000
	Directive on mobile air conditioning	13 000	NE
Agriculture	Common agricultural policy	NE	NE
LULUCF	LULUCF decision on accounting	NE	NE
Waste	Waste framework directive	40 100	NE
	Landfill directive	44 000	NE

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: F-gas = fluorinated gas, IPPU = industrial processes and product use, LULUCF = land use, land-use change and forestry, NE = not estimated.

32. In its BR2, the EU has reported on the importance of MMR for its reporting and compliance processes (see also para. 21 above). During the review, the EU also explained

[7] European Commission. *Energy Efficiency and its Contribution to Energy Security and the 2030 Framework for Climate and Energy Policy*, available at <https://ec.europa.eu/energy/sites/ener/files/documents/2014_eec_communication_adopted_0.pdf>.

that MMR, under Article 13(1),[8] puts a biennial obligation (since 15 March 2015) on EU member States to report on their PaMs, including information, where available, on the effects of PaMs. The ERT deems this information to be valuable in order to understand the types of data that are collected under MMR. The ERT is of the view that including this information in future submissions would be useful and would enhance transparency. The ERT also notes that some of the information reported by member States under MMR may be beneficial for future estimates of the mitigation impacts of EU-wide PaMs as further information becomes available.

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

33. The EU reported in its BR2 and CTF tables 4, 4(a)I, 4(a)II and 4(b) total emissions excluding LULUCF. This information was provided for the base year and for each reported year such as 2010–2013. The EU did not include any values in the information requested in the UNFCCC reporting guidelines on BRs on the contribution from LULUCF and units from market-based mechanisms under the Convention and other mechanisms. While an explanation for excluding the information on LULUCF was provided in the footnote to table 4, no explanation was provided for not reporting units from market-based mechanisms. The EU reported in its BR2 and in the footnote to table 4 that the values for LULUCF are not reported because this sector is not included under the Convention target.

34. With respect to the quantity of units from market-based mechanisms under the Convention, the EU stated that the climate and energy package generally allows certified emission reductions (CERs) and emission reduction units (ERUs) to be used for compliance purposes, subject to a number of restrictions in terms of origin and type of project and up to an established limit (see para. 15 above). However, in its BR2, the Party explained that the use of CERs and ERUs could not be quantified at the time of reporting (see para. 35 below).

35. The EU reports in its BR2 that since 2013 it is no longer possible to track the use of Kyoto Protocol mechanisms in the EU ETS directly via information on the EU transaction log public website because CERs and ERUs are no longer surrendered directly but are exchanged into European emission allowances. These exchanges will become public at the installation level after three years, with the first information, reflecting the use in 2013, available in 2016. With respect to quantity of units from other market-based mechanisms, the EU reports that no other market-based mechanisms are in use. Further relevant information on emissions and removals and the use of units is provided in chapter 4 of the BR2.

36. In order to increase transparency, the ERT recommends that the EU complete all relevant parts of CTF table 4 in accordance with the assumptions related to the target. This can be done, for example, by using the notation key "NA" (not applicable) if the requested information is not applicable, such as for LULUCF, or the value "0" (zero) in cases where units from market-based mechanisms are not used in a particular year for the progress towards the target, and by providing explanations in the footnote to the CTF table.

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

[8] Regulation 525/2013 of the European Parliament and of the Council of 21 May 2013. Available at <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32013R0525&from=EN>.

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 the European Union towards the achievement of its target

Year	*Emissions excluding LULUCF (kt CO_2 eq)*[a]	*Contribution from LULUCF (kt CO_2 eq)*	*Emissions including contribution from LULUCF (kt CO_2 eq)*	*Use of units from market-based mechanisms (kt CO_2 eq)*
1990	5 749 640.49	NA	NA	NA
2010	4 918 070.52	NA	NA	0
2011	4 766 280.43	NA	NA	0
2012	4 696 970.56	NA	NA	0
2013	4 610 953.15	NA	NA	0

Sources: European Union'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] Emissions excluding LULUCF and NF_3, and including international aviation.

38. To assess the progress towards the achievement of the 2020 target, the ERT noted that the EU emission reduction target under the Convention is 20 per cent below the 1990 level (see para. 13 above). In 2013, the EU annual total GHG emissions excluding LULUCF and NF_3, and including international aviation, were 19.8 per cent (1,138,687.34 kt CO_2 eq) below the 1990 level. According to the latest projections under the 'with measures' (WEM) scenario, aggregate emissions for the EU are estimated to be 23.8 per cent below the 1990 level by 2020 (excluding LULUCF and NF_3, and including international aviation) (see para. 54 below).

39. The ERT noted that the EU is making progress towards its emission reduction target by implementing mitigation actions. According to its projections, the EU expects that PaMs that have already been adopted or implemented in the member States are sufficient, on their own, to achieve the emission reduction target.

3. Projections

40. The EU reported in its BR2 and CTF table 6(a) updated projections for 2020 and 2030 relative to actual inventory data for 2013 under the 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: CO_2, CH_4, N_2O, PFCs, HFCs and SF_6 (treating PFCs, HFCs and SF_6 collectively). Projections are also provided in an aggregated format for each sector as well as for a Party total, using GWP values from the 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. The EU reported on factors and activities influencing emissions for each sector. Further information on the projections is provided in chapter 5 of the BR2.

41. The BR2 and CTF tables 5, 6(b) and 6(c) do not include the information required by the UNFCCC reporting guidelines on BRs on the 'with additional measures' (WAM) and 'without measures' (WOM) scenario projections. To increase the completeness of its next biennial report, the ERT encourages the EU to report a WAM projection, in cases where there are additional PaMs to be reported, and a WOM projection excluding all PaMs implemented, adopted or planned.

42. The BR2 does not include sensitivity analyses for the projections. During the review, the EU provided additional information, elaborating on the challenges of developing EU-wide projections and undertaking sensitivity analyses. The EU explained that the WEM scenario was developed under clearly defined rules and guidance on what should be included. Therefore, it was possible to aggregate such a scenario into an EU-wide 'business as usual' scenario without changes. The EU also explained that a sensitivity analysis is usually conducted by varying a specific parameter (or a set of parameters) in a specific way. Then, the results are compared to the WEM scenario. It would be possible to create an EU-wide sensitivity analysis if all member States varied the same specific parameter (or a set of parameters) in the same particular way, as only then would the sensitivity scenario be comparable to the WEM scenario. However, as the national sensitivity scenarios explore different parameter variations, such an aggregation would not lead to a meaningful overarching sensitivity analysis. Although guidance from the European Commission invites member States to use recommended parameters in the sensitivity scenarios, there is no legal basis which states that member States need to use a specific set of assumptions for their sensitivity analyses.

43. The EU also explained that an updated harmonized EU projection is under development, commissioned by the European Commission. The projection under development is a reference scenario in which the GHG and renewable energy source targets for 2020 will be met by definition. This reference scenario can be used for the EU-wide sensitivity analysis. To increase the completeness of its next biennial report, the ERT encourages the EU to report on the progress made in developing an EU sensitivity analysis and the sensitivity of the projections for underlying assumptions qualitatively, and where possible, quantitatively.

44. The information reported by the EU on the following elements is not transparent: the strengths and weaknesses of the modelling approach, and on how the approach used accounts for any overlap or synergies that may exist between different PaMs.

45. During the review, the EU provided additional information on the methodologies, models and approaches used in the preparation of the projections. The information clarified that the strength of the approach applied is that official national projections are taken into account, which are consistent in themselves and based on the best available models at the individual member State level. This approach also takes into consideration the particularities of each individual country's situation. Potential weaknesses of the approach are: (1) some key parameter assumptions are not harmonized across member States (e.g. CO_2 price), (2) member States may consider the effects of PaMs differently, and (3) different types of models are used by each member State.

46. Further, the EU explained that individual projections of member States would only consider the national effects of PaMs, not EU-wide or other transboundary effects. Thus it is assumed that even if several member States include the same PaMs, the effects are not double counted. In addition, guidance is provided to member States on how EU-wide policies should be reflected in the projections, for example, by recommending the values for the EU ETS carbon price to use.

47. To increase the transparency of its next biennial report, the ERT encourages the EU to report information as provided during the review on the strengths and weaknesses of the modelling approach and on how the approach used accounts for any overlap or synergies that may exist between different PaMs.

48. The ERT noted that the EU followed the recommendation made in the previous review report that it present the contribution of international aviation to its projections separately. The ERT commends the EU for providing this information for historical emissions, as well as projections, in its BR2.

Overview of projection scenarios

49. The WEM scenario reported by the EU includes all PaMs that have been adopted or implemented up to 2015 in its member States. The definition provided by the EU of the WEM scenario indicates that the scenario has 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".

50. The projection scenario presented in the EU BR2 also reflects the EU international aviation target.

Methodology and changes since the previous submission

51. The methodology used in the BR2 is identical to that used for the preparation of the emission projections for the NC6/BR1. The projections of GHG emissions for the EU are based on individual national projections of member State submissions to the European Commission under Regulation 525/2013/EU in 2015. The GHG emission projections for the EU are derived through an aggregation of individual member State projections. For member States that did not submit new projections in 2015, the EUCLIMIT *Reference Scenario 2013*[9] was used for gap-filling purposes.

52. In keeping with the EU approach to aggregate member State projections, CTF table 5 contains the weighted averages or sums of the values of projection key value parameters as reported by member States under MMR in 2015. For the EU, population is assumed to grow from 508.95 million to 516.36 million over the 2015–2030 period. Over the same period, the international oil price is assumed to increase from 13.11 to 16.00 EUR per GJ (2010 constant price). For the period 2015–2030, GDP is projected to increase from EUR 12.94 billion to EUR 16.84 billion (2010 constant price), while the EU ETS carbon price is projected to increase from 7.52 to 27.86 EUR per t CO_2 (2010 constant price). These assumptions have been updated on the basis of the most recent economic developments known at the time of the reporting on projections.

53. Sensitivity analyses were not conducted by the EU (see para. 42 above).

Results of projections

54. For the EU, total GHG emissions (excluding LULUCF and including international aviation) in 2020 and 2030 are projected to be 4,381,527 and 4,210,864 kt CO_2 eq, respectively, under the single WEM scenario reported in the BR2, which is a decrease of 23.8 and 26.8 per cent, respectively, below the 1990 level. The reported 2020 projections suggest that the EU is expecting to collectively achieve the 2020 EU target (see para. 13 above).

55. According to the projections reported by sector, the most significant GHG emission reductions[10] from 1990 to 2020 will occur in the energy sector (1,170,619 kt CO_2 eq or 32.8 per cent), followed by the industrial processes and product use sector (147,420 kt CO_2 eq or 28.9 per cent), the agriculture sector (120,579 kt CO_2 eq or 21.2 per cent) and the waste sector (112,588 kt CO_2 eq or 46.1 per cent). In contrast, GHG emissions from the transport subsector are projected to increase by 98,964 kt CO_2 eq (12.6 per cent) above the 1990 level by 2020.

[9] Available at <http://ec.europa.eu/energy/sites/ener/files/documents/trends_to_2050_update_2013.pdf>.

[10] The reductions compare the change within a sector. For example, energy sector emissions in 1990 are compared to those in 2020.

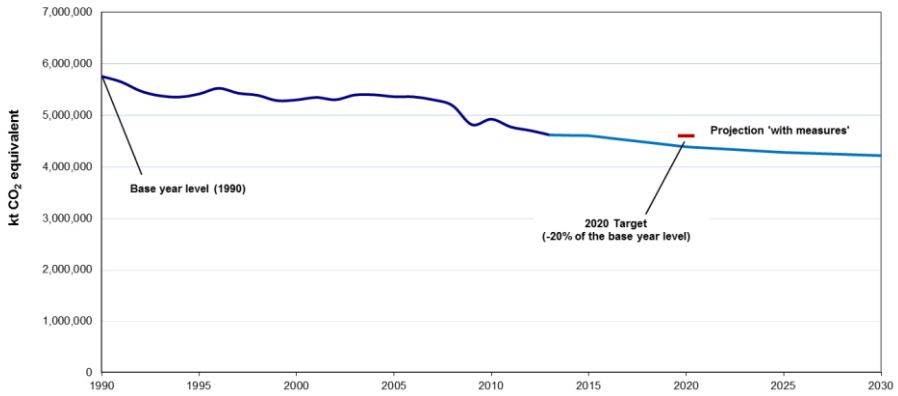
56. According to the projections reported by sector from 1990 to 2030, emissions will follow a similar pattern. The most significant GHG emission reductions occur in the energy sector (1,346,541 kt CO_2 eq or 37.7 per cent), followed by the industrial processes and product use sector (162,579 kt CO_2 eq or 31.8 per cent), the waste sector (129,107 kt CO_2 eq or 52.9 per cent) and the agriculture sector (111,328 kt CO_2 eq or 19.6 per cent). In contrast, GHG emissions from the transport subsector are projected to increase by 103,442 kt CO_2 eq (13.2 per cent) above the 1990 level by 2030.

57. According to the projections reported by gas from 1990 to 2020, reductions in CO_2 emissions are expected to contribute the most to the overall emission reductions in the EU (1,046,411 kt CO_2 eq or 23.5 per cent) followed by CH_4 (303,732 kt CO_2 eq or 40.8 per cent) and N_2O (135,020 kt CO_2 eq or 33.3 per cent) below the 1990 level by 2020. Total F-gases (HFCs, PFCs and SF_6) are projected to increase by 32,307 kt CO_2 eq (45.4 per cent) above the 1990 level by 2020.

58. In the longer term, by 2030, reductions in CO_2 emissions are projected to be 1,201,504 kt CO_2 eq (26.9 per cent) below the 1990 level by 2030, followed by CH_4 (325,692 kt CO_2 eq or 43.8 per cent) and N_2O (130,424 kt CO_2 eq or 32.2 per cent). Total F-gases (HFCs, PFCs and SF_6) are projected to increase by 9,140 kt CO_2 eq (12.8 per cent) above the 1990 level by 2030.

59. The projected emission levels for the WEM scenario (excluding LULUCF and including international aviation) and the EU quantified economy-wide emission reduction target are presented in the figure below.

Greenhouse gas emission projections by the European Union



Sources: (1) Data for the years 1990–2013: the 2015 annual inventory submission, version 1.0, of the 28 European Union member States; total greenhouse gas emissions excluding land use, land-use change and forestry and including international aviation; (2) Data for the years 2013–2030: the European Union second biennial report; total greenhouse gas emissions excluding land use, land-use change and forestry and including international aviation.

60. The figure above presents total aggregate emission trends and the WEM scenario projection for the EU. The figure illustrates that the GHG emissions for the EU are projected to steadily decrease below the 1990 emission level by 2030. As the WEM scenario projection for the EU is aggregated from individual member State WEM scenario projections, it takes into account future national economic development trends, impacts of

energy markets, technological development, electricity imports and any other relevant assumptions used by the member States in the preparation of their projections.

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

61. In its BR2, the EU 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. The EU reported a description of the methodology used to report financial support, including underlying assumptions. The EU made reference to its NC6 and BR1 where more detailed information was reported and pointed out the changes made since that submission.

62. The EU provided details on what new and additional support it has provided and clarified how this support is new and additional (see para. 64 below). The information provided in the BR2 includes the provision of financial, technological and capacity-building support to developing countries by the EU through activities carried out by EU institutions such as the European Commission and European Investment Bank (EIB), and does not include activities by individual EU member States. Further information on the Party's provision of support to developing country Parties is provided in chapter 5 of the BR2, and in paragraphs 66–93 below.

63. The EU reported that its financial support addresses the needs of Parties not included in Annex I to the Convention (non-Annex I Parties) and provides funding for mitigation and adaptation activities, recognizing the capacity-building elements of such support.

64. The EU explained how it determines how much of its support is new and additional. The financial resources reported in the BR2 are considered to be new and additional because they were committed after, and are not included in, the NC6/BR1.

65. The EU included in its BR2 information on how it has refined its approach to tracking climate support and methodologies, which is based on the Organisation for Economic Co-operation and Development (OECD) Development Assistance Committee system of Rio markers. The definition of climate finance is adapted from the definition of climate finance by the Standing Committee on Finance. The definition of mitigation and adaptation actions is adapted from the operational definitions and criteria for eligibility of the OECD Development Assistance Committee policy markers in tracking and reporting climate support to mitigation and adaptation activities. The definition of climate-relevant technology development and transfer is adapted from the Intergovernmental Panel on Climate Change definition of climate-relevant technology transfer. Lastly, the definition of climate-relevant capacity-building is adapted from the UNFCCC definition of capacity-building activities.

1. Finance

66. In its BR2 and CTF tables 7 and 7(b), the EU reported information on the provision of financial support required under the Convention, including on financial support committed, allocation channels and annual contributions. The summary information was reported for 2013–2014.

67. The EU 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 transfer and capacity-building related to mitigation and adaptation (see chapters II.D.2 and II.D.3 below).

68. The EU reported that the European Commission draws up strategy papers in cooperation with the beneficiary countries, which are based on the specific needs and situations of regions and partner countries, and it also takes the partner countries' performance into account. The EU also reported that for the development of new policy initiatives through legislative proposals by the EU, an impact assessment system has been established in which all proposals are examined before any legislation is passed to addresses all significant economic, social and environmental impacts of possible new initiatives. Further, procedures for assessing the impacts of EU climate change policies on external countries have also been established, and are included in various EU cooperation policies and agreements with countries outside the EU. This ensures that the effects of such policies on non-EU countries are taken into account.

69. The BR2 and CTF tables 7, 7(a) and 7(b) do not report transparently the information on support through multilateral channels required by the UNFCCC reporting guidelines on BRs. The information is not included in CTF table 7(a) and in the relevant cells in CTF table 7; however, such information is provided in CTF table 7(b), which is the table covering bilateral, regional and other channels of support.

70. During the review, the EU clarified that it classified those funds provided to, for example, the operating entities of the Financial Mechanism as bilateral, given that these organizations have acted as implementing agencies. In the EU statistical system, such support is categorized as bilateral support with multiple recipients.

71. The ERT recommends that the EU improve the transparency of its reporting in its next biennial report by including information on the multilateral financial support in CTF tables 7 and 7(a) or explaining in the footnotes to these tables why this is not possible.

72. Further, CTF table 7(b) has several rows of information that are exactly the same, for example, there are four rows indicating the support provided to Africa by the EIB, with exactly the same amount of funding, status, funding source, financial instrument, type of support, sector and even additional information. It is not clear, whether this was an error or if these are different contributions.

73. During the review, the EU clarified that the rows of information in CTF table 7(b) that are exactly the same, belong to different projects that have the same description.

74. The ERT recommends that the EU improve the transparency of its reporting in its next biennial report by clarifying that bilateral support projects that appear to be exactly the same are actually different.

75. In the BR2, the EU provided the total amount of financial resources and its relationship with financial support to mitigation and adaptation actions in table 5-2 (provision of financial support in 2013–2014) and table 5-3 (climate financing by the EIB). It was stated that the figures for mitigation and adaptation could not be added up in table 5-2 due to the fact that a number of projects are both mitigation and adaptation relevant, however, mitigation and adaptation figures could be added in table 5-3. Further, it was not clear whether the figures included in table 5-3 where included in table 5-2 (which seemed to be the total amount of financial support provided by the EU).

76. During the review, the EU clarified that for BR2 table 5-2, the methodology used was that of the OECD Development Assistance Committee Rio markers, while for BR2 table
5-3, the multilateral development banks joint approach to tracking climate finance is used and that is the reason why the figures for mitigation and adaptation can or cannot be added.

The values included in table 5-3 are not included in table 5-2, although table 5-2 outlines the total support provided by the EU.

77. The ERT recommends that the EU improves the transparency of its reporting in its next biennial report by including the methodology used for counting the amount of financial support as provided during the review.

78. The EU does not report transparently the information on the sources of funding for financial support in BR2 table 5-2, for 2013 and 2014, and sources and financial instruments of funding for financial support in BR2 table 5-3, for 2013.

79. The EU clarified that the information reported in table 5-2 only includes official development assistance and grants. For table 5-3, as the systematic collection of data related to the provision of support by the EIB is being enhanced and was at an early stage for 2013, all support provided by the EIB in 2013 was classified as "other", both in terms of funding source and in terms of the instrument used.

80. The ERT recommends that the EU improves the transparency of its reporting in its next biennial report by including the source of funding and financial instruments for financial support, as provided during the review.

81. The EU provided information on the type of instrument used in the provision of its assistance (see para. 90 below). In addition, the EU reported information on its private financial flows from bilateral sources directed towards mitigation and adaptation activities in non-Annex I Parties. It also reported information on PaMs that promote private investment in mitigation and adaptation activities in developing country Parties (see paras. 91 and 92 below).

82. The information reported by the EU on the estimated volumes of private sector financing leveraged is not transparent: in its BR2, the EU reported a total number of grants to finance blended projects for the period 2007–2014 without further explanation.

83. During the review, the EU clarified that it has not yet systematically collected information on the instruments used to mobilize private finance nor on the amount of private finance mobilized (leveraged) by such instruments. This is the reason why the EU is only providing general information on such instruments and providing rough estimates on the amounts leveraged and on the climate relevance of the private finance mobilized.

84. The ERT encourages the EU to improve the transparency of its reporting in its next biennial report by providing information, to the extent possible, on private financial flows leveraged by bilateral climate finance towards mitigation and adaptation activities in non-Annex I Parties.

85. With regard to the most recent financial contributions aimed at enhancing the implementation of the Convention by developing countries, the EU reported that its climate finance has been allocated on the basis of the European Commission communication *Winning the Battle Against Climate Change*[11] and the agenda for change approach, which strengthened cooperation with the beneficiary countries and focused on development priorities defined for a specific country or region.

86. The EU reported on its climate-specific public financial support provided in 2013 and 2014, totalling USD 3,998.33 million in 2013 and USD 3,680.26 million in 2014. All

[11] Communication from the Commission to the Council, the European Parliament, the European Economic and Social committee and the Committee of the Regions - Winning the Battle against Global Climate Change. Available at <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A52005DC0035>.

support is reported as contributions through bilateral, regional and other channels in BR2 CTF table 7. The sum of support in these two years is USD 7,678.59 million. The ERT noted that there was an 8 per cent decrease of total support below the 2013 level in 2014. The information provided in the BR2 is for support that has been committed by the EU in 2013 and 2014, but there is no detailed information on when these commitments will be disbursed. However, the EU is working towards tracking climate-relevant disbursements in the near future. During the reporting period, the EU provided financial support to almost all the developing world, for example, through programmes such as the Global Climate Change Alliance, aimed at supporting the least developed countries and small island developing States.

87. The BR2 and CTF table 7(b) include detailed information on the total financial support provided though bilateral and regional channels in 2013 and 2014 (USD 3,998.33 and USD 3,680.26 million, respectively). It is impossible to differentiate the support between bilateral channels or regional channels, because among all the committed support, 7.3 per cent in 2013 and 10.6 per cent in 2014 of the total amount was not allocated to specific recipient countries or regions. Table 5 includes some of the information reported by the EU on its provision of financial support.

Table 5

Summary of information on provision of financial support in 2013–2014 by the European Union

(Millions of United States dollars)

	Years of disbursement	
Allocation channel of public financial support	*2013*	*2014*
Official development assistance[a]	25 175.9	18 536.6
Climate-specific contributions through bilateral, regional and other channels	3 998.3	3 680.3

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

88. The BR2 provides information on the types of support provided. In terms of the focus on public financial support, as reported in CTF table 7 for 2013, the shares of the total public financial support allocated for mitigation, adaptation and cross-cutting projects corresponding to these channels were 72, 11.3 and 16.7 per cent, respectively. In 2014, these shares were 79.2, 7.6 and 13.3 per cent, respectively.

89. The ERT noted that, in 2013, financial contributions made through bilateral, regional and other channels were allocated to: the agriculture sector for adaptation (3.3 per cent), the water and sanitation sector for adaptation (1.4 per cent), the energy sector for mitigation
(54 per cent), the forestry sector for mitigation (1.3 per cent), the transport sector for mitigation (12.1 per cent) and activities that are cross-cutting across mitigation and adaptation or in other sectors (27.9 per cent), as reported in CTF table 7(b). The corresponding figures for 2014 were: the agriculture sector for adaptation (2 per cent), the water and sanitation sector for adaptation (2 per cent), the energy sector for mitigation (55 per cent), the transport sector for mitigation (18.7 per cent) and activities that are cross-cutting across mitigation and adaptation or in other sectors (22.3 per cent). Hence, most financial contributions made through bilateral, regional and other channels are being allocated to activities in the energy sector for mitigation.

90. CTF table 7(b) includes information on the financial instrument used in the provision of assistance to developing countries, which include grants, concessional loans, non-concessional loans and others. The ERT noted that the share of the grants provided in 2013 and 2014 were approximately 32 and 24.4 per cent of the total public financial support, respectively, while the concessional loan was 11.7 per cent in 2014 and not reported in 2013. The rest of the funding was reported as "others" or "non-concessional loans".

91. In its BR2, the EU reported that blending mechanisms were used to leverage private finance. Blending combines EU grants with loans or equity from public and private financiers for climate investments. The EU also reported on how it promotes 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 EU grant contribution, for supporting climate investment projects can take different forms such as investment grants or interest rate subsidies, technical assistance, risk capital or guarantees.

92. The EU estimated the amount leveraged by grants that it issued between 2007 and 2014. With grants worth more than EUR 2 billion, the EU leveraged at least EUR 19 billion from other public financial institutions to produce an overall investment volume of more than EUR 44 billion. The EU also provided further information during the review week (see para. 83 above).

93. The ERT notes that the EU included some Parties included in Annex I to the Convention as recipient countries of its support in CTF table 7(b).

2. Technology development and transfer

94. In its BR2 and CTF table 8, the EU 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 EU described its approach to support provided for the deployment and enhancement of the endogenous capacities and technologies of non-Annex I Parties (see para. 98 below).

95. In its BR2, the EU did not provide information on success and failure stories related to technology transfer.

96. During the review, the EU provided additional information, elaborating on success and failure stories related to technology transfer. The EU explained that all technology transfer cases reported in CTF table 8 are considered success stories and this is why they have been identified and highlighted in the report; however, the EU has not performed any analysis on why such cases are success stories. The EU clarified that it has not identified failure stories, which does not mean that they do not exist.

97. The ERT encourages the EU to provide information on success and failure stories of technology transfer to developing countries in its next biennial report.

98. The ERT noted that, in its BR2, including CTF table 8, the EU reported on its PaMs in relation to technology transfer, and in particular on measures taken to promote, facilitate and finance the transfer and deployment of climate-friendly technologies. In its BR2, the EU provided information on measures taken to support the development and enhancement of the endogenous capacities and technologies of non-Annex I Parties. The EU research and innovation framework programmes are open to participation from non-EU countries, and developing countries are automatically eligible to access EU funding in these programmes, including the new Horizon 2020 programmes for 2014–2020. The EU supported the development and enhancement of the endogenous capacities and technologies of non-Annex I Parties by emphasizing the importance of the principles of national ownership,

stakeholder participation, country-driven demand, cooperation between donors and across programmes, and impact assessment and monitoring.

99. The ERT took note of the information provided in CTF table 8 on technology transfer implemented by both public and private institutions, to recipient countries such as Egypt and Morocco, and Mediterranean and African countries, in sectors such as energy, water and sanitation, health, forestry and cross-cutting.

3. Capacity-building

100. In its BR2 and CTF table 9, the EU 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.

101. The EU reported that it supported climate-related capacity development activities relating to both adaptation and mitigation activities, to recipient countries such as Kenya and the Philippines, and Latin American and Caribbean countries, in sectors such as energy, transport and industry. The EU also reported that it responded to the existing and emerging capacity-building needs of non-Annex I Parties by emphasizing the importance of the principles of national ownership, stakeholder participation, country-driven demand, cooperation between donors and across programmes, and impact assessment and monitoring.

102. The BR2 and CTF table 9 include information describing a number of individual capacity-building measures and activities carried out during the reporting period. Examples include: the Regional Project of Watershed and Coastal Management in the context of Climate Change in Latin America and Caribbean; Capacity-building for CO_2 mitigation from International Aviation in African and Caribbean Countries; and the High-End Climate Impacts and Extremes project, which aims at assisting decision makers and the research community in making adaptation more understandable and manageable and in delivering the knowledge needs of Northern Sub-Saharan Africa, South Asia and Europe.

III. Conclusions

103. The ERT conducted a technical review of the information reported in the BR2 and CTF tables of the EU 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 EU quantified economy-wide emission reduction target; assumptions, conditions and methodologies related to the attainment of the target; progress made by the EU in achieving its target; and the EU provision of support to developing country Parties.

104. According to the 2015 national inventory report, the EU total GHG emissions excluding LULUCF related to its quantified economy-wide emission reduction target were estimated to be 21.2 per cent below its 1990 level, whereas total GHG emissions including LULUCF were 23.3 per cent below its 1990 level for 2013. The emission decrease was mainly driven by: (1) fossil fuel switching measures and increased energy efficiencies in the manufacturing industries and construction, as well as the public electricity and heat production sector (CO_2); (2) reductions in managed waste disposal on land, mainly caused by the increased use of recycling and incineration of waste with energy recovery, reductions in coal mining, and a decrease in cattle production (CH_4); and (3) emission reduction measures in adipic acid production and nitric acid production, as well as decreased use of fertilizers and manure on agricultural soils (direct and indirect soil emissions) (N_2O). Further, economic factors are also important to explain the emission

trends, the main factors for decreasing emissions in new member States (economies in transition) was the decline of energy-inefficient heavy industry and the overall restructuring of the economy, from a centrally planned to a market-based economy in the late 1980s and early 1990s.

105. Under the Convention, the EU committed itself to achieving a quantified economy-wide emission reduction target of 20 per cent below the 1990 level by 2020. This target covers the following GHGs: CO_2, CH_4, N_2O, HFCs, PFCs and SF_6, 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, but the EU includes emissions from international aviation in its target. 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. In absolute terms, this means that under the Convention, the EU has to reduce emissions from 5,680,150.24 kt CO_2 eq (in 1990) to 4,544,120.19 kt CO_2 eq by 2020.

106. The EU key overarching cross-sectoral framework is the 2020 climate and energy package adopted in 2009, which includes the revised EU ETS and the ESD. This package is supplemented by a range of mitigation actions and legislations, including renewable energy and energy efficiency legislation, legislative proposals on the 2020 targets for CO_2 emissions from cars and vans, and the carbon capture and storage directive. The EU general strategies for meeting its target establish key objectives for socioeconomic development of the EU, which include climate and energy goals such as 20 per cent renewable energy of gross final energy consumption, and an increase in energy efficiency compared to 2005 by 20 per cent by 2020. While the EU has not provided quantitative estimates of the impact of the EU ETS and the ESD, these are the two main PaMs that will enable the EU to meet its quantified economy-wide emission reduction target for 2020.

107. For 2013, the EU reported in CTF table 4 total GHG emissions excluding LULUCF and NF_3 at 4,610,953.15 kt CO_2 eq or 19.8 per cent below the 1990 level. The EU did not report on its use of units from market-based mechanisms to achieve its target. The ERT noted that the EU is making progress towards its emission reduction target by implementing mitigation actions.

108. The GHG emission projections provided by the EU in its BR2 include the WEM scenario. Under this scenario, emissions are projected to be 23.8 per cent (excluding LULUCF and including international aviation) below the 1990 level by 2020. Based on this information, the EU expects to meet its 2020 target under the WEM scenario.

109. The EU continues to allocate climate financing on the basis of the European Commission communication *Winning the Battle against Climate Change* and the agenda for change approach, in order to assist developing country Parties to implement the Convention. Its public financial support in 2013 and 2014 totalled USD 3,998.33 million and USD 3,680.26 million per year, respectively. For these years, the EU support provided for mitigation actions was higher than the support provided for adaptation. The highest level of financial support went to projects in the energy sector, followed by the transport sector. The EU research and innovation framework programmes are open for participation to non-EU countries, and developing countries are automatically eligible to access EU funding in these programmes, including the new Horizon 2020 programmes for 2014–2020. The EU also supported climate-related capacity development activities relating to adaptation and mitigation activities.

110. In the course of the review, the ERT recommended that the EU improve its adherence to the UNFCCC reporting guidelines on BRs in its next biennial report by improving the transparency of its reporting, namely:[12]

(a) Reporting consistent information in the biennial report and CTF table 3, and, in cases where the estimated mitigation impacts of some PaMs are not reported in CTF table 3, provide explanations as to why such information is not reported (see para. 25 above);

(b) Completing all relevant parts of CTF table 4, in accordance with the assumptions related to the target (see para. 36 above);

(c) Including information on the multilateral financial support in CTF tables 7 and 7(a) or explaining in the footnotes to these tables why this is not possible (see para. 71 above);

(d) Clarifying that bilateral support projects that appear to be exactly the same are different (see para. 74 above);

(e) Including the methodology used for counting the amount of financial support provided (see para. 77 above);

(f) Including an indication of funding sources and financial instruments as provided during the review (see para. 80 above).

[12] The recommendations are given in full in the relevant chapters of this report.

Annex

Documents and information used during the review

A. Reference documents

"UNFCCC biennial reporting guidelines for developed country Parties". Annex I 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 II: UNFCCC reporting guidelines on national communications" FCCC/CP/1999/7. Available at <http://unfccc.int/resource/docs/cop5/06a01.pdf#page=8>.

"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/ARR/2014/EU. Report on the individual review of the annual submission of the European Union submitted in 2014. Available at <http://unfccc.int/resource/docs/2015/arr/eu.pdf>.

FCCC/IDR.6/EU. Report of the technical review of the sixth national communication of the European Union. Available at <http://unfccc.int/resource/docs/2014/idr/eu06.pdf>.

FCCC/TRR.1/EU. Report of the technical review of the first biennial report of the European Union. Available at <http://unfccc.int/resource/docs/2014/trr/eu01.pdf>.

2015 greenhouse gas inventory submission of the European Union. Available at <http://unfccc.int/files/national_reports/annex_i_ghg_inventories/national_inventories_submissions/application/zip/eua-2015-nir-part1-27nov15.zip>.

Sixth national communication and first biennial report of the European Union. Available at <http://unfccc.int/files/national_reports/annex_i_natcom_/application/pdf/eu_nc6.pdf>.

Common tabular format tables of the first biennial report of the European Union. Available at <http://unfccc.int/files/national_reports/biennial_reports_and_iar/submitted_biennial_reports/application/pdf/eua_2014_v2.0_formatted.pdf>.

Second biennial report of the European Union. Available at <http://unfccc.int/files/national_reports/biennial_reports_and_iar/submitted_biennial_reports/application/pdf/eu_second_biennial_report_under_the_unfccc_(2).pdf>.

Common tabular format tables of the second biennial report of the European Union. Available at <http://unfccc.int/files/national_reports/biennial_reports_and_iar/submitted_biennial_reports/application/pdf/eua_2016_v2.0_formatted.pdf>.

Regulation (EU) No 525/2013 of the European Parliament and of the Council of 21 May 2013 on a mechanism for monitoring and reporting greenhouse gas emissions and for reporting other information at national and Union level relevant to climate change and repealing Decision No 280/2004/EC. Available at <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32013R0525&from=EN>.

B. Additional information used during the review

Responses to questions during the review were received from Ms. Ana Maria Danila (Directorate-General for Climate Action, European Commission), including additional material and the following documents[1] provided by the European Union:

European Commission. 2015. *Annual report 2015 on the European Union's development and external assistance policies and their implementation in 2014.* Available at <https://ec.europa.eu/europeaid/annual-report-2015-european-unions-development-and-external-assistance-policies-and-their_en>.

European Commission. 2015. *Climate action in ESIF. Introduction to the series of Fact Sheets on the potential for mainstreaming of climate action and the assessment hereof.* Available at <http://ec.europa.eu/clima/publications/docs/01-climate_mainstreaming_fact_sheet-esif_introduction_en.pdf>.

European Commission. 2015. *Carbon Market Report 2015*. Available at <http://ec.europa.eu/clima/policies/strategies/progress/docs/com_2015_576_annex_1_cover_en.pdf>.

European Union Law. 2015. *Regulation (EU) 2015/757 of the European Parliament and of the Council of 29 April 2015 on the monitoring, reporting and verification of carbon dioxide emissions from maritime transport, and amending Directive 2009/16/EC (Text with EEA relevance).* Available at <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2015.123.01.0055.01.ENG>.

European Commission. 2014. *A policy framework for climate and energy in the period from 2020 to 2030.* Available at <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014DC0015&from=EN>.

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European Commission. 2015. *Renewable energy progress report.* Available at <http://eur-lex.europa.eu/resource.html?uri=cellar:4f8722ce-1347-11e5-8817-01aa75ed71a1.0001.02/DOC_1&format=PDF>.

UNFCCC. 2012. *Additional information relating to the quantified economy-wide emission reduction targets contained in document FCCC/SB/2011/INF.1/Rev.1.* Available at <http://unfccc.int/resource/docs/2012/awglca15/eng/misc01.pdf>.

P. Capros, L. Mantzos, V. Papandreou, N. Tasios. 2008. *Model-based Analysis of the 2008 EU Policy Package on Climate Change and Renewables.* Available at <http://ec.europa.eu/clima/policies/strategies/2020/docs/analysis_en.pdf>.

European Commission. 2015. *Climate action progress report, including the report on the functioning of the European carbon market and the report on the review of Directive 2009/31/EC on the geological storage of carbon dioxide.* Available at <http://ec.europa.eu/clima/policies/strategies/progress/docs/com_2015_576_en.pdf>.

European Commission. 2015. *Trends and projections in Europe 2015 — Tracking progress towards Europe's climate and energy targets.* Available at <http://www.eea.europa.eu/publications/trends-and-projections-in-europe-2015>.

[1] Reproduced as received from the Party.

AEA Group. 2009. *Quantification of the effects on greenhouse gas emissions of policies and measures.* Available at <http://ec.europa.eu/clima/policies/strategies/progress/monitoring/docs/ghgpams_report_180110_en.pdf>.

DG CLIMA. 2015. *Elements of the union system for policies and measures and projections and the quality assurance and control (QA/QC) programme as required under regulation (EU) no 525/2013.* Available at <http://ec.europa.eu/clima/policies/strategies/progress/monitoring/docs/union_pams_projections_en.pdf>.

European Topic Centre on Air Pollution and Climate Change Mitigation. 2015. *Quality assurance and quality control procedure for national and Union GHG projections.* Available at <http://acm.eionet.europa.eu/reports/docs/ETCACM_TP_2015_11_QA_PROC.pdf>.

European Topic Centre on Air Pollution and Climate Change Mitigation. 2015. *Assessment of MS' GHG projections 2015.* Available at <http://acm.eionet.europa.eu/reports/docs/ETCACM_TP_2015_10_ASS_%20GHG.pdf>.