European Commission

Fourth Biennial Report from the European Union

under the United Nations Framework Convention on Climate Change

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Climate Action

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Fourth Biennial Report from the European Union
Required under the United Nations Framework Convention on Climate Change
(Decision 2 CP.17)

And its accompanying Staff Working Document: SWD(2019)432 Fourth Biennial Report of the European Union

EXECUTIVE SUMMARY - INTRODUCTION

This report and its accompanying Staff Working Document constitute the Fourth Biennial Report of the European Union (EU), as required under Article 18(1) of Regulation (EU) No 525/2013 and Decision 2/CP.17 of the Conference of the Parties under the United Nations Framework Convention on Climate Change (UNFCCC). Both documents will be transmitted to the UNFCCC Secretariat as the EU's Fourth Biennial Report submission, responding to the EU's reporting obligation under the UNFCCC. The EU's Fourth Biennial Report includes information on greenhouse gas emissions and trends, on the progress made by the EU in achieving its quantified economy wide emission reduction target under the UNFCCC, and on policies and measures in place to meet mitigation targets and promote climate change adaptation.

INFORMATION ON GREENHOUSE GAS EMISSIONS AND TRENDS

The emissions included in this Biennial Report are those relevant to the EU 20% emissions reduction target under the UNFCCC, and the data is taken from the latest submission of the EU inventory to the UNFCCC Secretariat, reported in 2019.

Total greenhouse gas (GHG) emissions in the EU-28 decreased by 23.5 % between 1990 and 2017.

These emissions exclude Land Use, Land- Use Change and Forestry (LULUCF) as well as, international aviation and maritime transport, but include indirect CO_2 emissions.

The most important GHG by far is carbon dioxide (CO_2), which accounted for 81.3% of total EU emissions in 2017, excluding LULUCF.

The energy sector accounted for most of the EU's GHG emissions in 2017 (77.9%). In the energy sector, 28.1% of GHG emissions come from transport. The next largest contributors were agriculture (10.2%) and industrial processes and product use (8.7%).

Per capita emissions dropped by from around 12 tonnes in 1990 to 8.8 tonnes in 2017. The ratio of GHG emissions to GDP also fell considerably, thanks to a steady progress on decoupling economic activity from GHG emissions since 1990.

QUANTIFIED ECONOMY WIDE EMISSIONS REDUCTION TARGET

Under the UNFCCC, the EU and its Member States have taken a joint emission reduction target to reduce the EU's GHG emissions by 20% compared to 1990 by 2020. This target excludes the LULUCF sector but includes international aviation (outgoing flights).

The 2020 Climate and Energy Package underpins the EU's implementation of the target. Indeed, the package has introduced a clear approach to achieving the 20% reduction of total GHG emissions from 1990 levels, representing a 14% reduction compared to 2005 levels. This effort was divided between the sectors covered by the EU Emissions Trading System (EU ETS) and non-ETS sectors under the Effort Sharing Decision (ESD). Consequently, the EU 2020 Climate and Energy Package aims at a 21% reduction target compared to 2005 for emissions covered by the EU ETS, and a 10% reduction target compared to 2005 for non-ETS sectors. Whilst LULUCF is not counted towards the EU commitment or Member States targets, it does count towards the achievement of the Kyoto

Protocol target (the LULUCF Decision, NO 529/2013, translates the Kyoto Protocol accounting rules for this sector into EU law). Additionally, the package sets targets to increase the share of renewable energy in gross final energy consumption at EU level by 20%, to increase the share of renewable energy in transport at EU level by 10%, and to improve energy efficiency at EU level by 20%. Greenhouse gas emissions reduction as well as renewables targets are shared among Member States through individual national GHG targets for the period of 2013-2020.

To pursue its decarbonisation objective, the EU has established the 2030 EU Climate and Energy Framework, for the period 2021-2030. The Framework sets a target for the EU to reduce GHG emissions by at least 40% (compared to 1990 levels) by 2030. This target includes several components, all to be achieved by 2030. Firstly, emissions under the EU ETS have to be reduced by 43% (compared to 2005). Secondly, emissions under the Effort Sharing Regulation (ESR, Regulation (EU) 2018/842) have to be cut by 30% (compared to 2005). Thirdly, emissions and removals from the LULUCF sector are for the first time included in the EU climate target, through the ESR. The LULUCF Regulation (2018/841) provides specific accounting rules. Member States must maintain or enhance the carbon sinks in the LULUCF sector. Fourthly, the 2030 Climate and Energy Framework, through the revised Renewable Energy Directive (2018/2001) and the amended Energy Efficiency Directive (2018/2002) set a binding renewable energy target (at least 32% of final energy consumption) and a headline target for energy efficiency (at least 32.5% of final energy consumption) to be achieved by 2030. Additionally, it sets a binding target of renewable energy in the transport sector (at least 14% of final energy consumption in transport) by 2030. As a way to monitor the progress made by Member States, the Regulation on the Governance of the Energy Union and Climate Action (2018/1999) establishes planning, monitoring and reporting processes and rules. Accordingly, Member States are required to adopt integrated National Climate and Energy Plans (NECPs) for the period of 2021-2030, and every subsequent ten-year period thereafter. In June 2019, the Commission assessed drafts of these plans, and Member States are required to submit the final versions by the end of 2019.
The European Commission's Long Term Strategic Vision on GHG Emissions Reduction, Communication "A Clean Planet for All", published in late 2018, shows pathways and calls for a climate-neutral European Union by 2050.

PROGRESS IN ACHIEVING THE ECONOMY WIDE EMISSIONS REDUCTION TARGETS – EU POLICIES AND MEASURES AND THEIR EFFECTS

Policies and measures are developed at both the Union and national levels. At the EU level, they stem from legislative proposals from the Commission, which are subsequently approved or amended by the European Parliament and the Council of the EU. These Union laws are applicable to all Member States, but some of them, referred to as Directives, only set objectives and minimum standards that may then be implemented in different ways by Member States. National policies translate the relevant pieces of legislation into practice. Additionally, EU Member States can adopt national climate policies and measures on top of those required under EU legislation.

The reporting in this Biennial Report focuses on EU policies. The national policies are outside its scope. Information on national policies and measures is found in the individual Biennial Reports of EU Member States.

This report focuses in particular on updates or changes to the policies and measures at the EU level, and does not attempt to include a comprehensive background to each policy. If more background is required, links are provided, and additionally, the reader can refer to the EU's Third Biennial Report.

This Fourth Biennial Report presents the key cross-cutting policies and measures to achieve the Union level target; namely the EU Emissions Trading System and the Effort Sharing Decision and Regulation. The Biennial Report also explains key cross-cutting initiatives, such as the Covenant of Mayors, and funding mechanisms, such as Horizon 2020 and the European Structural and Investment Funds.

In addition to cross-cutting policies, a wide range of sectoral policies and measures in the energy, transport, industry, agriculture, land use, land-use change and forestry, and waste sectors are summarised.

PROGRESS IN ACHIEVING THE ECONOMY WIDE EMISSIONS REDUCTION TARGETS - PROJECTIONS

Projections

According to the latest projections with existing measures, as aggregates on basis of the data submitted by Member States in 2019 to the EU, total EU-28 GHG emissions are projected to be 25% lower in 2020 than in 1990 (excluding LULUCF). The EU remains therefore well on track to achieve its target under the UNFCCC by 2020.

In so far as 2030 is concerned, Member States are planning how to achieve their 2030 effort sharing targets through the preparation of their NECPs. With implementation of the planned measures or stated ambitions in the draft NECPs, the overall GHG reduction of the EU is estimated to reach the at least 40% reduction target. The effective implementation of all climate, energy and mobility targets laid down in Union law could even lead to EU-28 greenhouse gas reductions up to around 45% in 2030 compared to 1990.

Emissions from the energy sector, excluding transport, represent the largest share of total GHG emissions and of the projected total emission reductions. Emissions from this sector are projected to decrease by 36% in 2020 compared to 1990 and by 42% up to 2030.

The transport sector is the only sector whose emissions are projected to increase, by 19% between 1990 and 2020, and by 14% between 1990 and 2030. After 2007, a slow but steady decline in transport emissions is visible until 2013. This is due to a combination of higher fuel prices and more stringent policies, such as CO2 standards for cars and vans.

Emissions from international aviation are projected to continue to increase, reaching 125% above 1990 levels by 2020, and 152% above 1990 levels by 2030. Emissions from international shipping are projected to increase as well, however far less steeply than for international aviation. In 2020, emission levels from international shipping are projected to reach 43% above 1990 levels, and 54% above 1990 levels in 2030.

In the industry sector, GHG emissions are projected to decrease by 29% in 2020 compared to 1990, and by 37% up to 2030.

In the agricultural sector, GHG emissions are projected to slowly decrease by 21% in 2020 compared to 1990, and by 22% up to 2030.

In the waste sector, GHG emissions are projected to steadily decrease, by 48% in 2020 compared to 1990, and by 56% in 2030.

The GHG with the highest contribution to current GHG emissions in the EU-28 is CO_2 with around 82% of total emissions in 2020 under the "with existing measures" (WEM) scenario. Compared to 1990 levels, CO_2 emissions are projected to decline by approximately 22% in 2020, and by approximately 27% by 2030.

PROVISION OF FINANCIAL, TECHNOLOGICAL AND CAPACITY BUILDING SUPPORT TO DEVELOPING COUNTRY PARTIES

Climate finance plays a key role as means to promoting reaching the goal of limiting the global average temperature increase to below 2°C above pre-industrial levels, supporting transformational changes towards lower GHG-emissions economies as well as supporting climate resilient sustainable development.

Collectively, the EU, its Member States and the European Investment Bank (EIB) are the largest providers of public climate finance globally to developing countries, accounting for €21.7 billion in 2018, including €2.65 billion from the European Commission and €2.97 billion from the EIB. This collective commitment has kept increasing over the past five years.

The development and deployment of new technologies has an essential role to play in promoting meeting global climate change objectives, as well as contributing to new jobs and sustainable economic growth. The EU is a lead player in the area of low-carbon technologies, yet while emissions are falling in Europe, they are rising in most parts of the rest of the world. Therefore, the EU has mainstreamed technology transfer activities into many development cooperation activities. Yet, the successful transfer of climate technologies to developing countries requires support to increase local climate governance and institutional and administrative capacities. The EU works closely with governments to reinforce administrative capacities.

Contents

1. INTRODUCTION

This report constitutes the Fourth Biennial Report of the European Union (EU), as required under Article 18(1) of Regulation (EU) No 525/2013 and Decision 2/CP.17 of the Conference of the Parties under the United Nations Framework Convention on Climate Change (UNFCCC). The EU's Fourth Biennial Report includes information on greenhouse gas emissions and trends, on the progress made by the EU in achieving its quantified economy wide emission reduction target under the UNFCCC, and on policies and measures in place to meet mitigation targets and promote climate change adaptation.

Greenhouse gas emissions and trends

The emissions included in this Biennial Report are those relevant to the EU 20% emissions reduction target under the UNFCCC, and the data is taken from the latest submission of the EU inventory to the UNFCCC Secretariat, reported in 2019.

Total greenhouse gas (GHG) emissions in the EU-28 decreased by 23.5 % between 1990 and 2017 (-1,328.9 million tonnes CO_2 equivalent). These emissions exclude land use, land use change and forestry (LULUCF) as well as international aviation[1] and maritime transport, but include indirect CO_2 emissions.

The most important GHG by far is carbon dioxide (CO_2), which accounted for 81.3% of total EU emissions in 2017, excluding LULUCF.

The energy sector accounted for most of the EU's GHG emissions in 2017 (77.9%). In the energy sector, 28.1% of the GHG emissions come from transport. The next largest contributors were agriculture (10.2%) and industrial processes and product use (8.7%).

Per capita emissions dropped by from around 12 tonnes in 1990 to 8.8 tonnes in 2017. The ratio of GHG emissions to GDP also fell considerably, thanks to a steady progress on decoupling economic activity from GHG emissions since 1990.

Quantified economy-wide emission reduction target (QEWERT)

Under the UNFCCC, the EU and its Member States have taken a joint emission reduction target to reduce the EU's GHG emissions by 20% compared to 1990 by 2020. This target excludes the LULUCF sector but includes international aviation (outgoing flights).

The 2020 Climate and Energy Package underpins the EU's implementation of the target. Indeed, the package has introduced a clear approach to achieving the 20% reduction of total

1 Total aviation emissions are divided in domestic and international. Domestic is within a country (not within EU28) and international is everything else. Domestic aviation emissions fall to the Parties of the United Nations Framework Convention on Climate Change (UNFCCC) for inclusion in national inventories and are subject to national goals. Therefore, the domestic aviation emissions are reported under this report to the UNFCCC. International aviation emissions fall under Article 2.2 of the Kyoto Protocol, which passed the responsibility to ICAO. These aviation emissions are sometimes called international aviation bunker emissions. These emissions are not part of the UNFCCC, despite the UNFCCC quantified economy-wide emission reduction targets (QEWERT) by developed country Parties to the Convention. They are included in this report only for comparison purposes.

GHG emissions from 1990 levels, representing a 14% reduction compared to 2005 levels. This effort was divided between the sectors covered by the EU Emissions Trading System (EU ETS) and non-ETS sectors under the Effort Sharing Decision (ESD). Consequently, the EU 2020 Climate and Energy Package aims at a 21% reduction target compared to 2005 for emissions covered by the EU ETS, and a 10% reduction target compared to 2005 for non-ETS sectors. Whilst LULUCF is not counted towards the EU commitment or Member States' targets, it does count towards the achievement of the Kyoto Protocol target. The LULUCF Decision 529/2013 translates the Kyoto Protocol accounting rules for this sector into EU law. Additionally, the package sets targets to increase the share of renewable energy in gross final energy consumption at EU level to 20%, to increase the share of renewable energy in transport at EU level to 10%, and to improve energy efficiency at EU level by 20%. Greenhouse gas emissions reduction as well as renewables targets are shared among Member States through individual national targets for the period of 2013-2020.

To pursue its decarbonisation objective, the EU has established the 2030 EU Climate and Energy Framework for the period 2021-2030[2]. The Framework sets a target for the EU to reduce GHG emissions by at least 40% (compared to 1990 levels) by 2030[3]. This target includes several components, all to be achieved by 2030. Firstly, emissions under the EU ETS have to be reduced by 43% (compared to 2005). Secondly, emissions under the Effort Sharing Regulation (ESR, Regulation (EU) 2018/842) have to be cut by 30% (compared to 2005). Thirdly, emissions and removals from the LULUCF sector are for the first time included in the EU climate target, through the ESR. The LULUCF Regulation (2018/841)[4] provides specific accounting rules. Member States must maintain or enhance the carbon sink in the LULUCF sector[5]. Fourthly, the 2030 Climate and Energy Framework, through the revised Renewable Energy Directive (2018/2001)[6] and the amended Energy Efficiency Directive (2018/2002)[7], sets a binding renewable energy target (at least 32% of final energy consumption) and a headline target for energy efficiency (at least 32.5% of final energy consumption) to be achieved by 2030. Additionally, it sets a binding target of renewable energy in the transport sector (at least 14% of final energy consumption in transport) by 2030. As a way to monitor the progress made by Member States, the Regulation on the Governance of the Energy Union and Climate Action (2018/1999)[8] establishes planning, monitoring and

2 Communication From The Commission To The European Parliament, The Council, The European Economic And Social Committee And The Committee Of The Regions. A policy framework for climate and energy in the period from 2020 to 2030. /* COM/2014/015 final */. 2014. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52014DC0015

3 European Council 23/24.10.2014 EUCO 169/14 : https://www.consilium.europa.eu/en/meetings/european-council/2014/10/23-24/

4 REGULATION (EU) 2018/841 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 30 May 2018 on the inclusion of greenhouse gas emissions and removals from land use, land use change and forestry in the 2030 climate and energy framework, and amending Regulation (EU) No 525/2013 and Decision No 529/2013/EU

5 Both the EU target and the Kyoto Protocol target are set at -20%, but only the latter includes LULUCF. Consequently, for both targets to be met (every other sector being equal), an implicit requirement is that the LULUCF sector should not produce debits under the Kyoto Protocol accounting rules.

6 DIRECTIVE (EU) 2018/2001 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 11 December 2018 on the promotion of the use of energy from renewable sources

7 DIRECTIVE (EU) 2018/2002 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 11 December 2018 amending Directive 2012/27/EU on energy efficiency

8 REGULATION (EU) 2018/1999 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 11 December 2018 on the Governance of the Energy Union and Climate Action, amending Regulations (EC) No 663/2009 and (EC) No 715/2009 of the European Parliament and of the Council, Directives 94/22/EC, 98/70/EC,

reporting processes and rules. Accordingly, Member States are required to adopt integrated National Energy and Climate Plans (NECPs) for the period of 2021-2030, and every subsequent ten-year period thereafter. In June 2019, the Commission assessed drafts of these plans, and Member States are required to submit the final versions by the end of 2019.

The European Commission's Long Term Strategic Vision on GHG Emissions Reduction, Communication "A Clean Planet for All"[9] published in late 2018, shows pathways and calls for a climate-neutral European Union by 2050.

Progress in achieving the economy-wide emissions reduction targets – EU policies and measures and their effects

Policies and measures are developed at both the Union and national levels. At the EU level, they stem from legislative proposals from the Commission, which are subsequently approved or amended by the European Parliament and the Council of the EU. These Union laws are applicable to all Member States, but some of them, referred to as Directives, only set objectives and minimum standards that may then be implemented in different ways by Member States. National policies translate the relevant pieces of legislation into practice. Additionally, EU Member States can adopt national climate policies and measures on top of those required under EU legislation.

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In addition to cross-cutting policies, a wide range of sectoral policies and measures in the energy, transport, industry, agriculture, land use, land-use change and forestry, and waste sectors are summarised.

2009/31/EC, 2009/73/EC, 2010/31/EU, 2012/27/EU and 2013/30/EU of the European Parliament and of the Council, Council Directives 2009/119/EC and (EU) 2015/652 and repealing Regulation (EU) No 525/2013 of the European Parliament and of the Council

9 Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee, the Committee of the Regions and the European Investment Bank, COM(2018) 773 final, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52018DC0773&from=EN

Progress in achieving the economy-wide emissions reduction targets – projections

According to the latest projections with existing measures, as aggregates on basis of the data submitted by Member States in 2019 to the EU, total EU-28 GHG emissions are projected to be 25% lower in 2020 than in 1990 (excluding LULUCF, including international aviation). The EU remains therefore well on track to achieve its target under the UNFCCC by 2020.

In so far as 2030 is concerned, Member States are planning how to achieve their 2030 effort sharing targets through the preparation of their NECPs. With implementation of the planned measures or stated ambitions in the draft NECPs, the overall GHG reduction of the EU is estimated to reach the at least 40% reduction target. The effective implementation of all climate, energy and mobility targets laid down in Union law could even lead to EU-28 greenhouse gas reductions up to around 45% in 2030 compared to 1990.

Emissions from the energy sector, excluding transport, represent the largest share of total GHG emissions and of the projected total emission reductions. Emissions from this sector are projected to decrease by 36% in 2020 compared to 1990 and by 42% up to 2030.

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The GHG with the highest contribution to current GHG emissions in the EU-28 is CO_2 with around 82% of total emissions in 2020 under the "with existing measures" (WEM) scenario. Compared to 1990 levels, CO_2 emissions are projected to decline by approximately 22% in 2020, and by approximately 27% by 2030.

Provision of financial, technological and capacity building support to developing countries

Climate finance plays a key role as means to promoting reaching the goal of limiting the global average temperature increase to below 2°C above pre-industrial levels, supporting

transformational changes towards lower GHG-emissions economies as well as supporting climate resilient sustainable development.

Collectively, the EU, its Member States and the European Investment Bank (EIB) are the largest providers of public climate finance globally to developing countries, accounting for €21.7 billion in 2018, including €2.65 billion from the EU and €2.97 billion from the EIB[10]. This collective commitment has kept increasing over the past five years, from €9.5 billion in 2013[11] to €14.5 billion in 2014[12], and from €17.6 billion in 2015[13] to €20.2 billion in 2016[14]. In 2018, EU and EIB climate finance reached €5.6 billion, which is an 87% increase from €3 billion in 2013. The inclusion of a dedicated chapter in this report on "Making finance flows consistent with a pathway towards low GHG emissions and climate resilient development" for the first time outlines the EU's and EIB's actions to date following the Paris Agreement.

The development and deployment of new technologies has an essential role to play in promoting meeting global climate change objectives, as well as contributing to new jobs and sustainable economic growth. The EU is a lead player in the area of low-carbon technologies, yet while emissions are falling in Europe, they are rising in most parts of the rest of the world. Therefore, the EU has mainstreamed technology transfer activities into many development cooperation activities. Yet, the successful transfer of climate technologies to developing countries requires support to increase local climate governance and institutional and administrative capacities. The EU works closely with governments to reinforce administrative capacities.

10 https://ec.europa.eu/clima/policies/international/finance_en

11 https://actalliance.eu/wp-content/uploads/2018/04/Analysis-of-the-climate-finance-reporting-of-the-EU.pdf

12 https://ec.europa.eu/economy_finance/articles/international/2015-10-09_climate_finance_en.htm

13 https://ec.europa.eu/clima/policies/international/finance_en

14 https://www.consilium.europa.eu/en/press/press-releases/2017/10/17/climate-finance-eu/

2. INFORMATION ON GREENHOUSE GAS EMISSIONS AND TRENDS

This Section summarises information on the EU's historical greenhouse gas (GHG) emissions since 1990.

The GHG emission data presented in this Biennial Report (referred to here for simplicity as the Report or 4BR) is consistent with the GHG emissions reported by the EU to the UNFCCC Secretariat[15] in 2019, and correspond to the totals in the CRF tables under the UNFCCC[16].

2.1. Geographical coverage

The European Union submits an inventory for EU-28 under the UNFCCC; a detailed overview of the geographical coverage is presented in Table 1.18 of the EU's national inventory report, as submitted to the UNFCCC Secretariat in 2019 (EU NIR 2019). This Report presents greenhouse gas emission trends for the EU only and excludes Iceland, unless explicitly mentioned. There have been no changes in geographical coverage compared to the EU's Third Biennial Report (3BR).

The time series considered is 1990 to 2017.

2.2. Sectoral scope

The sectoral scope of the emissions in this Report is aligned with the reporting requirements under the Convention[17], unless stated.

Indirect emissions of CO_2 are included in all the emission data quoted in this Report.

International aviation emissions are not included in the totals, unless otherwise indicated.

2.3. Summary information on GHG emission trends

The emission data presented here is based on the EU's national greenhouse gas inventory covering the period 1990 to 2017, submitted to the UNFCCC on 27 May 2019[18]. The inventory is in line with the UNFCCC reporting guidelines on annual inventories for Parties included in Annex I to the Convention (Decision 24/CP.19) and with Regulation (EU) No 525/2013.

2.3.1. *Trends in total GHG emissions*

EU GHG emissions are the sum of Member States' (MS) emissions. This means that trends in EU GHG emissions fully reflect emission trends at MS level. Most EU MS reduced GHG

15 https://unfccc.int/process/transparency-and-reporting/reporting-and-review-under-the-convention/greenhouse-gas-inventories/submissions-of-annual-greenhouse-gas-inventories-for-2017

16 https://unfccc.int/sites/default/files/resource/eua-2019-crf-27%20May19.zip

17 UNFCCC, 2013 http://unfccc.int/resource/docs/2013/cop19/eng/10a03.pdf#page=2

18 https://unfccc.int/process-and-meetings/transparency-and-reporting/reporting-and-review-under-the-convention/greenhouse-gas-inventories-annex-i-parties/national-inventory-submissions-2019

emissions between 1990 and 2017 (see Table 2-1**)** and consequently, total GHG emissions in the EU-28, excluding land use, land- use change and forestry (LULUCF) but including indirect CO_2, decreased by 23.5% between 1990 and 2017 (1,328.9 million tonnes CO_2 equivalent).

For comparability with the EU 2020 target, emissions from international aviation, i.e. outgoing flights, would be included in the totals. When these emissions are included, the decrease is 1,239.8 million tonnes CO_2 equivalent or -21.7% in 2017 compared to 1990.

Emissions per capita in the EU-28 dropped by 28.6% for the same period, from 11.8 t/capita, to 8.4 t/capita. Emissions in the EU-28 have been decreasing while the economy has grown; the decoupling of economic growth from GHG emissions has been progressing steadily since 1990.

Table 2-1 EU-28 GHG emissions in CO_2 equivalent (without LULUCF)

Member State[19]	Emissions (million tonnes)			% of total emissions	Change (%)	
	1990	2017	2016 to 2017	2017	2016 to 2017	1990 to 2017
Belgium	146.6	114.5	-1.2	2.6%	-1.1%	-21.9%
Bulgaria	101.8	61.4	2.3	1.4%	3.9%	-39.7%
Czechia	199.2	129.4	-1.1	3.0%	-0.9%	-35.1%
Denmark	70.3	47.9	-2.3	1.1%	-4.5%	-31.9%
Germany	1,251.0	906.6	-4.4	21.0%	-0.5%	-27.5%
Estonia	40.4	20.9	1.2	0.5%	6.2%	-48.4%
Ireland	55.4	60.7	-0.5	1.4%	-0.9%	9.6%
Greece	103.1	95.4	3.7	2.2%	4.1%	-7.4%
Spain	288.5	340.2	13.8	7.9%	4.2%	17.9%
France	548.1	464.6	3.9	10.7%	0.9%	-15.2%
Croatia	31.9	25.0	0.6	0.6%	2.6%	-21.5%
Italy	517.7	427.7	-4.4	9.9%	-1.0%	-17.4%
Cyprus	5.7	8.9	0.2	0.2%	2.3%	57.8%
Latvia	26.3	11.3	0.0	0.3%	0.3%	-56.9%
Lithuania	48.2	20.4	0.2	0.5%	1.1%	-57.7%
Luxembourg	12.8	10.2	0.2	0.2%	1.8%	-19.8%
Hungary	93.7	63.8	2.6	1.5%	4.3%	-31.9%
Malta	2.1	2.2	0.3	0.0%	13.5%	2.3%
The Netherlands	221.7	193.7	-2.1	4.5%	-1.1%	-12.6%
Austria	78.7	82.3	2.7	1.9%	3.3%	4.6%

19 Member States are listed in Protocol Order, as outlined: https://ec.europa.eu/eurostat/statistics-explained/index.php/Tutorial:Country_codes_and_protocol_order#Codes.2C_names_and_protocol_order_of_European_Union_.28EU.29_Member_States

Member State[19]	Emissions (million tonnes)			% of total emissions	Change (%)	
	1990	2017	2016 to 2017	2017	2016 to 2017	1990 to 2017
Poland	474.4	413.8	14.7	9.6%	3.7%	-12.8%
Portugal	59.2	70.7	4.6	1.6%	7.0%	19.5%
Romania	248.1	113.8	-0.5	2.6%	-0.4%	-54.1%
Slovenia	18.6	17.5	-0.2	0.4%	-1.3%	-6.4%
Slovakia	73.4	43.3	1.2	1.0%	2.8%	-41.0%
Finland	71.3	55.4	-2.7	1.3%	-4.7%	-22.3%
Sweden	71.3	52.7	-0.3	1.2%	-0.5%	-26.1%
The United Kingdom	794.4	470.5	-12.8	10.9%	-2.6%	-40.8%
EU-28	5,653.7	4,324.9	19.8	100%	0.5%	-23.5%
EU-28 International bunkers: Aviation	69.1	158.3	10.3	-	6.9%	128.9%
EU-28 International bunkers: Navigation	110.7	145.8	0.6	-	0.4%	31.7%

Source: EEA

The two largest emitters, Germany and the United Kingdom, dominate the overall EU GHG emission trend. Together, these two Member States accounted for approximately one third of total EU-28 GHG emissions in 2017. Since 1990 and up to 2017, Germany and the United Kingdom have achieved total domestic GHG emission reductions of 668.2 million tonnes of CO_2 equivalent compared to 1990 (not counting carbon sinks).

The considerable reduction in GHG emissions in Germany since 1990 is both due to efficiency improvements in power plants and heating plants and to the economic restructuring of the five new Länder after the German reunification. The reduction in GHG emissions in the United Kingdom was primarily the result of liberalising energy markets, and the subsequent fuel switching from oil and coal to gas in electricity production, N_2O emission reduction measures taken in the production of adipic acid, and emissions limitations within the waste sector.

France and Italy were the third and fourth largest emitters in 2017, with a share in the EU total of 10.7% and 9.9% respectively. Italy's GHG emissions were -17.4% below 1990 levels in 2017. They increased in the years following 1990, primarily due to increases in transport, electricity and heat production, and petroleum refining. However, Italian emissions decreased after 2004 with significant drops in 2009, 2012 and 2013, which were mainly due to the economic crisis and reductions in industrial output during these years. In France, large reductions were achieved in N_2O emissions from adipic acid production, but CO_2 emissions from transport and hydrofluorocarbons (HFC) emissions from consumption of halocarbons increased considerably between 1990 and 2017.

Poland and Spain are the fifth and sixth largest emitters in the EU-28, accounting for 9.6% and 7.9%, respectively, of total EU-28 GHG emissions in 2017. Spain increased emissions by 17.9% between 1990 and 2017. This was largely due to emission increases from transport, electricity and heat production, and households and services. Poland decreased GHG emissions by 12.8% between 1990 and 2017. The main factors for decreasing emissions in Poland – as with other newer EU Member States – was the decline of energy-inefficient heavy industry and the overall restructuring of the economy in the late 1980s and early 1990s. The notable exception was transport, where emissions increased strongly.

2.3.2. *Trends in emission by GHG in the EU-28*

Table 2-2 gives an overview of the main trends in EU-28 GHG emissions and removals for 1990 to 2017. Note that in some cases emissions and removals from the LULUCF sector are included in the totals, and the GHG emissions are presented as masses and not in terms of CO_2 equivalent.

The most important GHG by far is CO_2, accounting for 81.3% of total EU-28 emissions in 2017, excluding LULUCF (see Figure 2-1). In 2017, EU-28 CO_2 emissions without LULUCF (and including indirect CO_2) were 3,515.5 million tonnes, which was 21.3% below 1990 levels.

Table 2-2 Overview of EU-28 GHG emissions and removals from 1990 to 2017 in CO_2 equivalent

GHG or category	GHG emissions (million tonnes)							
	1990	1995	2000	2005	2010	2015	2016	2017
CO_2 emissions (without LULUCF)	4,469	4,216	4,181	4,307	3,941	3,515	3,498	3,515
Net CO_2 emissions/removals (including LULUCF)	4,197	3,922	3,856	3,972	3,601	3,195	3,185	3,231
CH_4 emissions without CH_4 from LULUCF	727	666	605	546	490	459	454	453
CH_4 emissions with CH_4 from LULUCF	735	675	613	552	496	464	460	461
N_2O emissions without N_2O from LULUCF	381	344	303	283	237	234	233	238
N_2O emissions with N_2O from LULUCF	400	359	322	302	256	249	254	256
HFCs	29	44	55	77	104	109	107	105
PFCs	26	17	12	7	4	3	4	3
Unspecified mix of HFCs and PFCs	6	6	3	1	1	1	1	2
SF_6	11	15	11	8	6	6	6	7
NF_3	0	0	0	0	0	0	0	0
Indirect CO_2 emissions	4	4	3	2	2	2	2	2

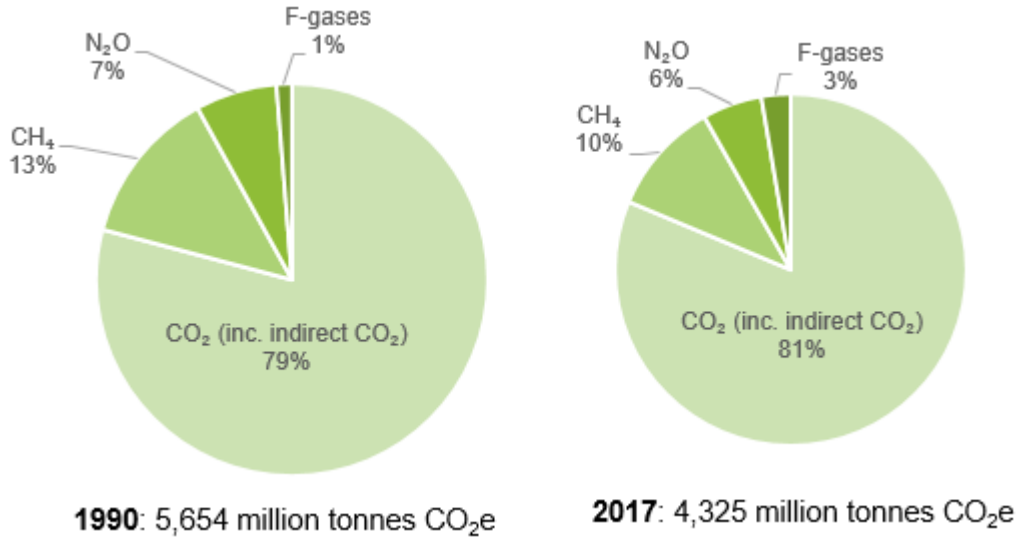
Total (without LULUCF with indirect)	5,654	5,312	5,172	5,231	4,786	4,329	4,305	4,325
International bunkers: Aviation	69	86	115	131	132	141	148	158
International bunkers: Marine	111	111	136	162	161	138	145	146

Notes

Indirect CO_2 The CO_2 resulting from the atmospheric oxidation of CH_4, CO and NMVOC is referred to as indirect CO_2. Indirect CO_2 resulting from the oxidation of CH_4, CO and NMVOCs produced by fossil fuel combustion are included in the general methodological approach for the EU GHG inventory which assumes that all the carbon in the fuel (minus the portion that remains as soot or ash) is oxidized to CO_2 whereas actually a fraction of this carbon is initially emitted as CH_4, CO or NMVOC.
For further details, see Section 9 of the EU 2019 NIR "*Indirect CO_2 and nitrous oxide emissions*".

Source: EEA

Figure 2-1 Percentage of total 1990 and 2017 emissions by gas (as CO_2 equivalent), excluding LULUCF



Source: EEA

2.3.3. *Trends in GHG emissions from main source and sink categories in the EU-28*

Table 2-3 gives an overview of EU-28 GHG emissions in the main source categories for 1990 to 2017. The most important sector by far is energy (which includes emissions from combustion and fugitive sources), accounting for 77.9% of total EU-28 emissions in 2017, excluding LULUCF. In the energy sector, 28.1% of the GHG emissions come from transport. The next largest contributors were agriculture (10.2%) and industrial processes and product use (8.7%).

Table 2-3 Overview of EU-28 GHG emissions in the main source and sink categories from 1990 to 2017 in CO_2 equivalent

GHG sector (1 to 6), or category (aviation/marine)		GHG emissions (million tonnes)							
		1990	1995	2000	2005	2010	2015	2016	2017
1	Emissions	4,349	4,090	4,021	4,123	3,798	3,374	3,355	3,368
Energy	% total	76.9%	77.0%	77.7%	78.8%	79.4%	77.9%	77.9%	77.9%

GHG sector (1 to 6), or category		GHG emissions (million tonnes)							
	emissions								
2	Emissions	517	498	456	466	394	377	374	377
Industrial processes and product use	% total emissions	9.1%	9.4%	8.8%	8.9%	8.2%	8.7%	8.7%	8.7%
3	Emissions	543	473	461	438	423	434	435	439
Agriculture	% total emissions	9.6%	8.9%	8.9%	8.4%	8.8%	10.0%	10.1%	10.2%
4	Net emissions	- 245	- 270	- 297	- 308	- 315	- 299	- 286	- 258
Land use, land use change and forestry									
5	Emissions	240	247	231	202	168	143	140	139
Waste	% total emissions	4.3%	4.7%	4.5%	3.9%	3.5%	3.3%	3.3%	3.2%
6	Emissions								
Other	% total emissions								
Indirect CO_2 emissions	Emissions	4.2	3.5	2.9	2.5	2.2	1.8	1.7	1.7
	% total emissions	0.07%	0.07%	0.06%	0.05%	0.05%	0.04%	0.04%	0.04%
Total (with net CO_2 emissions/removals)		5,409	5,042	4,875	4,923	4,471	4,030	4,019	4,067
Total (without LULUCF)		5,654	5,312	5,172	5,231	4,786	4,329	4,305	4,325
International bunkers: Aviation		69	86	115	131	132	141	148	158
International bunkers: Marine		111	111	136	162	161	138	145	146

Notes

"% total emissions": Total emissions without LULUCF, and with indirect CO_2

"Total (with net CO_2 emissions/removals)": Total includes LULUCF emissions and removals, and, indirect CO_2 emissions

Source: EEA

Table 2-4 shows the sources with the largest contribution to the change in total GHG emissions in the EU-28 between 1990 and 2017.

Table 2-4 Overview of EU-28 source categories whose emissions have increased or decreased by more than 20 million tonnes CO_2 equivalent in the period 1990 to 2017

Source category	Million tonnes (CO_2 equivalent)
Road transportation (CO_2 from 1.A.3.b)	169
Refrigeration and air conditioning (HFCs from 2.F.1)	93
International aviation (CO_2 from 1.D.1.a)	88
International navigation (CO_2 from 1.D.1.b)	35
Aluminium production (PFCs from 2.C.3)	-20

Source category	Million tonnes (CO_2 equivalent)
Agricultural soils: direct N2O emissions from managed soils (N_2O from 3.D.1)	-22
Cement production (CO_2 from 2.A.1)	-26
Fluorochemical production (HFCs from 2.B.9)	-29
Fugitive emissions from natural gas (CH_4 from 1.B.2.b)	-37
Commercial/institutional (CO_2 from 1.A.4.a)	-38
Enteric fermentation: Cattle (CH_4 from 3.A.1)	-43
Nitric Acid production (N_2O from 2.B.2)	-46
Adipic Acid production (N_2O from 2.B.3)	-56
Manufacture of solid fuels and other energy industries (CO_2 from 1.A.1.c)	-60
Coal mining and handling (CH_4 from 1.B.1.a)	-66
Managed waste disposal sites (CH_4 from 5.A.1)	-73
Residential: fuels (CO_2 from 1.A.4.b)	-115
Iron and steel production (CO_2 from 1.A.2.a +2.C.1)	-116
Manufacturing industries (excl. iron and steel) energy-related CO_2 from 1.A.2 excl. 1.A.2.a)	-253
Public electricity and heat production (CO_2 from 1.A.1.a)	-433
Total	**-1,327**

Notes

As the Table only presents sectors whose emissions have increased or decreased by at least 20 million tonnes CO_2 equivalent, the sum for each sector grouping does not match the total change listed at the bottom of the table.

Source: EEA

2.3.4. *Change in emissions from key categories*

Key categories are defined as the sources or removals of emissions that have a significant influence on the inventory as a whole, in terms of the absolute level of the emissions, the trend, or both. Key categories are normally presented by fuel (or other activity), category and gas.

The sections below present information about key categories, grouped according to GHG.

The key categories below are taken from the key category analysis presented in the 2019 GHG inventory, excluding LULUCF. The percentages are expressed as a percentage of the total EU GHG emissions, excluding LULUCF, but including indirect CO_2. In a couple of cases, a higher level of category aggregation has been used to present the data, for example, 1.B.1 rather than 1.B.1.a.

Figures are provided in each section to illustrate the changes in emissions for key categories. The presentation of the key categories in the figures has been simplified to show the emissions according to GHG from the whole category, but not the emissions from a specific fuel associated with the key category.

2.3.4.1. Carbon dioxide

CO_2 emissions accounted for approximately 81.3% of total EU-28 GHG emissions in 2017 and decreased by approximately -21.3% since 1990.The largest key category in the EU-28, for CO_2 emissions, is 'electricity and heat production', accounting for 28.3% of total greenhouse gas emissions in 2017[20] and for 84.5% of greenhouse gas emissions of the 'energy industries' sector. Figure 2-2, below, shows this category has the largest decrease in emissions between 1990 and 2017. Fuel used in the category decreased by 13.9%[21] in the EU-28 between 1990 and 2017; however, CO_2 emissions from 'public electricity and heat production' declined faster than the change in fuel consumption. Between 1990 and 2017, CO_2 emissions from electricity and heat production decreased by 30.3% in the EU-28. The main factors at EU-28 responsible for the decrease have been improvements in energy efficiency and fossil fuel switching from coal to gas.

The second largest key category, for CO_2 emissions, is 'road transportation' accounting for 20.5% of total GHG emissions in 2017 (excluding bunker emissions). By 2017, CO_2 emissions from the category were 23.6% higher than their 1990 levels in the EU-28 due to an increase in fossil fuel consumption in particular until 2007 (see Figure 2-2). The overall net increase was fully accounted for by a strong uptake of diesel and a decline in gasoline use. Energy efficiency improvements and to a lesser extent increased use of less carbon intensive fuels, such as liquefied petroleum gas (LPG), natural gas, and biofuel blends, have led to levels of road transport emissions that would have been otherwise higher.

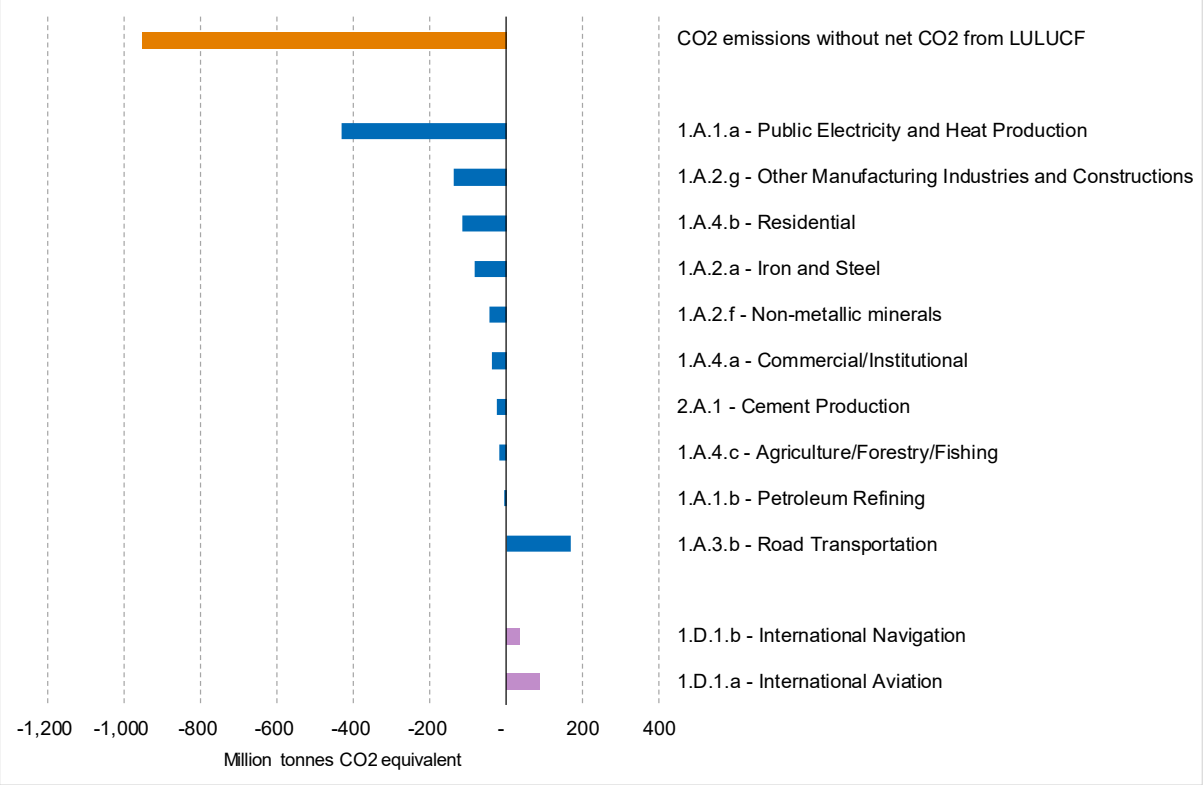
The third largest key category for CO_2 emissions is 'residential', accounting for 9.0% of total GHG emissions in 2017. Between 1990 and 2017, CO_2 emissions from the category decreased by 22.9% in the EU-28. The consumption of gas and liquid fuels has fallen in this sector in part due to energy efficiency measures outweighing the increase in energy demand as the number of dwellings increased.

The fourth largest key category for CO_2 emissions is 'manufacturing industries and construction', accounting for 3.8% of total GHG emissions in 2017. Between 1990 and 2017, CO_2 emissions from the category decreased by 45.5% in the EU-28. Decreased emissions are due to a shift from solid and liquid fuels to mainly natural gas, and an increase of biomass and other fuels.

20 All % of total greenhouse emissions are compared to total greenhouse gas emissions of the EU-28, excluding LULUCF and including indirect CO2, unless stated

21 Source: EU 2019 NIR – includes small contribution from Iceland

Figure 2-2 Change of CO_2 emissions by large key categories 1990 to 2017 in CO_2 equivalent for EU-28



Notes

International aviation and navigation are not included in national totals; they are displayed here for illustrative purposes.
Source: EEA

2.3.4.2. Methane

Methane emissions accounted for 10.5% of total EU-28 GHG emissions in 2017 and decreased by 37.7% since 1990, to 453.4 million tonnes CO_2 equivalent in 2017 (see Figure 2-3).

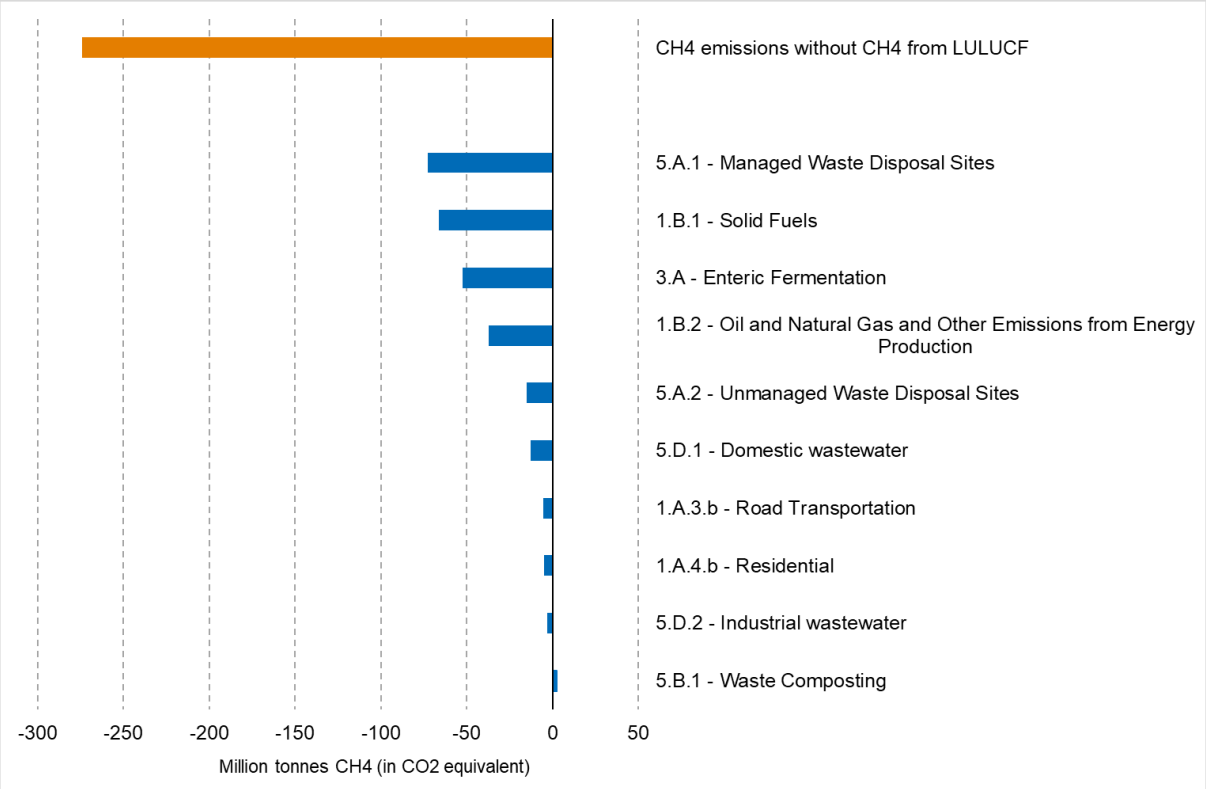
The presentation of key categories has been simplified for CH_4. There are a number of key categories under category 3.A 'enteric fermentation', but for simplicity, it has been assumed that the category 'enteric fermentation' represents all these key categories.

Using this simplifying assumption, the largest key category, for CH_4 emissions, is 'enteric fermentation' (see Figure 2-3), accounting for 4.5% of total greenhouse gas emissions in 2017. Between 1990 and 2017, CH_4 emissions from the category decreased by 21.2% due to the impact of the Common Agricultural Policy (CAP). A key factor was overproduction control through 'milk quotas' and this has limited the economic attractiveness of cattle production.

The second largest key category for CH_4 emissions is 5.A.1 'managed waste disposal sites', accounting for 2.0% of total greenhouse gas emissions in 2017. Between 1990 and 2017, CH_4 emissions from the category decreased by 45.6%. Key factors here are the increased use of

recycling which have reduced volumes of waste going to landfill, and the incineration of waste with energy recovery.

Figure 2-3 Change of CH_4 emissions by large key categories 1990 to 2017 in CO_2 equivalent for EU-28



Source: EEA

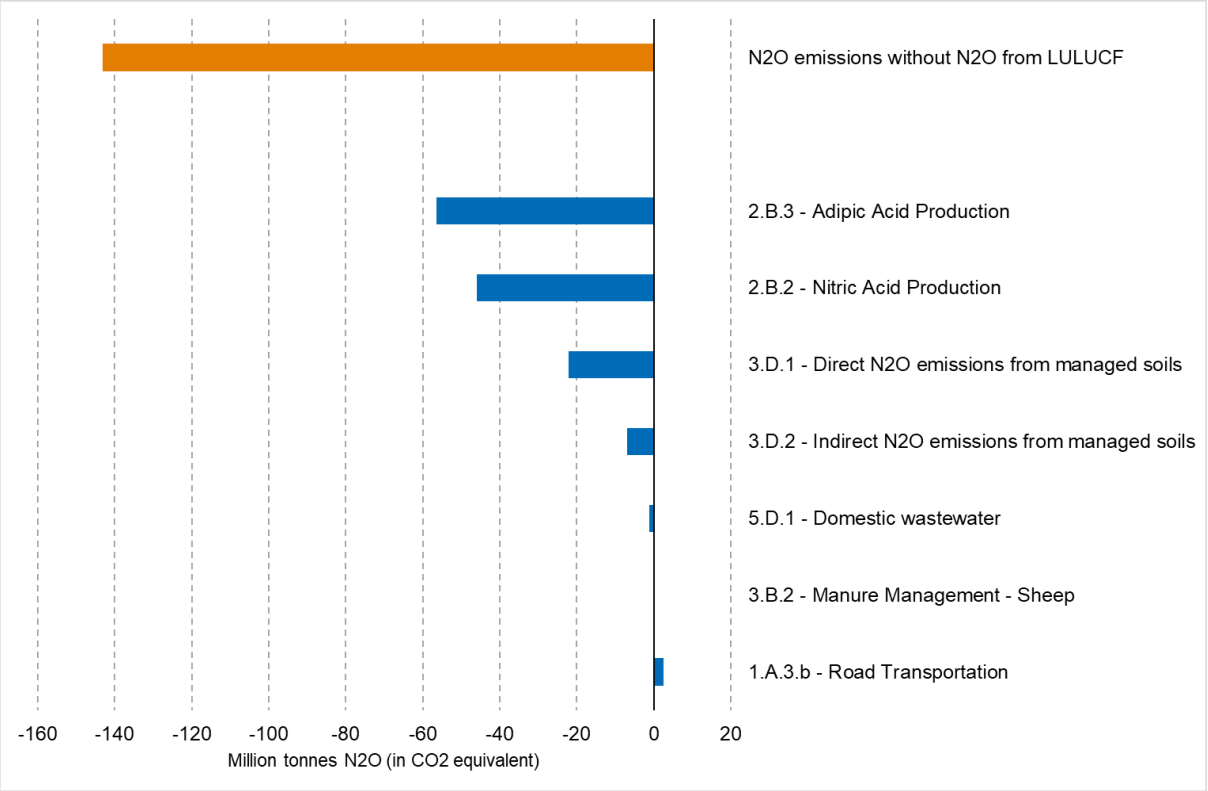
2.3.4.3. Nitrous oxide

N_2O emissions accounted for 5.5% of total EU-28 GHG emissions and decreased by 37.6% to 237.7 million tonnes CO_2 equivalent between 1990 and 2017 (see Figure 2-4).

The largest key category for N_2O emissions is 'direct N_2O emissions from managed soils', accounting for 3.1% of total GHG emissions in 2017. Between 1990 and 2017, N_2O emissions from the category decreased by 14.2% in the EU-28. The second largest key category for N_2O emissions is '3.D.2 - indirect N_2O emissions from managed soils', accounting for 0.7% of total GHG emissions in 2017. Between 1990 and 2017, N_2O emissions from the category decreased by 18.9% in the EU-28. Lower use of fertilisers per cropland combined with lower cropland area led to substantial reductions in N_2O emissions from agricultural soils.

There have also been large reductions in N_2O emissions from the chemical industry, with emissions from '2.B.2- Adipic Acid Production' and '2.B.3- Nitric Acid Production' reducing by 98.2% and 92.7%, respectively, between 1990 and 2017.

Figure 2-4 Change of N_2O emissions by large key categories 1990 to 2017 in CO_2 equivalent for EU-28



Source: EEA

2.3.4.4. Fluorinated gases

Fluorinated gas emissions (HFCs, PFCs, SF_6 and NF_3) accounted for 2.7% of total EU-28 GHG emissions, and increased by 61.8% to 116.5 million tonnes CO_2 equivalent in 2017 (see Figure 2-5).

The largest and dominant key category for fluorinated gas emissions is 'refrigeration and air conditioning', accounting for 2.2% of total GHG emissions in 2017. HFC emissions make this category a key one today, while in 1990, HFC emissions from this category had been trivial. By 2017, emissions had risen to 93.7 million tonnes CO_2 equivalent. The main reason for this is the phase-out of ozone-depleting substances such as chlorofluorocarbons under the Montreal Protocol and the replacement of these substances with HFCs, mainly in refrigeration, air conditioning, foam production and as aerosol propellants. However, after a peak in 2014, emissions from commercial refrigeration have decreased in line with policies and measures of the EU F-Gas Regulation No. 517/2014[22].

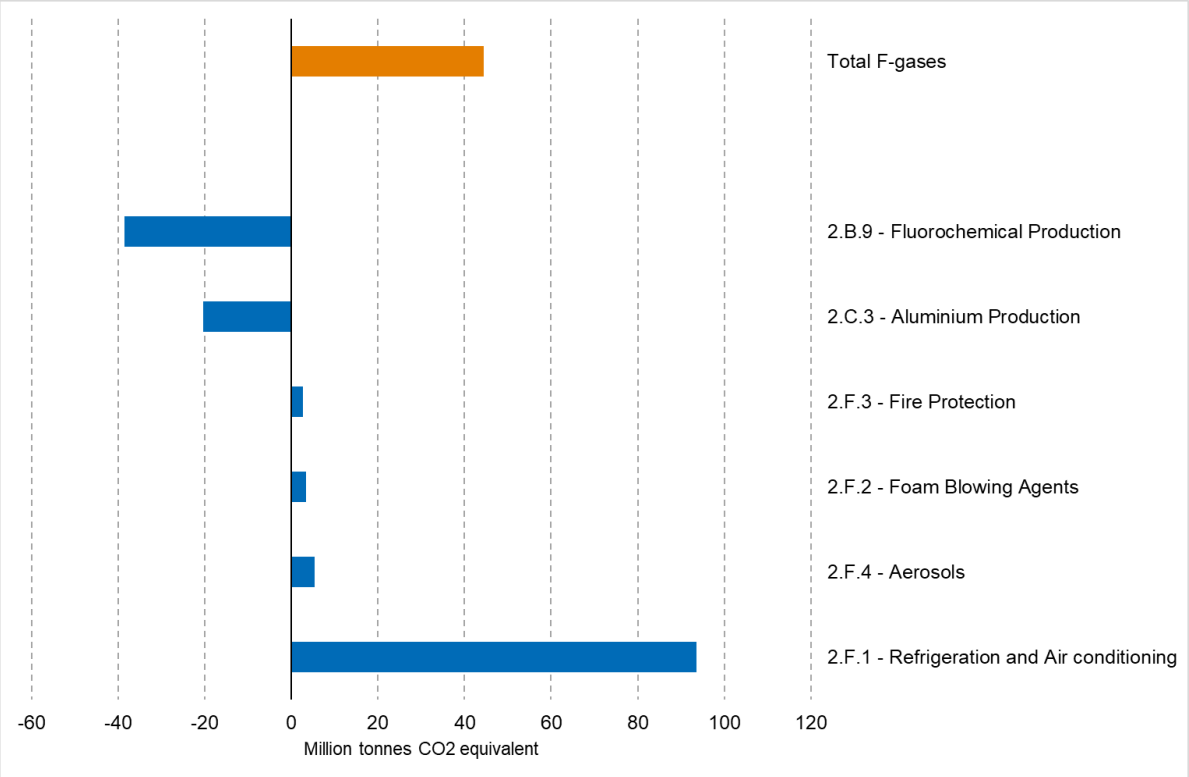
Providing some counterbalance to this increase, HFC emissions, specifically HFC-23 by-product production from the halocarbon production process (reported under '2.B.9 – Fluorochemical production') have decreased substantially since the late 1990s. This is due to

22 REGULATION (EU) No 517/2014 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 April 2014 on fluorinated greenhouse gases and repealing Regulation (EC) No 842/2006

the closure of a number of HCFC production plants and the installation of abatement systems in the remaining facilities.

Of the remaining F-gas emissions, both perfluorocarbons (PFCs) and sulphur hexafluoride (SF_6) have decreased.

Figure 2-5 Change of F-gas emissions by large key categories 1990 to 2017 in CO_2 equivalent for EU-28



Source: EEA

2.3.5. *Key drivers affecting emission trends*

The main reasons for the changes during the period 1990 to 2017 are described below:

Population

- Population has grown by 8% since 1990 in the EU-28;
- Population has continued to grow, at around 0.23% per annum, a similar trend to the 3BR (2017).

Economy

- EU-28 real GDP was 58% higher in 2017 compared to 1990[23]. This economic growth was mainly driven by growth in both the service sector and in international trade;

[23] GDP data: Ameco / ECFIN / World Bank. Estimates gap-filled by EEA, see COM(2018) 716 final

- Growth rates declined significantly in 2008 - 2010 as the EU-28 faced a severe economic crisis in the aftermath of the financial crisis in 2008;
- Since 2010, the growth rate was slowly increasing and the GDP had recovered. Yet, in 2012, the Euro currency crisis in the Southern European countries affected the European economy again. Growth has subsequently recovered again and, in 2017, the GDP growth was 2.4% per annum[24].

Energy

- Total gross inland and final energy consumption grew over the period from 1990-2006 (at around 0.5% per annum), but it has generally declined thereafter, and in 2015, it was slightly less (by 0.03%) than in 1990;
- The economic crisis in 2008 was mirrored by a strong decline in energy consumption in 2009 with a subsequent increase in 2010; following this, energy consumption declined until 2016, with a slight increase in 2017 compared to 2016[25];
- The trend observed since 1990 of a shift in the primary fuel mix from coal to gas has slowed down in recent years, but it has been replaced by an increasing shift towards renewables. The share of renewables in gross inland energy consumption increased from 4% in 1990 to 17% in 2016, largely driven by a very strong increase in the use of biomass for energy purposes. Production of energy from solar photovoltaics and wind has also increased very substantially over the period.

Transport

- Both freight and passenger transport grew strongly from 1995 until the economic crisis in 2008. Freight transport then showed a strong decline in 2008 and 2009; while it has subsequently increased thereafter, it has remained below its 2007 level. Passenger transport was relatively stable from 2007, until 2013 when emissions began increasing again.

Agriculture and forestry

- In 2015, agriculture and forestry accounted for 41% and 33% of land use, respectively.

Key trends

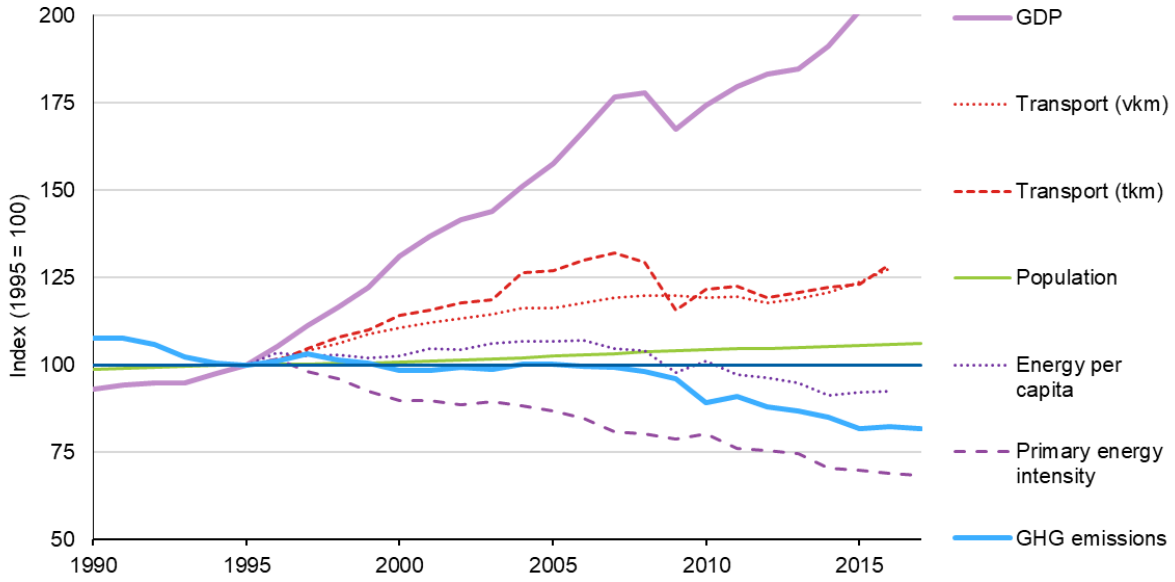
- Despite increases in population and GDP, GHG emissions for the EU-28 have fallen (Figure 2-6). Decomposition analysis of data from 1990 to 2012 shows that is due to a decoupling of economic growth from GHG emissions[26]. This was mainly driven by technological improvements which reduced energy intensity (energy use per unit of GDP), and the deployment of low carbon technologies.

24 Eurostat, Gross domestic product at market prices - https://ec.europa.eu/eurostat/databrowser/view/tec00001/default/table?lang=en

25 EEA, 2018, Primary energy consumption be fuel - https://www.eea.europa.eu/data-and-maps/indicators/primary-energy-consumption-by-fuel-6/assessment-2

26 ICF International, 2016.Decomposition analysis of the changes in GHG emissions in the EU and Member States. A report in association with ZEW Umweltbundesamt GmbH and Eclareon for DG CLIMA - https://ec.europa.eu/clima/sites/clima/files/strategies/progress/docs/dca_report_en.pdf .

Figure 2-6 Trends in greenhouse gas emissions and key parameters for the EU-28



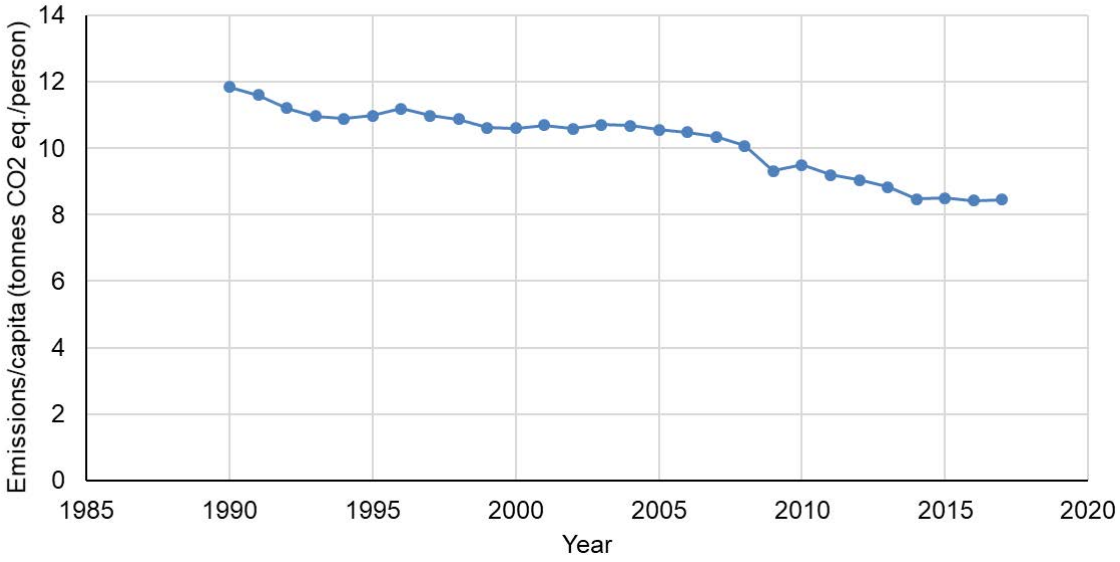
Note: GHG emissions are without the contributions or removals from land use, land use change and forestry (LULUCF).

Source: Eurostat data and European Commission Statistical Pocketbook 2018[27]

Population and economic growth are the two main drivers of GHG emissions. As described above, population grew by 8% and GDP increased by approximately 58% between 1990 and 2017. As GHG emissions decreased by 23.5% (excluding LULUCF and international flights, but including indirect CO_2), both GHG per capita (see Figure 2-7) and GHG emissions per GDP (see Figure 2-8) fell considerably. Per capita emissions dropped from around 12 tonnes in 1990 to 8.8 tonnes in 2014 and stagnated thereafter. The decoupling of economic growth from GHG emissions has been progressing steadily since 1990.

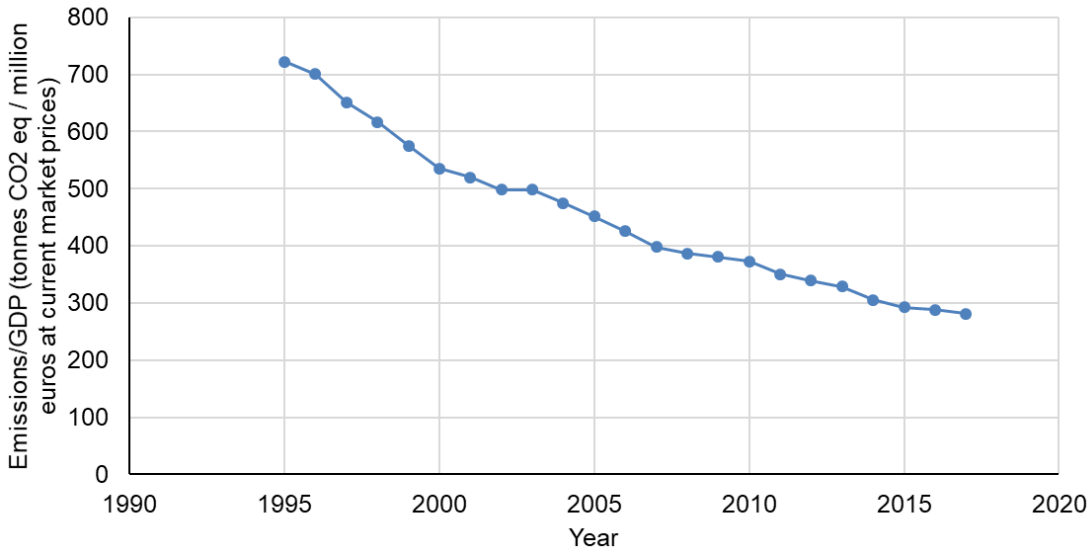
27 European Commission Statistical Pocketbook 2018 https://www.eea.europa.eu/data-and-maps/data/external/statistical-pocketbook-2018

Figure 2-7 GHG emissions per capita 1990 to 2017 for EU-28



Source: EEA, Eurostat

Figure 2-8 GHG emissions per GDP 1990 to 2017 for EU-28



Source: EEA, Eurostat

The sections below summarise the main reasons for the changes in GHG emissions in the EU during the period 2016 to 2017.

2.3.5.1. Main reasons for changes in EU-28 emissions, 2016 to 2017

The section discusses the changes in GHG emissions between 2016 and 2017, based on the 2019 inventory.

The analysis in Table 2-5 shows that the largest increase occurred in the sectors of manufacturing industries (including residential, commercial and institutional), road transport, and international aviation.

Table 2-5 Overview of the largest emission changes by key sector in EU-28, 2016-2017

Source category	Million tonnes (CO_2 equivalent)
Manufacturing industries (excl. Iron and steel) (Energy-related CO_2 from 1.A.2 excl. 1.A.2.a	12
Road Transportation (CO_2 from 1.A.3.b)	11
International Aviation (CO_2 from 1.D.1.a)*	10
Agricultural Soils: Direct N_2O Emissions From Managed Soils (N_2O from 3.D.1) 3	3
Public Electricity and Heat Production (CO_2 from 1.A.1.a)	-17
Total	**19.9**

Notes As the table only presents sectors whose emissions have increased or decreased by at least 3 million tonnes of CO_2- equivalent, the sum of the source categories presented does not match the total change listed at the bottom of the table. The table reflects the emission reductions according to the EU's geographical scope under KP and includes a small contribution from Iceland.
*International aviation is not included in national totals under KP/UNFCCC but it is included under the EU internal scope. Iceland is included in the former but not in the latter.

Source: EEA

Heat consumption in the EU can be supplied via distributed systems from thermal stations (reported under public electricity and heat production) and/or as a process of direct combustion in buildings (reported under residential and commercial/institutional). The consumption and emissions of the residential and commercial/institutional sectors (1.A.4.a and 1.A.4.b) increased marginally by 0.3% between 2016 and 2017, reflective of the continued increase in demand for heating as the gas network expands.

It is worth noting that emissions from public electricity and heat production decreased in 2017 by 1.7%. Continued reduction in coal use, uptake of natural gas, and the use of low-carbon alternatives, primarily biomass[28], have resulted in drops in the carbon intensity of electricity generated over this period. This means that this emissions reduction has been achieved despite net electricity generation remaining relatively stable between 2016 and 2017.

The other key sector where emissions increased in 2017 was transportation. It is the second largest source of emissions in the EU (after the power sector), and the positive trend of emissions reduction observed since 2007 was reversed from 2014 onwards. Road transport emissions increased by 1.3% between 2016 and 2017. The increase was fully accounted for by diesel consumption, whereas gasoline emissions continued declining. About 55.0% of the increase came from heavy-duty vehicles, 23.2% from passenger cars and 22.4% from light duty vehicles. There were small reductions in emissions from motorcycles between 2016 and 2017.

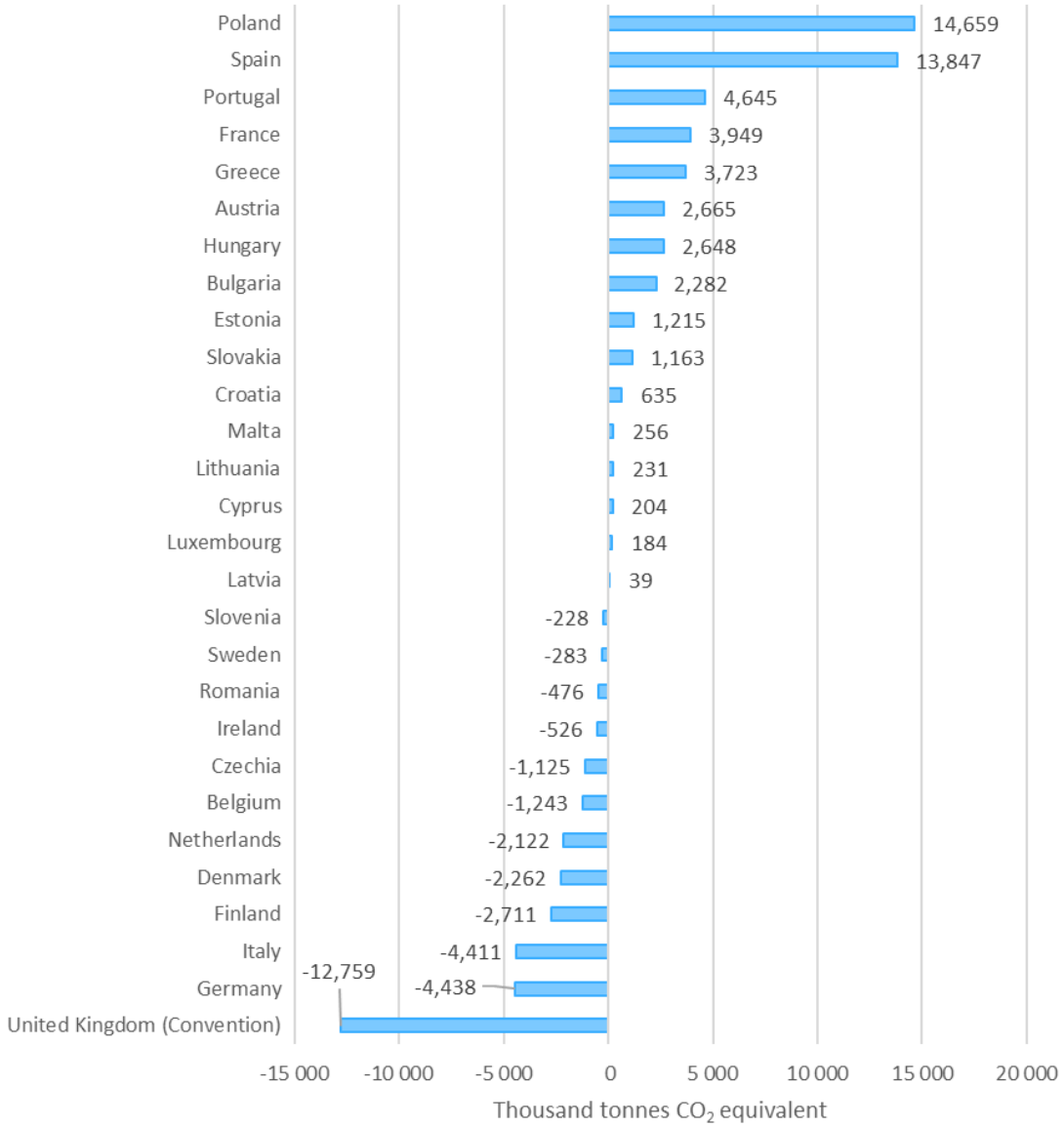
28 https://ec.europa.eu/eurostat/statistics-explained/index.php?title=File:Figure_3-Primary_production_of_energy_from_renewable_sources_EU-28_1990-2017.png

CO_2 emissions from outgoing flights have been excluded from national totals under the Kyoto Protocol but they are in the scope of the EU 2020 target of 20% GHG emissions reduction. Emissions from aviation continued increasing in 2017.

Figure 2-9 shows the absolute change in total GHG emissions by Member States between 2016 and 2017 (excluding LULUCF). Emissions increased in 16 Member States, particularly in Poland, Spain and Portugal, and decreased in 12 Member States, mainly in the United Kingdom.

The main reason behind the emissions increase in Poland was a substantial increase in emissions from road transport, primarily from heavy-duty vehicles and passenger vehicles, with a smaller increase in emissions from industrial combustion overall, and a small increase in emissions from energy generation facilities. By contrast, the latest year trend in emissions in Spain and Portugal are largely dictated by emissions increase from electricity generation, with emissions increase from road transport playing a lesser role in the latest year trends.

Figure 2-9 Change in total GHG emissions, excluding LULUCF, between 2016 and 2017 by EU Member State (thousand tonnes CO_2 equivalent)



Source: EEA

2.3.6. *Information on indirect GHG emissions*

Emissions of CO, NO_x, NMVOC and SO_2 have to be reported under the UNFCCC because these gases influence climate change indirectly: CO, NO_x and NMVOC are precursor substances for ozone which itself is a greenhouse gas, as well as an air pollutant. Sulphur emissions produce microscopic particles (aerosols) that can reflect sunlight back out into space and affect cloud formation. Table 2-6 shows the total indirect GHG and SO_2 emissions in the EU-28 between 1990 and 2017.

All emissions were reduced significantly from 1990 levels: the largest reduction was achieved in SO_2 (-90.4%) followed by CO (-66.9%), NMVOC (-59.5%) and NOx (-57.2%). The largest emitters, Germany, France, the United Kingdom, Spain, and Poland made up 60%

of total EU NO_x emissions in 2017. All EU-28 Member States reduced their NO_x emissions between 1990 and 2017.

Table 2-6 Overview of EU-28 indirect GHGs for 1990 to 2017

GHG or category	GHG emissions (thousand tonnes)							
	1990	1995	2000	2005	2010	2015	2016	2017
NO_x	17,774	15,440	13,452	12,309	9,733	8,094	7,795	7,599
CO	62,707	51,971	40,217	31,666	26,583	21,396	21,017	20,770
NMVOC	17,204	13,899	11,421	9,498	8,016	6,929	6,888	6,970
SO_2	24,221	15,708	9,657	7,401	4,368	3,166	2,696	2,319

Notes These emissions include the very small contribution from Iceland
Source: EEA

2.3.7. *Accuracy/Uncertainty of the data*

Table 2-7 shows the main results of the uncertainty analysis on the magnitude (level) of emissions for the EU-28. This uncertainty analysis was made on the basis of Tier 1[29] uncertainty estimates, which were submitted from the Member States under Article 7(1)(p) of Regulation (EU) 252/2013. Fuel combustion activities are associated with the lowest uncertainties (0.9%) and the highest uncertainties are associated with waste (51.5%) and agriculture (47.0%). Overall uncertainty estimates, including LULUCF, of all the EU-28 GHG emissions are estimated at 5.9%, and excluding LULUCF, slightly lower, at 5.2%.

With regard to uncertainty estimates on the trend in emissions, fuel combustion activities are associated with the lowest uncertainties (0.3%) and the highest uncertainty estimates are for waste (19.4%). Overall trend uncertainty of all GHG emissions (including LULUCF) is estimated to be 1.2%.

Table 2-7 Tier 1 uncertainty estimates of EU-28 GHG emissions for the main sectors. (Emissions in thousand tonnes CO_2 eq.)

Sector	Emissions 1990	Emissions 2017	Emission trends 1990 to 2017	Level uncertainty estimates based on Member States' uncertainty estimates	Trend uncertainty estimates based on Member States' uncertainty estimates
1.A Fuel combustion activities	4,300,321	3,280,935	-23.7%	0.9%	0.3%
1.B Fugitive	207,967	84,604	-59.3%	27.9%	8.2%

29 See section 6.3.2. of Chapter 6 'Quantifying uncertainties in practice' of the IPCC 2006 Inventory Guidelines. Available at: https://www.ipcc-nggip.iges.or.jp/public/gp/english/6_Uncertainty.pdf

Sector	Emissions 1990	Emissions 2017	Emission trends 1990 to 2017	Level uncertainty estimates based on Member States' uncertainty estimates	Trend uncertainty estimates based on Member States' uncertainty estimates
emissions					
2. Industrial Processes and Product Use	534,187	350,274	-34.4%	11.8%	4.8%
3. Agriculture	550,243	438,304	-20.3%	47.0%	2.5%
4. Waste	240,327	138,497	-42.4%	51.5%	19.4%
5. LULUCF	-214,591	-243,019	13.2%	34.3%	13.9%
Total (including LULUCF)	**5,618,454**	**4,049,595**	**-27.9%**	**5.9%**	**1.2%**
Total (excluding LULUCF)	**5,833,044**	**4,292,614**	**-26.4%**	**5.2%**	**1.0%**

Notes These estimates include the very small effects of Iceland's emissions, which may create some uncertainties for the sum of GHGs. Emissions are in Gg CO_2 equivalent; they are slightly lower than the emissions included in CTF Table 1 (a) because not all Member States estimate uncertainties for all emissions and this table reflects the emissions for which uncertainty estimates are available. Values expressed as 95 % confidence intervals.

Due to confidential values reported by Germany and Sweden, sectoral EU emissions and total EU emissions for 2016 in the following tables might not always be identical to the actual emission reported by Member States in the sector chapters of the EU National Inventory Report (NIR).

Source: EEA

2.4. The EU inventory arrangements

In the EU, the legal basis for the compilation of the Union greenhouse gas inventory is Regulation (EU) 525/2013 of the European Parliament and of the Council of 21 May 2013 on a mechanism for monitoring and reporting GHG emissions and for reporting other information at national and EU level relevant to climate change and repealing Decision 280/2004/EC (MMR). The Commission's Delegated Regulation (EU) 666/2014 establishes the substantive requirements for the EU national system. The EU national inventory system as well as the quality assurance/quality control programme is described in more detail in the Commission Staff Working Document SWD (2013) 308 final [30].

30 Commission Staff Working Document SWD (2013)308 final on Elements of the Union greenhouse gas inventory system and the Quality Assurance and Control (QA/QC) programme. http://ec.europa.eu/clima/policies/strategies/progress/monitoring/docs/swd_2013_308_en.pdf

The main institutions involved in the compilation of the EU GHG inventory are EU Member States, the European Commission's Directorate-General for Climate Action, the European Environment Agency (EEA) and its European Topic Centre on Air Pollution and Climate Change Mitigation (ETC/ACM), Eurostat, and the European Commission's Joint Research Centre (JRC).

Since the submission of the 3BR from the EU under the UNFCCC, the "Regulation of the European Parliament and of the Council on the Governance of the Energy Union and Climate Action"[31] (Governance Regulation) has entered into force (December 2018) and will apply to climate reporting from 2021 onwards. The Governance Regulation fully integrates the provisions of the existing Monitoring Mechanism Regulation (MMR) while aligning them with the provisions of the Paris Agreement.

It is important to mention that in the context of the Kyoto Protocol, there is a key change to previous inventory submissions of the EU under the Kyoto Protocol. That is, the Kyoto greenhouse gas inventory for the second commitment period has a different coverage of countries, which is due to the scope of the terms of the joint fulfilment agreement for the second commitment period, and which includes the 28 EU Member States and Iceland.

2.5. Quality assurance/quality control (QA/QC) procedures

The quality of the Union GHG inventory depends on the quality of Member States' inventories, the QA/QC procedures of Member States and the quality of the compilation process of the EU inventory. Member States and the EU as a whole have implemented QA/QC procedures in order to comply with the IPCC good practice guidance.

The EU QA/QC programme[32] describes the quality objectives and the inventory quality assurance and quality control plan for the Union GHG inventory, including responsibilities and the time schedule for the performance of the QA/QC procedures. Definitions of quality assurance, quality control and related terms used are those provided in the IPCC 2006 Guidelines and the Guidelines for National Systems under the Kyoto Protocol. The EU QA/QC programme is reviewed annually and modified or updated as appropriate.

The European Commission (DG Climate Action) is responsible for coordinating QA/QC activities for the Union inventory and ensures that the objectives of the QA/QC programme are implemented, and the QA/QC plan is developed. The European Environment Agency (EEA) is responsible for the annual implementation of QA/QC procedures for the Union inventory.

31 REGULATION (EU) 2018/1999 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 11 December 2018 on the Governance of the Energy Union and Climate Action, amending Regulations (EC) No 663/2009 and (EC) No 715/2009 of the European Parliament and of the Council, Directives 94/22/EC, 98/70/EC, 2009/31/EC, 2009/73/EC, 2010/31/EU, 2012/27/EU and 2013/30/EU of the European Parliament and of the Council, Council Directives 2009/119/EC and (EU) 2015/652 and repealing Regulation (EU) No 525/2013 of the European Parliament and of the Council, https://eur-lex.europa.eu/legal-content/EN/TXT/?toc=OJ:L:2018:328:TOC&uri=uriserv:OJ.L_.2018.328.01.0001.01.ENG

32 Commission Staff Working Document. Elements of the Union greenhouse gas inventory system and the Quality Assurance and Control (QA/QC) programme Brussels, 12.8.2013 SWD(2013) 308 final. https://ec.europa.eu/clima/sites/clima/files/strategies/progress/monitoring/docs/swd_2013_308_en.pdf

The overall objectives of the EU QA/QC programme are:

- To establish quality objectives for the Union GHG inventory, taking into account the specific nature of this inventory as a compilation of Member States' GHG inventories;
- To implement the quality objectives in the design of the QA/QC plan, defining general and specific QC procedures for the EU GHG inventory submission;
- To provide a Union inventory of GHG emissions and removals consistent with the sum of Member States' inventories and covering the EU's geographical area;
- To ensure the timeliness of Member States' GHG inventory submissions to the EU;
- To ensure the completeness of the Union GHG inventory, inter alia, by implementing procedures to estimate any data missing from the national inventories, in consultation with Member States concerned;
- To contribute to improving the quality of Member States' inventories and;
- To provide assistance for the implementation of national QA/QC programmes.

A number of specific objectives have been elaborated in order to ensure that the EU's GHG inventory complies with the UNFCCC inventory principles of transparency, completeness, consistency, comparability, accuracy and timeliness.

In the QA/QC plan, quality control procedures before and during the compilation of the Union GHG inventory are listed. In addition, QA procedures, procedures for documentation and archiving, the time schedules for QA/QC procedures and the provisions related to the inventory improvement plan are included.

QC procedures are performed at several different stages during the preparation of the Union inventory. Firstly, a range of checks is used to determine the consistency and completeness of Member States' data so that they may be compiled in a transparent manner at EU level. Secondly, checks are carried out to ensure that the data are compiled correctly at EU level to meet the overall reporting requirements. Thirdly, a number of checks are conducted with regard to data archiving and documentation to meet various other data quality objectives.

2.5.1. Data gap filling procedure for GHG emissions

The Union GHG inventory is compiled by using the inventory submissions of EU Member States. If a Member State does not submit all data required for the compilation of the Union inventory by 15 March of a reporting year, the Commission prepares estimates for data missing for that country. Gap filling techniques are only used where necessary. The EU National Inventory Report (NIR) 2019 provides a description of the approach taken to "gap fill", in Section 1.7.3 "*Data gaps and gap-filling*".

Since 2011, GHG inventory estimates have been complete for all EU Member States, and therefore no gap filling has been needed.

3. QUANTIFIED ECONOMY-WIDE EMISSION REDUCTION TARGET

This section explains the EU 2020 emission reduction target under the UNFCCC and the target compliance architecture set up within the EU in order to meet that target. It also gives an overview of other EU emission reduction targets that are helping achieving the quantified economy-wide emission reduction target under the UNFCCC.

3.1. The EU target under the Convention

In 2010, the EU submitted a pledge to reduce its GHG emissions by 2020 by 20 % compared to 1990 levels, in order to contribute to achieving the ultimate objective of the UNFCCC: 'to stabilise GHG concentrations at a level that would prevent dangerous anthropogenic (human-induced) interference with the climate system'[33], or, in other words, to limit the global temperature increase to less than 2°C compared to temperature levels before industrialization (FCCC/CP/2010/7/Add.1).

The definition of the EU target for 2020 under the Convention is documented in the revised note provided by the UNFCCC Secretariat on the 'Compilation of economy-wide emission reduction targets to be implemented by Parties included in Annex I to the Convention' (FCCC/SB/2011/INF.1/Rev.1 of 7 June 2011)[34]. The EU provided additional information relating to its quantified economy-wide emission reduction target in a submission as part of the process of clarifying the developed-country Parties' targets in 2012 (FCCC/AWGLCA/2012/MISC.1)[35].

The EU's accounting rules for the target under the UNFCCC are more ambitious than the rules under the Kyoto Protocol, for example, including outgoing flights and adding an annual compliance cycle for emissions under the Effort Sharing Decision (ESD; see Section 4.2.2) or higher Clean Development Mechanism (CDM) quality standards under the EU Emissions Trading System (EU ETS) (FCCC/TP/2013/7). Accordingly, the following assumptions and conditions apply to the EU's -20% commitment under the UNFCCC:

- The EU Convention pledge does not include emissions/removals from land use, land-use change and forestry; however, this sector is estimated to be a net sink over the relevant period. EU GHG inventories include information on emissions and removals from LULUCF in accordance with relevant reporting commitments under the UNFCCC. Accounting for LULUCF activities only takes place under the Kyoto Protocol[36];
- The target covers the following gases: CO_2, CH_4, N_2O, HFCs, PFCs and SF_6;

33 First steps to a safer future: Introducing the United Nations Framework Convention on Climate Change: https://unfccc.int/process-and-meetings/the-convention/what-is-the-united-nations-framework-convention-on-climate-change

34 http://unfccc.int/resource/docs/2011/sb/eng/inf01r01.pdf

35 http://unfccc.int/resource/docs/2012/awglca15/eng/misc01.pdf

36 The LULUCF Decision (Decision 529/2013) requires preparing and maintaining annual LULUCF accounts according to the rules set out in the Kyoto Protocol; however, these accounts do not contribute to the achievement of the EU Convention pledge.

- The target refers to 1990 as a single base year for all covered gases and all Member States. Emissions from outgoing flights are included in the target;
- A limited number of CERs, ERUs and units from new market-based mechanisms may be used to achieve the target (see Section 3.2.2): in the EU ETS, the use of international credits was allowed up to specific levels set in the EU ETS Directive, amounting to over 1500 million CER and ERU entitlements in the period up to 2020. Quality standards also apply to the use of international credits in the EU ETS, including not allowing the use of credits from LULUCF projects and certain industrial gas projects. International credits will no longer be used for EU ETS compliance in the system's fourth trading period (2021-2030). In the ESD sectors, the annual use of international credits is currently limited to up to 3 % of each Member State's ESD emissions in 2005, with a limited number of Member States being permitted to use an additional 1% from projects in least developed countries (LDCs) or small island developing states (SIDS), subject to conditions. From 2021 onwards, as with the EU ETS, international credits will no longer be used for compliance under the ESD.
- The global warming potentials (GWPs) used to aggregate GHG emissions up to 2020 under EU legislation were those based on the Second Assessment Report of the IPCC when the target was submitted. For the implementation until 2020, GWPs from the IPCC AR4 will be used consistently with the UNFCCC reporting guidelines for GHG inventories.

Table 3-1 Key facts of the Convention target of the EU-28

Parameters	Target
Base year	1990
Target year	2020
Emission reduction target	-20 % in 2020 compared to 1990
Gases covered	CO_2, CH_4, N_2O, HFCs, PFCs, SF_6
Global warming potential	AR4
Sectors covered	All IPCC sources and sectors with the exception of LULUCF, as measured by the full annual inventory including international aviation (outgoing flights)
Land use, land-use change, and forestry (LULUCF)	Accounted under the Kyoto Protocol, reported in EU inventories under the Convention. Assumed to produce no debits
Use of international credits (JI and CDM)	Possible subject to quantitative and qualitative limits

3.2. The EU target compliance architecture

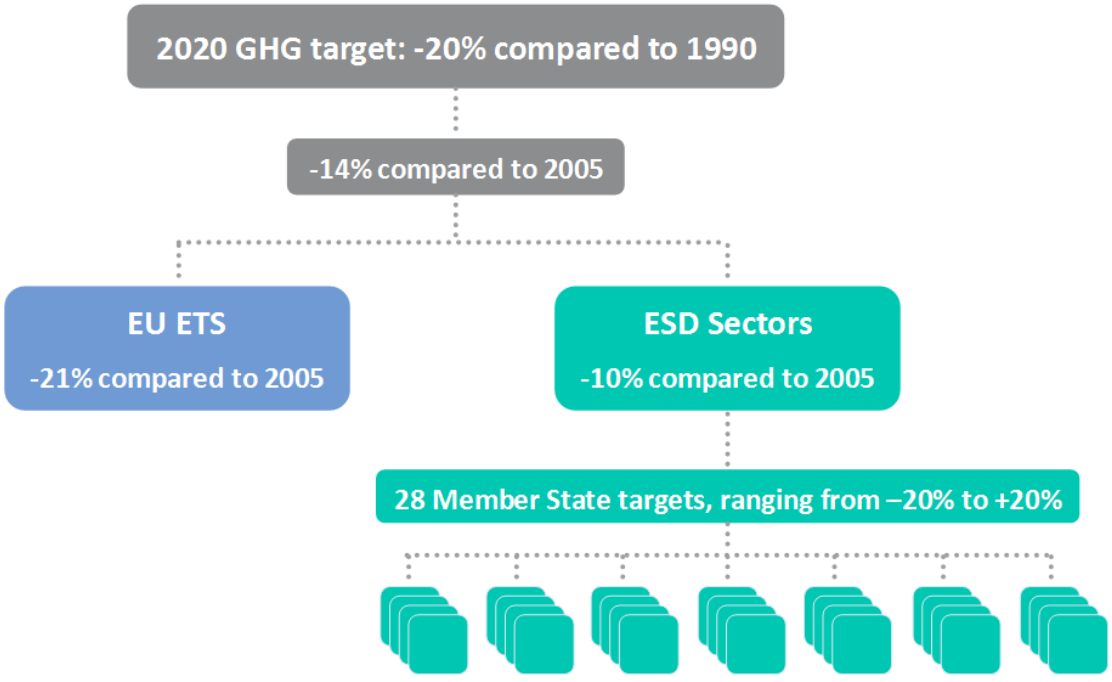
3.2.1. *The 2020 Climate and Energy Package*

In 2009, the EU established internal rules under its 2020 Climate and Energy Package[37]. These rules underpin the EU implementation of the target under the Convention. The package introduced a clear approach to achieving the 20 % reduction of total GHG emissions from 1990 levels, reduction that is equivalent to a 14 % reduction compared to 2005 levels. This 14 % reduction objective is divided between the ETS and ESD sectors. These two sub-targets are:

- a 21 % reduction target compared to 2005 for emissions covered by the ETS (including outgoing flights);
- a 10 % reduction target compared to 2005 for ESD sectors, shared between 28 Member States through individual national GHG targets.

The distribution of the total target across the ETS and ESD is shown in Figure 3-1.

Figure 3-1 GHG targets under the 2020 Climate and Energy Package



Source: European Commission

Under the EU ETS Directive as revised for the system's current trading period from 2013 to 2020 (Directive 2009/29/EC), a single ETS cap covers EU Member States and three participating non-EU countries (Norway, Iceland and Liechtenstein), and there are no further

37 http://ec.europa.eu/clima/policies/package/index_en.htm

individual caps by country. Allowances allocated in the EU ETS from 2013 to 2020 decrease by 1.74 % annually, starting from the average level of allowances issued by Member States for the second trading period (2008–2012).

The three non-EU countries participating in the EU ETS are also subject to a similarly defined cap and the same annual decrease in allowance allocation.

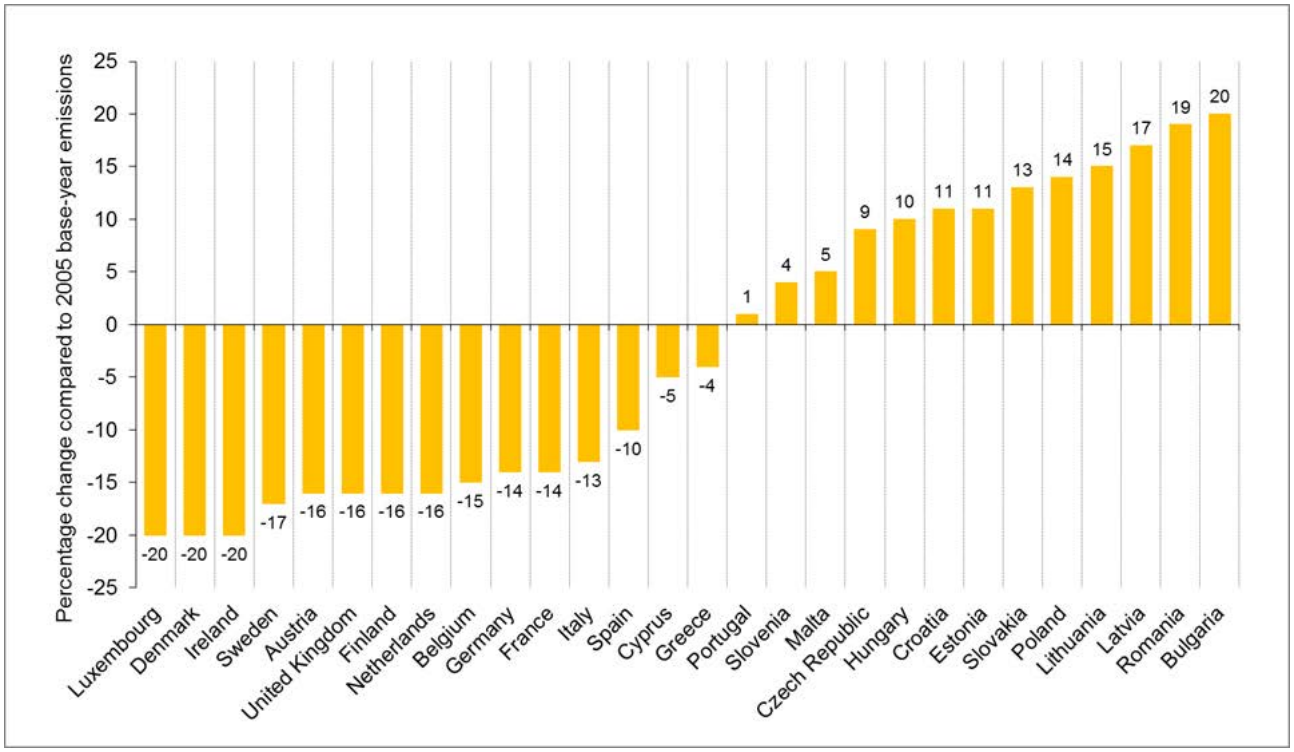
For further additional information on recent changes in the EU ETS, see Section 4.2.1.

The vast majority of emissions within the EU, which fall outside the scope of the EU ETS, are addressed under the Effort Sharing Decision (ESD) (Decision 406/2009/EC). The ESD covers emissions from all sources outside the EU ETS, except for de minimis aviation emissions, international maritime emissions, and emissions and removals from land use, land-use change and forestry (LULUCF). It thus includes a diverse range of small-scale emitters in a wide range of sectors: transport (cars, lorries), buildings (in particular heating), services, small industrial installations, fugitive emissions from the energy sector, emissions of fluorinated gases from appliances and other sources, agriculture and waste. Such sources accounted for 58% of total GHG emissions in the EU in 2017[38].

While the EU ETS target is to be achieved by the EU as a whole, the ESD target was divided into national targets to be achieved individually by each Member State (see Figure 3-2). Under the Effort Sharing Decision, national emission targets for 2020 are set, expressed as percentage changes from 2005 levels. These changes have been transferred into binding quantified annual emission limits for the period from 2013 to 2020 (Commission Decisions 2013/162/EU and 2013/634/EU), denominated in annual emission allocations (AEAs). At country level, 2020 targets under the ESD range from -20% to +20%, compared to 2005 levels. ESD targets for 2020 for each EU Member State are shown in Figure 3-2 .

38 European Environment Agency (2019); Trends and projections in Europe 2019. Tracking progress towards Europe's climate and energy targets; https://www.eea.europa.eu/publications/trends-and-projections-in-europe-1/at_download/file

Figure 3-2 National 2020 GHG emission limits under the ESD, relative to 2005 emissions levels



Source: Decision No 406/2009/EC, Annex 2

The target levels have been set on the basis of Member States' relative Gross Domestic Product (GDP) per capita. Up to certain limitations, the ESD allows Member States to make use of flexibility provisions for meeting their annual targets: carry-over of over-achievements to subsequent years within each Member State, transfers of AEAs between Member States and use of international credits (credits from Joint Implementation and Clean Development Mechanism).

For more details about the Effort Sharing Decision, see Section 4.2.2.

3.2.2. *Monitoring of progress to 2020 targets*

For the monitoring of GHG emissions at the EU and Member State levels, the Monitoring Mechanism Regulation has been adopted; see Section 2.2.2.1 of the EU's Second Biennial Report (2BR). Also for the effective operation of the EU ETS, robust, transparent, consistent and accurate monitoring and reporting of greenhouse gas emissions are essential, therefore an annual procedure of monitoring, reporting and verification (MRV) at the installation level is implemented. Installation and aircraft operators have to monitor, report and verify their annual emissions in accordance with two EU Regulations, the Monitoring and Reporting Regulation (MRR) and the Accreditation and Verification Regulation (AVR). To have more information on the requirements of these regulations, please refer to the following webpage https://ec.europa.eu/clima/policies/ets/monitoring_en#tab-0-0. The complete set of applicable

legal texts and guidance documents are provided on the following webpage https://ec.europa.eu/clima/policies/ets/monitoring_en#tab-0-1.

Monitoring, reporting and verification of the ESD targets mainly takes place through the submission of the national GHG inventories by Member States. Chapter III of the Commission Implementing Regulation 749/2014 sets out strict criteria by which Member States' national GHG inventories are reviewed annually at the EU level. Based on this review, the European Commission issues an implementing decision on Member States ESD emissions in the given year, which might lead to Member States inter alia facing penalties as described below in Section 4.2.2.

3.2.2.1. Accounting for flexible mechanisms under the 2020 target

In general, in the EU, the use of flexible mechanisms can take place on the one hand by operators in the EU ETS, on the other hand by governments for the achievement of ESD targets.

The amended EU ETS Directive 2009/29/EC (Article 11a(8)) sets the upper limit for credit use for the period from 2008 to 2020 at a maximum of 50% of the reduction effort below 2005 levels. This is further specified into installation level limits in the Commission Regulation on International Credit Entitlements (RICE) (EU No 1123/2013). Since some entitlements are expressed as a percentage of verified emissions over the entire period, the overall maximum amount will only be known at the end of the third trading period.

Since 2013, it is no longer possible to track the use of flexible 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 EUAs. These exchanges will become public on an installation level after three years[39]; however, aggregated data at EU level is available earlier.

As mentioned above, the ESD allows Member States to make use of international credits for meeting their annual targets, but with certain limitations. In the ESD sectors, the annual use of carbon credits is limited to up to 3 % of each Member State's ESD emissions in 2005. Member States that do not use their 3 % limit for the use of international credits in any specific year can transfer the unused part of their limit to another Member State or bank it for their own use until 2020. Member States fulfilling additional criteria (Austria, Belgium, Cyprus, Denmark, Finland, Ireland, Italy, Luxembourg, Portugal, Slovenia, Spain and Sweden) may use credits from projects in least developed countries (LDCs) and small island developing states (SIDS) up to an additional 1 % of their verified emissions in 2005. These credits are neither bankable nor transferable. So far, no Member State has used any international credits for complying with their obligations under the ESD.

39 Annex XIV of European Commission. Commission Regulation (EU) No 389/2013. 2013. http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32013R0389

3.3. **Other EU emission reduction targets and Commission vision for long-term**

In addition to the EU target under the Convention, the EU also committed to a legally binding quantified emission limitation reduction commitment for the second commitment period of the Kyoto Protocol (2013 - 2020).

A further target has been pledged to the Convention through the EU's Nationally Determined Contribution submitted under the Paris Agreement, and has been adopted by the EU under the 2030 Climate and Energy Framework[40]. The emission reduction target is a pledge to reduce emissions by at least 40% (compared to 1990 levels) by 2030, enabling the EU to move towards a low-carbon economy and implement its commitment under the Paris Agreement. In order to achieve this target:

- The EU emissions trading system (ETS) sectors will have to cut emissions by 43% (compared to 2005) by 2030. This has been agreed under the revised EU ETS Directive (2018/410)[41];

- Effort sharing sectors will need to cut emissions by 30% (compared to 2005) by 2030 – this has been translated into individual binding targets for Member States, as agreed under the Effort Sharing Regulation (2018/842)[42]. While the Effort Sharing Regulation does not cover the LULUCF sector as such, it does allow Member States to use up to 280 million credits from the land-use sector over the entire period 2021-2030 to comply with their national targets;

- Emissions and removals from the LULUCF sector are included for the first time in the EU climate target through the so-called LULUCF Regulation (2018/841)[43]. Each Member State will have to ensure that the LULUCF sector does not create debits, once specific accounting rules are applied. This is known as the "no debit" rule.

The revised Renewable Energy Directive (2018/2001)[44] and the amended Energy Efficiency Directive (2018/2002)[45] set separate EU level targets on renewable energy and energy efficiency in 2018. For renewable energy, a binding target of at least 32 % of final energy

40 Communication From The Commission To The European Parliament, The Council, The European Economic And Social Committee And The Committee Of The Regions. A policy framework for climate and energy in the period from 2020 to 2030. /* COM/2014/015 final */. 2014. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52014DC0015

41 DIRECTIVE (EU) 2018/410 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 14 March 2018 amending Directive 2003/87/EC to enhance cost-effective emission reductions and low-carbon investments, and Decision (EU) 2015/1814 https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018L0410&from=EN

42 REGULATION (EU) 2018/842 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 30 May 2018 on binding annual greenhouse gas emission reductions by Member States from 2021 to 2030 contributing to climate action to meet commitments under the Paris Agreement and amending Regulation (EU) No 525/2013, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018R0842&from=EN

43 REGULATION (EU) 2018/841 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 30 May 2018 on the inclusion of greenhouse gas emissions and removals from land use, land use change and forestry in the 2030 climate and energy framework, and amending Regulation (EU) No 525/2013 and Decision No 529/2013/EU, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018R0841&from=EN

44 DIRECTIVE (EU) 2018/2001 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 11 December 2018 on the promotion of the use of energy from renewable sources, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018L2001&from=EN

45 DIRECTIVE (EU) 2018/2002 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 11 December 2018 amending Directive 2012/27/EU on energy efficiency, https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32018L2002&from=EN

consumption by 2030 was set. Concerning energy efficiency, it is a headline target of at least 32.5 %. Both the renewable energy target and the energy efficiency target include a review clause by 2023 for an upward revision.

Beyond these periods and targets, on 28 November 2018, the European Commission presented and adopted its strategic vision for 2050. Under the Long Term Strategic Vision on GHG Emissions Reduction, the European Commission showed long-term pathways and called for a climate-neutral Europe by 2050. The European Commission expects that the EU adopts and submits an ambitious long-term strategy to the United Nations Framework Convention on Climate Change (UNFCCC) as required under the Paris Agreement.

In Table 3-2, all GHG relevant targets for the EU and their key facts are displayed in an overview. On the left, the table includes the international commitments under the Kyoto Protocol, the UNFCCC and the Paris Agreement. On the right, the EU commitments under the 2020 Climate and Energy Package and the 2030 Climate and Energy Framework are listed.

Table 3-2 Overview of EU targets

	International commitments				EU domestic legislation				
	Kyoto Protocol		UNFCCC	Paris Agreement	Climate and Energy Package		Climate and Energy Framework		
					EU ETS	ESD	EU ETS	ESR	LULUCF
Target year of period	First commitment period (2008-2012)	Second commitment period (2013-2020)	2020	2030	2013-2020		2021 – 2030		
Emission reduction target	-8 %	-20 %	-20 %	At least -40%	-21 % compared to 2005 for ETS emissions	Annual targets by MS. In 2020 -10 % compared to 2005 for non-ETS emissions	-43% for EU ETS sectors	-30% for ESR sectors (translated into individual binding targets for MSs)	No-debit target based on accounting rules
Further targets	-	-	Conditional target of -30 % if other Parties take on adequate commitments	-	Renewable Energy Directive: 20 % share of renewable energy of gross final energy consumption; Energy Efficiency Directive : Increase energy efficiency by 20 %		A binding renewable energy target for the EU for 2030 of at least 32% of final energy consumption, including a review clause by 2023 for an upward revision of the EU level target. A headline target of at least 32.5% for energy efficiency to be achieved collectively by the EU in 2030, with an upward revision clause by 2023.		

	International commitments				EU domestic legislation				
	Kyoto Protocol		UNFCCC	Paris Agreement	Climate and Energy Package		Climate and Energy Framework		
					EU ETS	ESD	EU ETS	ESR	LULUCF
Base year	1990 KP Flexibility rules (Art 3(5)) regarding F-Gases and Economies in Transition	1990, but subject to flexibility rules. 1995 or 2000 may be used as the base year for NF_3	1990	1990	1990 for overall emission reduction target; 2005 for renewable energy and energy efficiency target; as well as for targets broken down into ETS and non-ETS emissions		2005		Subject to accounting rules
Aviation	Domestic aviation included. International aviation excluded	Domestic aviation included. International aviation excluded	Aviation in the scope of the EU ETS included. In practice total outgoing flight emissions considered	Aviation in the scope of the EU ETS included. In practice total outgoing flight emissions considered	Outgoing flights included	Excluded	Outgoing flights included	Excluded	Not applicable
Use of international credits	Use of KP flexible mechanisms subject to KP rules	Use of KP flexible mechanisms subject to KP rules	Subject to quantitative and qualitative limits	No contribution from international credits	Subject to quantitative and qualitative limits, see section 3.2.2.1	Subject to quantitative and qualitative limits, see section 3.2.2.1	No contribution from international credits		

	International commitments				EU domestic legislation				
	Kyoto Protocol		UNFCCC	Paris Agreement	Climate and Energy Package		Climate and Energy Framework		
					EU ETS	ESD	EU ETS	ESR	LULUCF
Carry-over of units from preceding periods	Not applicable	Subject to KP rules including those agreed in the Doha Amendment	Not applicable	Not applicable	EU ETS allowances can be banked into subsequent ETS trading periods since the second trading period	No carry-over from previous period			
Gases covered	CO_2, CH_4, N_2O, HFCs, PFCs, SF_6	CO_2, CH_4, N_2O, HFCs, PFCs, SF_6, NF_3	CO_2, CH_4, N_2O, HFCs, PFCs, SF_6	CO_2, CH_4, N_2O, HFCs, PFCs, SF_6, NF_3	CO_2, N_2O, CF_4 and C_2F_6	CO_2, CH_4, N_2O, HFCs, PFCs, SF_6	CO_2, N_2O, CF_4 and C_2F_6	CO_2, CH_4, N_2O, HFCs, PFCs, SF_6	CO_2, CH_4, N_2O (emissions of HFCs, PFCs, SF_6 do not occur in the sector)

	International commitments				EU domestic legislation				
	Kyoto Protocol		UNFCCC	Paris Agreement	Climate and Energy Package		Climate and Energy Framework		
					EU ETS	ESD	EU ETS	ESR	LULUCF
Sectors included	Annex A of KP (Energy, IPPU, agriculture, waste), LULUCF according to KP accounting rules for CP1	Annex A of KP (Energy, IPPU, agriculture, waste), LULUCF according to KP accounting rules for CP2	Energy, IPPU, agriculture, waste, aviation in the scope of the EU ETS	Energy, IPPU, Agriculture, Waste, LULUCF	Power & heat generation, energy-intensive industry sectors, aviation (Annex 1 of ETS directive)	Transport (except aviation), buildings, non-ETS industry, agriculture (except forestry) and waste	As under Climate and Energy Package	As under Climate and Energy Package. [46]	Land-use, land-use change and forestry
GWPs used	IPCC SAR	IPCC AR4	IPCC AR4	IPCC AR4	IPCC AR4				

46 The ESR allows the use of land-use credits under certain conditions and up to a total limit over the period 2021-2030 as a flexibility option.

4. PROGRESS IN THE ACHIEVEMENT OF QUANTIFIED ECONOMY-WIDE EMISSION REDUCTION TARGETS AND RELEVANT INFORMATION

4.1. Introduction

This chapter provides an overview of the EU policies, which contribute to meeting the EU emission reduction targets, along with other issues such as assessments of economic or social consequences.

Policies and measures are developed at both the Union and national levels. At the EU level, they stem from legislative proposals from the Commission, which are subsequently approved or amended by the European Parliament and the Council of the EU. These Union laws are applicable to all Member States, but some of them, referred to as Directives, only set objectives and minimum standards that may then be implemented in different ways by Member States. National policies translate the relevant pieces of legislation into practice. Additionally, EU Member States can adopt national climate policies and measures on top of those required under EU legislation.

The reporting in this Biennial Report concentrates on the EU policies; national policies and measures are outside the scope of the report. Information on the latter is found in the biennial reports of individual EU Member States.

The type of EU policies and measures covered by this Report and previous ones include:

- Strategies and action plans, e.g. Bioeconomy Strategy, Energy Union Strategy, Soil Thematic Strategy, EU Action Plan for the Circular Economy, etc;
- White Papers, e.g. Roadmap to a Single European Transport Area;
- Commission Communications, e.g. on long–term vision, 2020 Climate & Energy Package;
- European level Decisions, e.g. Effort Sharing;
- Directives, e.g. EU Emissions Trading System, Carbon Capture and Storage, Clean Vehicles, Nitrates Directive, etc;
- Regulations, e.g. Energy Union Governance, Effort Sharing, LULUCF, CO_2 from cars, F-Gases, etc;
- Programmes, e.g. Horizon 2020, etc;
- Funding instruments, e.g. ESIF, European Energy Efficiency Fund, etc.

This report focuses in particular on updates or changes to the policies and measures at the EU level, and does not attempt to include a comprehensive background to each policy. If more background is required, links are provided, and additionally, the reader can refer to the EU's 3BR[47].

47 http://unfccc.int/files/national_reports/annex_i_natcom/submitted_natcom/application/pdf/459381_european_union-nc7-br3-1-nc7_br3_combined_version.pdf

Quantifications of the policy impacts on GHG emissions reduction are attached in Table 3 of the Common Tabular Format (CTF). The European Commission produces these (mostly) ex-ante estimates as part of impact assessments of the individual policies. The estimates are for the EU as a whole, and assume full implementation of the policies. However, estimates are not available for all EU policies and all years covered in CTF Table 3. Some older estimates refer to the EU-15 while estimates that are more recent are for the EU-27 or the EU-28.

4.2. **Cross-cutting policies and measures**

This section focuses on the key cross-cutting policies and measures implemented to achieve the Union level targets, namely the EU Emissions Trading System (EU ETS) and Effort Sharing legislation (ESD, ESR). It then describes some key cross-cutting initiatives, such as EU funding instruments.

Details on the EU ETS and ESD were reported in Sections 4.2.2 and 4.2.3 of the EU's First Biennial Report (1BR), and relevant updates were described in Section 3.1 of the 2BR and Section 4.2.1 of the 3BR. Changes and updates compared to the information provided in the 3BR are explained in the following two sections.

4.2.1. *The EU Emissions Trading System (EU ETS)*

The EU ETS is based on the 'cap and trade' principle, and has been operational since 2005. It limits emissions from nearly 11,000 heavy energy-using installations (power stations and industrial plants) and over 500 aircraft operators operating between European Economic Area (EEA) countries, and it covers around 40% of the EU greenhouse gas emissions.

Putting a price on greenhouse gas emissions is important to harness market forces and achieve cost-effective emission reductions. In parallel to providing a carbon price, which incentivises emissions reductions, the EU ETS, in its third trading period, is supporting the reduction of greenhouse gas emissions by providing €2.1 billion for the deployment of innovative renewables and carbon capture and storage, via the sale of 300 million emission allowances from the New Entrants' Reserve (the so-called NER 300 programme).

The 3BR described the legislative proposal for the revision of the EU ETS for phase four in line with the 2030 Climate and Energy Framework. Since the 3BR, the revised EU ETS Directive establishing the framework of the EU ETS for the period 2021-2030 (Directive (EU) 2018/410) entered into force on 8 April 2018[48]. The preparation of implementing legislation based on the revised EU ETS Directive is ongoing, with the aim of having all necessary implementing provisions adopted by January 2021.

48 DIRECTIVE (EU) 2018/410 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 14 March 2018 amending Directive 2003/87/EC to enhance cost-effective emission reductions and low-carbon investments, and Decision (EU) 2015/1814

Between 2013 and 2018, emissions in the sectors covered by the EU ETS have decreased by 11.8%.[49] To increase the pace of emissions cuts in phase four, the overall number of emission allowances will decline at an annual rate of 2.2% from 2021 onwards, compared to 1.74% during the period between 2013-2020. This increase implies a steady reduction of some 48 million allowances annually, compared to 38 million currently, and is consistent with a 43% reduction in GHG emissions from ETS covered sectors by 2030, compared to 2005 levels.

The Market Stability Reserve (MSR), a mechanism set in place for reducing the imbalance on the carbon market, has been substantially reinforced by the revision. Between 2019 and 2023, the rate at which allowances will be placed in the MSR will be doubled to 24% in order to restore the balance of emission allowances in the carbon market more swiftly. Moreover, from 2023 onwards, the number of emission allowances held in the MSR will be limited to the auction volume of the previous year.

The MSR became operational in January 2019. In preparation for this, the Commission has published as from mid-May 2017 the surplus of allowances for the preceding year. In May 2019, the surplus was published[50] for the third time, corresponding to 1.65 billion allowances. On the basis of the 2018 surplus and the revised legislation, the auction volumes from September to December 2019, and from January to August 2020, will be reduced by close to 397 million allowances, corresponding to 24% of the surplus.

Member States may voluntarily cancel allowances from the total auction volume available to them in case of closure of electricity generation capacity resulting from additional national measures. If power plants are closed without the Member State concerned opting to cancel allowances, the MSR rules will capture the effect, by increasing the reserve feeds or by later releases of allowances from the reserve.

The existing free allocation framework has been broadly maintained for phase four to ensure predictability and transparency for European industry, addressing the competitiveness concerns in a more focused and targeted way than before. Free allocation will continue to be based on benchmark values derived with reference to the performance of the 10% most efficient installations in the EU, updated to reflect the technological progress since the previous exercise, and including procedures to take account for changes in production levels.

Several low-carbon funding mechanisms will help industrial sectors and the power sector meet the innovation and investment challenges of the transition to a low-carbon economy in phase four. In particular, an Innovation Fund[51] will support the demonstration of innovative renewable energy and low-carbon innovation in industry, as well as carbon capture, utilisation and storage, with resources corresponding to the market value of at least 450 million allowances at the time of auctioning, as well as any unspent funds from the NER300 programme. A Modernisation Fund will provide at least 310 million allowances to support

49 The cut-off date for data used is 28 June 2019. The decrease pertains to verified emissions from EU ETS stationary installations (power sector and industry).

50 C(2019) 3288 final, https://ec.europa.eu/clima/sites/clima/files/ets/reform/docs/c_2019_3288_en.pdf

51 https://ec.europa.eu/clima/policies/innovation-fund_en

modernisation of energy systems and just transition in ten lower income EU Member States. [52]

4.2.1.1. Aviation under the EU ETS

The aviation sector has been part of the EU ETS since 2012. The original legislation covers all flights in and out of the European Economic Area (EEA). However, for 2012-2016, in order to support the development of a global measure by the International Civil Aviation Organisation (ICAO) for reducing aviation CO_2 emissions, the EU provided a derogation limiting obligations solely to flights within the EEA and to flights within the EEA outermost regions.
In light of the adoption of a Resolution by the 2016 ICAO Assembly on the global measure "Carbon Offsetting and Reduction Scheme for International Aviation" (CORSIA), pending the ICAO's adoption of the relevant CORSIA instruments and subsequent decisions by the EU on the possible implementation of CORSIA in the EU, and to provide continued momentum to the international process, the EU decided in 2017 to extend the current derogation from EU ETS obligations for flights to and from third countries until 31 December 2023, subject to review[53]. The review should consider how to implement the ICAO global measure in Union law through a revision of the EU ETS legislation. The review would take due account of the necessary consistency with EU climate objectives and commitments under the Paris Agreement.

In October 2018, the ICAO Council adopted the Standards and Recommended Practices (SARPs) for CORSIA. As of 1 January 2019, aircraft operators will be required to monitor and report their emissions for CORSIA. To this end, the EU has put in place a legally binding monitoring, reporting and verification (MRV) framework based on the CORSIA SARP and the existing MRV framework under the EU ETS[54].

The inclusion of intra-EEA flights in the EU ETS has delivered around 100 Mt of CO_2 reductions between 2012 and 2018[55]. While some reductions are likely to be within the aviation sector, encouraged by the EU ETS's economic incentive for limiting emissions or use of aviation biofuels, the majority of reductions are expected to have occurred in other sectors.[56]

52 A summary of the provisions of the revised ETS Directive is available in Chapter 2 "The EU ETS Framework in phase 4 (2021 – 2030)" of the latest Report on the Functioning of the European Carbon Market (COM(2018) 842 final), published on 17 December 2018 (https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52018DC0842&from=EN). Table 1 in Appendix 6 of the same report ("State of play of EU ETS phase 4 implementation") provides an overview of the implementing measures to be adopted following the entering into force of the revised EU ETS Directive, including a timeframe for their foreseen adoption.

53 REGULATION (EU) 2017/2392 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 13 December 2017 amending Directive 2003/87/EC to continue current limitations of scope for aviation activities and to prepare to implement a global market-based measure from 2021, OJ L 350, 29.12.2017, p. 7

54 The EU MRV framework consists of the two implementing acts (Commission implementing regulation (EU) 2018/2066 of 19 December 2018 and Commission implementing regulation (EU) 2018/2067 of 19 December 2018 and a delegated act (Commission Delegated Regulation (EU) 2016/2072 of 22 September 2016).

55 1.5% of aviation emissions may be offset by the use of International Credits. Only CP2 CERs from some limited project types may be used.

56 https://ec.europa.eu/clima/policies/ets/allowances/aviation_en

The Innovation Fund, established by and funded through the EU ETS, will also support the aviation sector through funding of innovation projects in low-carbon technologies and processes; the production of e-fuels[57] and synthetic kerosene to replace carbon intensive refinery products; and in the production of e-fuels, hydrogen and synthetic kerosene where these are forms of energy storage.

4.2.2. *The Effort Sharing Decision (2013-2020), the Effort Sharing Regulation and the LULUCF Regulation (2021-2030)*

The EU **Effort Sharing Decision** (2013-2020)[58] covers direct emissions from the non-ETS sectors such as buildings, transport (excluding aviation) and agriculture (excluding land use, land use change and forestry) for the period 2013-2020. It sets binding national emission targets for 2020, expressed as percentage changes from 2005 levels, and a trajectory of annual limits between 2013 and 2020 for each Member State. By 2020, these national targets will collectively deliver a reduction of around 10% in total EU emissions from the sectors covered compared with 2005 levels. Under the decision, EU Member States report annually their greenhouse gas emissions for the period 2013-2020. The European Commission reviews the emissions and checks that Member States comply with their annual limits (so-called annual emission allocations, AEAs). The next annual compliance check for the year 2018 will be carried out in 2020.

The decision provides for a number of flexibilities to help Member States to manage annual variations in emissions within the period, including banking and borrowing. For example, if a Member State's emissions are below its annual emissions allocation (AEA) in a given year, the surplus can be carried over and used to contribute towards its allocation in subsequent years. However, if emissions from a Member State exceed its annual emissions allocation for a given year, even when its use of flexibilities has been accounted for, it will be subject to a penalty and will have to take corrective action in order to comply with the ESD. In such a case, the Member State in question will have to achieve the missing emission reductions in the next year, multiplied by a factor of 1.08 as a penalty. It will also have to submit a corrective action plan to the Commission detailing how it intends to get back on track towards meeting its 2020 target. In addition, it will temporarily lose the right to transfer any allocations to other Member States.

The progress of Member States in meeting the emissions reduction targets set in the Effort Sharing Decision (ESD) is assessed under the Monitoring Mechanism Regulation (Regulation No 525/2013)[59], and as part of the European Semester[60]. Effort sharing emissions in 2017 were 10.5 % below 2005 levels, which is a greater reduction than the 9.3 % needed to reach

57 E-fuels are gaseous and liquid fuels such as hydrogen, methane, synthetic petrol and diesel fuels generated from renewable electricity.

58 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

59 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

60 The European Semester is the EU's annual cycle of economic policy guidance and surveillance: http://ec.europa.eu/economy_finance/economic_governance/the_european_semester/index_en.htm

national targets for effort sharing emissions by 2020. Preliminary estimates suggest that emissions have decreased in 2018, and are at 11% below 2005 levels.[61] Emissions in the sectors covered by the effort sharing legislation decreased gradually from 2005 to 2014. After 2014, emissions increased in three consecutive years, followed by a reduction in 2018.

The 3BR described the legislative proposals for the revision of EU legislation covering the non-ETS emissions in line with the 2030 Climate and Energy Framework. The two main developments since the 3BR are the adoptions of the **Effort Sharing Regulation**[62] on binding annual emission reductions by Member States from 2021 to 2030 and the **LULUCF Regulation**[63] in 2018. The Effort Sharing Regulation sets national emissions reduction targets for 2030 (and trajectories with annual limits in 2021-2030) for all Member States, ranging from 0% to - 40% from 2005 levels[64]. The Effort Sharing Regulation keeps many of the flexibilities and the need for annual compliance in 2021-2030 as currently under the Effort Sharing Decision. There is a new option for some Member States to use a limited amount of allowances from the EU ETS. There are also some flexibilities with the new LULUCF Regulation, which defines for the first time an EU target for the land use, land use change and forestry sector, and includes the so-called "no-debit rule"[65] (see Section 4.3.5). In total, Member States can use up to 280 million tons of LULUCF credits for effort sharing compliance and can use effort sharing AEAs to cover LULUCF debits.

4.2.3. *Other cross-cutting policies and measures*

As outlined in the 3BR, climate action is a key priority for the EU. To respond to challenges and investment needs related to climate change, the EU has agreed that at least 20% of its budget for 2014-2020 – as much as €180 billion − should be spent on climate change related action. To achieve this increase, mitigation and adaptation actions are integrated into all major EU spending programmes. Current estimates show that the EU budget annual allocation to climate action has exceeded the 20% target in 2016 and will remain close to it over 2017-2020. It is set to deliver slightly above €200 billion[66]. Negotiations on EU budget 2021-2027 are ongoing (see Section 6.2.1.2, subparagraph on mobilising climate finance later in the Report).

61 See page 19 of EEA report on Trends and projections in Europe 2018, https://www.eea.europa.eu/publications/trends-and-projections-in-europe-2018-climate-and-energy

62 REGULATION (EU) 2018/842 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 30 May 2018 on binding annual greenhouse gas emission reductions by Member States from 2021 to 2030 contributing to climate action to meet commitments under the Paris Agreement and amending Regulation (EU) No 525/2013

63 REGULATION (EU) 2018/841 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 30 May 2018 on the inclusion of greenhouse gas emissions and removals from land use, land use change and forestry in the 2030 climate and energy framework, and amending Regulation (EU) No 525/2013 and Decision No 529/2013/EU

64 More information can be found on the European Commission's website https://ec.europa.eu/clima/policies/effort/proposal_en

64 International project credits, such as CDM and JI, are not allowed in 2021-2030 under the Effort Sharing Regulation.

65 More information can be found on the European Commission's website https://ec.europa.eu/clima/policies/forests/lulucf_en and or in section 4.3.5 below.

66 Statement of Estimates of the European Commission for the financial year 2020. SEC(2019) 250 - June 2019

4.2.3.1. European Structural and Investment Funds (ESIF)

As shown below, climate change mitigation and adaptation action receive significant support from ESI Funds in the period 2014-2020 amounting to almost €200 billion of which more than half – about €58 billion – comes from the European Agricultural Fund for Rural Development (EAFRD)[67]. The European Regional Development Fund (ERDF)[68] and the Cohesion Fund[69] also have a significant contribution of about €57 billion collectively.

4.2.3.2. European Fund for Strategic Investments

The European Fund for Strategic Investments[70] (EFSI) is the central pillar of the Investment Plan for Europe. It provides a first loss guarantee, allowing the EIB to invest in more and often riskier projects. The so-called "EFSI 2.0" extends the lifetime of the fund from mid-2018 to end 2020 and increases its investment target from €315 billion to at least half a trillion euros. It underlines the importance of sustainability by linking EFSI to more cross-border and sustainable projects, in particular those that help achieve the Paris Agreement climate targets, to help the transition to a resource efficient, circular and zero-carbon economy. At least 40% of EFSI infrastructure and innovation projects will aim to contribute to climate action in line with the Paris Agreement. EFSI 2.0 also explicitly targets new sectors: sustainable agriculture, forestry, fisheries and aquaculture.

4.2.3.3. InvestEU Programme

The InvestEU Programme[71] will bring together under one roof the multitude of EU financial instruments currently available to support investment in the EU, making funding for investment projects in Europe simpler, more efficient and more flexible. InvestEU will run between 2021 and 2027 and it builds on the success of the Juncker Plan's European Fund for Strategic Investments by providing an EU budget guarantee to support investment and access to finance in the EU. InvestEU aims to trigger at least €650 billion in additional investment.

The InvestEU Fund will support four policy areas: sustainable infrastructure; research, innovation and digitisation; small and medium-sized businesses; and social investment and skills. InvestEU will also be flexible: it will have the ability to react to market changes and policy priorities that change over time. The InvestEU Fund will be market-based and demand-driven. By crowding-in private investors, it will help achieve the EU's ambitious goals in sustainability, scientific excellence and social inclusion.

67 REGULATION (EU) 1305/2013 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 December 2013 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD) and repealing Council Regulation (EC) No 1698/2005

68 REGULATION (EU) No 1301/2013 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 December 2013 on the European Regional Development Fund and on specific provisions concerning the Investment for growth and jobs goal and repealing Regulation (EC) No 1080/2006

69 REGULATION (EU) No 1300/2013 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of the European Parliament and of the Council of 17 December 2013 on the Cohesion Fund and repealing Council Regulation (EC) No 1084/2006

70 https://ec.europa.eu/commission/priorities/jobs-growth-and-investment/investment-plan-europe-juncker-plan/european-fund-strategic-investments-efsi_en

71 https://ec.europa.eu/commission/presscorner/detail/en/MEMO_19_2135

4.2.3.4. LIFE programme

The LIFE programme[72] is the EU's funding instrument for the environment and climate action. The Climate Action sub-programme supports projects in the development of innovative ways to respond to the challenges of climate change in Europe. It covers mitigation, adaptation and climate change governance and information topics, and its objectives are to:

- Contribute to the shift towards a low-carbon and climate-resilient economy;
- Improve the development, implementation and enforcement of EU climate change policy and legislation;
- Support better environmental and climate change governance at all levels and;
- Support the implementation of the 7th Environment Action Programme[73].

72 Regulation (EU) No 1293/2013 of the European Parliament and of the Council of 11 December 2013 on the establishment of a Programme for the Environment and Climate Action (LIFE) and repealing Regulation (EC) No 614/2007

73 https://ec.europa.eu/environment/action-programme/

Table 4-1 Total contributions to climate mainstreaming from all funds[74]

Programme	2014-2019 (EUR (€) '000,000 at current prices, commitment appropriations)						Draft budget	Total 2014-2020
	2014	2015	2016	2017	2018	2019	2020	
Total Climate Change finance in the EU budget	16,174.00	28,398.40	33,018.40	31,555.80	32,437.50	33,809.90	34,451.80	209,845.80
Share of climate relevant spending in EU budget	13.7%	17.9%	21.8%	20.2%	20.7	20.9%	21.0%	19.7%
European Structural Investment Funds (ESIF) total	8,273.3	19,889.7	19,051.4	17,116.1	18,231.9	18,487.7	18,769.0	119,819.1
European Regional Development Fund (ERDF)	3,138.0	6,111.2	4,948.1	5,376.7	5,554.4	5,721.2	5,880.7	36,730.3
Cohesion Fund (CF)	1,960.3	3,148.3	3,070.4	2,943.4	3,053.9	3,165.9	3,274.0	20,616.2
European Social Fund (ESF) [75]	0.0	22.5	135.9	383.7	1,201.9	1,000.0	1,000.0	3,744.0

74 Statement of Estimates of the European Commission for the financial year 2020. SEC(2019) 250 - June 2019

75 REGULATION (EU) No 1304/2013 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 December 2013 on the European Social Fund and repealing Council Regulation (EC) No 1081/2006

Programme	2014-2019 (EUR (€) '000,000 at current prices, commitment appropriations)						Draft budget	Total 2014-2020
	2014	2015	2016	2017	2018	2019	2020	
European Agricultural Fund for Rural Development (EAFRD)	3,037.0	10,468.0	10,756.0	8,269.0	8,275.0	8,453.0	8,464.0	57,722.0
European Maritime and Fisheries Fund (EMFF)	138.0	139.7	141.0	143.3	146.7	147.6	150.3	1,006.6

4.2.3.5. Horizon 2020

Horizon 2020[76] is the biggest EU research and innovation (R&I) programme ever with nearly €80 billion of funding available over seven years (2014 to 2020), in addition to private and national domestic investment. The EU aims to spend 35% of the overall Horizon 2020 budget on climate relevant R&I, including physical and socio-economic sciences, Earth observations, technology research and innovation and climate policy analysis. Horizon 2020 is explained in more detail in Section 4.2.3.2. of the EU's 7th National Communication[77].

An interim evaluation of the Horizon 2020 Programme has found that whilst it supports achieving EU policy objectives through its focus on excellent science, industrial leadership and societal challenges, the expenditure targets for sustainable development and climate change are not met yet, so efforts have been stepped up in the final work programme.

Negotiations on Horizon Europe, the ambitious €100 billion successor framework programme for research and innovation 2021-2027 are ongoing. The proposal from the Commission puts forward 35% climate mainstreaming objective (mitigation and adaptation) across all activities of Horizon Europe. It establishes a dedicated cluster on climate, energy and mobility, with a proposed budget of €15 billion. A large number of R&I partnerships is set up, for instance on decarbonisation of different transport modes (road, maritime, aviation), energy transition, buildings, the bio-economy, low carbon and circular industries, as well as clean steel partnership. A number of missions is foreseen and which will be implemented through a systemic approach, combining new knowledge and technology with business model, finance, regulatory, governance, skills and social innovation. They are meant to advance science, develop concrete solutions, kick-start new industries and transform society. Of direct relevance to climate change are the Mission on adaptation and societal transformation, the Mission on climate-neutral and smart cities, and indirectly the Mission on healthy oceans, seas, coastal and inland waters and the Mission for soil health and food.

4.2.3.6. Updated Bioeconomy Strategy

In October 2018, the Commission launched the updated EU Bioeconomy Strategy which aims to address five objectives: 1) Ensuring food and nutrition security; 2) Managing natural resources sustainably; 3) Reducing dependence on non-renewable, unsustainable resources whether sourced domestically or from abroad; 4) Mitigating and adapting to climate change and; 5) Strengthening European competitiveness and creating jobs.

To meet these objectives, the strategy relies on an action plan with 14 actions structured around three main actions areas: 1) Strengthen and scale-up the bio-based sectors, unlock investments and markets; 2) Deploy local bioeconomies rapidly across Europe and; 3) Understand the ecological boundaries of the bioeconomy.

76 REGULATION (EU) No 1291/2013 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 11 December 2013 establishing Horizon 2020 - the Framework Programme for Research and Innovation (2014-2020) and repealing Decision No 1982/2006/EC

77 https://unfccc.int/documents/198246

4.2.3.7. European Covenant of Mayors for Climate and Energy

The European Commission channels support to local authorities through its EU Covenant of Mayors for Climate and Energy initiative. Today, the EU Covenant brings together more than 9,000 cities and towns in all 28 EU countries (representing more than 200 million inhabitants) taking voluntary action on mitigation and adaptation to climate change as well as on energy poverty. EU Covenant cities contribute to the EU's climate and energy objectives, having already reduced emissions by around 23% compared to 2005[78], and targeting a 27% reduction by 2020. In addition, over 1000 cities have committed to reducing GHG emissions by at least 40% by 2030.

The Covenant has proven over the years an effective tool to mobilise and empower local governments to act for the climate and promote innovative solutions. EU efforts are now part of the "Global Covenant of Mayors for Climate and Energy" (GCoM), a worldwide initiative that brings under a common umbrella the commitments of local governments in climate action. Within GCoM, the EU also finances eight regional covenants in different parts of the world (Latin America and the Caribbean, North America, East Asia, South Asia, South-East Asia, Eastern Neighbourhood, Southern Neighbourhood, Sub-Saharan Africa).

The Commission introduced climate adaptation into the Covenant of Mayors in 2015, and since then has been raising awareness and mobilising and supporting cities in adopting local adaptation strategies and plans. By July 2019, around 1 900 Covenant signatories from 26 EU Member States, covering around 90 million inhabitants, had committed to conducting vulnerability and risk assessments, and to developing, implementing and reporting on adaptation plans. Around 150 EU Covenant cities have submitted a climate action plan including a climate adaptation dimension. Across the EU, around 40% of cities with more than 150 000 inhabitants have adopted adaptation plans.

4.3. **Sectoral policies and measures**

4.3.1. *Energy*

4.3.1.1. Overview

The Energy Union Strategy was published in February 2015, and the Commission publishes regular reports on the progress achieved in its five dimensions, the most recent of which was in April 2019. As outlined in the 3BR, the Commission's 'Clean Energy for All Europeans' package was published in November 2016. One of its proposed instruments was the Regulation on the Governance of the Energy Union and Climate Action, which entered into force on 24 December 2018. Its goals are:

- To implement strategies and measures which ensure that the objectives of the Energy Union, including in particular the EU's 2030 energy and climate targets, and the long-

78 See for more information the following JRC report: https://publications.jrc.ec.europa.eu/repository/bitstream/JRC106725/kjna28723enn.pdf

term EU greenhouse gas emissions commitments are consistent with the Paris Agreement;
- To stimulate cooperation between Member States in order to achieve the objectives and targets of the Energy Union;
- To promote long-term certainty and predictability for investors across the EU and foster jobs, growth and social cohesion;
- To reduce administrative burden, in line with the principle of better regulation. This was done by integrating and streamlining most of the current energy and climate planning and reporting requirements of EU countries as well as the Commission's monitoring obligations;
- To ensure consistent planning, reporting and monitoring by the EU and its Member States under the UN Framework Convention on Climate Change and the Paris Agreement, replacing the existing climate monitoring and reporting system from 2021 onwards.

As part of this process, Member States are required to prepare and adopt integrated national energy and climate plans (NECPs), covering ten-year periods starting from 2021 to 2030, EU and national long-term strategies, as well as integrated implementation reports. Draft NECPs for all Member States, as well as the Commission's assessment and recommendations, can be found on the European Commission website[79].

4.3.1.2. Promotion of renewable energy

As outlined in the 3BR, the EU has renewable energy targets for 2020 (20% share of energy) based on Directive 2009/28/EC[80]. The recast renewable energy Directive EU 2018/2001[81] entered into force in December 2018 and included a new binding EU target of at least 32% renewable energy in final energy consumption for 2030. Additionally, it set a binding target of at least 14% of final energy consumption in transport, to mainstream renewable energy in the transport sector by 2030. Finally, it also included a clause for an upwards revision by 2023 in case of further substantial costs reductions in the production of renewable energy, needs justified by the Union's international commitments for decarbonisation, or a significant decrease in energy consumption in the Union that justifies such an upwards revision. The directive must now be transposed into national legislation and this shall be done by 30 June 2021.

Every two years, the EU publishes a renewable energy progress report. The 2019 report[82] published in April shows that the EU as a whole achieved a 17.5% share of renewable energy in 2017. In addition, in 2017, renewable energy accounted for 19.5% of the total energy used

79 https://ec.europa.eu/energy/en/topics/energy-strategy-and-energy-union/governance-energy-union/national-energy-climate-plans

80 DIRECTIVE 2009/28/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC

81 DIRECTIVE (EU) 2018/2001 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 11 December 2018 on the promotion of the use of energy from renewable sources (recast) https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018L2001&from=EN

82 https://ec.europa.eu/commission/sites/beta-political/files/report-progress-renewable-energy-april2019_en.pdf

for heating and cooling in the European Union. This is a significant increase from 10.4% in 2004[83].

The vast majority of EU countries is well on track to reach their 2020 binding targets for renewable energy but the report did note that in order to meet the national 2020 renewable energy targets, and sustain these levels as a baseline from 2021 onwards, most Member States are encouraged to continue stepping up efforts to both deploy renewables across the sectors, while at the same time reducing energy consumption.

All EU countries have adopted national renewable energy action plans showing what actions they intend to take to meet their renewables targets. These plans include sectoral targets for electricity, heating and cooling, and transport; planned policy measures; the different mix of renewables technologies they expect to employ; and the planned use of cooperation mechanisms. More information on these action plans can be found in the Biennial Reports of individual Member States or on the European Commission website[84].

For more information on other aspects of EU renewable energy policy, see previous EU Biennial Reports.

4.3.1.3. Energy efficiency

As outlined in the 3BR, the EU has energy efficiency targets for 2020 (20% improvement in energy efficiency compared to the 2007 modelling projections for 2020). The amended Energy Efficiency Directive (EED) 2012/27/EU entered into force in December 2018 and includes a new headline EU target of at least 32.5% energy efficiency for 2030, with a clause for an upward revision by 2023 in case of significant cost reductions due to economic or technological developments or due to the need to meet EU international commitments for decarbonisation.

Promoting energy efficiency will have numerous benefits in addition to lowering GHG emissions, as outlined in the 3BR. The most recent EU progress report on energy efficiency, published in April 2019, found that, following a gradual decrease between 2007 and 2014, energy consumption increased between 2014 and 2017 in part due to colder winters, increases in the economic activity and lower fuel prices.

The increases in the last three years up to 2017 have moved energy consumption slightly above the linear trajectory for the 2020 targets. If the increasing trend in energy consumption observed since 2014 continues in the coming years, reaching the 2020 target both for primary and final energy consumption could be at risk. Therefore, in order to deliver energy savings in the short term, there is a need to further intensify efforts. More details can be found on the European Commission website[85].

83 https://ec.europa.eu/info/news/energy-heating-cooling-renewable-sources-2019-mar-04_en

84 https://ec.europa.eu/energy/en/topics/renewable-energy/national-action-plans

85 https://ec.europa.eu/commission/sites/beta-political/files/report-2018-assessment-progress-energy-efficiency-targets-april2019_en.pdf

In response to the observed growing energy consumption trends since 2014, the Commission has set up a dedicated Member State Task Force in 2018 on mobilising efforts to reach the EU energy efficiency targets for 2020[86]. The Task Force broadly agreed that there is a need to address the delivery gap in achieving the EU 2020 targets. A set of possible solutions was identified as a way forward. It is important to ensure full implementation of the existing legislation, as there have been delays in transposing and implementing both the Energy Efficiency Directive and Energy Performance of Buildings Directive (EPBD). This includes full achievement of the energy savings obligation under Article 7 of the EED, and meeting the requirement to carry out regular inspections under Articles 14 and 15 of the EPBD. Furthermore, it is important to make full use of the remaining funding opportunities under the European Structural and Investment Funds and to implement additional measures at national level.

The Commission will continue monitoring energy consumption trends in the context of the annual progress report on energy efficiency. In addition, it will continue monitoring the implementation and transposition of energy efficiency legislation in Member States. It will also work closely with EU countries and stakeholders to provide necessary support so that the identified measures can be implemented in view of reaching the 2020 targets.

Regarding energy efficiency in buildings specifically, in July 2018, Directive 2018/844/EU amending the existing Directive 2010/31/EU (EPBD) entered into force. The main goal of the changes is to accelerate the renovation of the existing building stock towards its decarbonisation by 2050 through strengthened long-term renovation strategies underpinned by the mobilisation of investments into renovation. The amendments also support the modernisation of all buildings with smart technologies and make a clearer link to clean mobility by defining requirements for the deployment of electromobility infrastructure in buildings' car parks and by including new provisions to enhance smart technologies and technical building systems, including automation. Member States have until March 2020 to transpose the provisions into national law. According to the impact assessment accompanying the proposal to revise the EPBD, the provisions could reduce GHG emissions by 38 Mt CO_2 and could improve the GHG emission in buildings by 1.32 kg CO_2/m^2.

In addition to this revised EPBD Directive, the EED also sets certain conditions regarding energy efficiency from buildings, such as carrying out energy efficient renovations on at least 3% (by floor area) of the buildings owned and occupied by central government (see above for more details). It is also important to mention that according to the EPBD, all new buildings must be nearly zero-energy from 2021, meaning with a very high energy performance; while the nearly zero or very low amount of energy required should be covered to a very significant extent by energy from renewable sources. In addition, the EPBD requires that EU countries calculate and define cost-optimal minimum energy performance requirements for new as well as renovated buildings in their territory. These requirements must be reviewed every five years and, if necessary, updated in order to reflect technological progress in the buildings

86 European Commission (2019), Report of the work of the Task Force on mobilising efforts to reach the EU Energy efficiency targets for 2020.

sector. The latest reports submitted in 2018 can be found on the European Commission website[87].

Alongside the efforts outlined above, the EU is also improving energy efficiency in a range of other ways, including:

- Through its EU strategy for heating and cooling and the related industrial roundtables that have been and will be organised[88];
- Using energy labels and eco-design[89]: In October 2019, the Commission has adopted another ten implementing regulations on eco-design for appliances such as refrigerators, washing machines, dishwashers, and televisions. Six of the product groups that are subject to new and revised ecodesign requirements are also covered by new energy labelling rules;
- Facilitating a detailed and technologically neutral assessment of efficiency potentials in heating and cooling;
- Ensuring that the Commission's principle of Energy Efficiency First is reflected in the policy;
- Initiatives to finance energy efficiency measures[90]. For example:
    - Starting from beginning of 2019 until 2024, the European Commission supports the planning of energy efficiency investments in residential buildings, with additional €97 million over by means of the European Local ENergy Assistance (ELENA, see next page);
    - The European City Facility (H2020 EU funding programme), expected to start in 2019, will support cities and regions to prepare investment in sustainable energy. Financial support will be given to public authorities in the form of a lump sum grant to develop their investment concept within a short and limited period. Equipped with a budget of €16 million, the Facility could offer support to up to 300 cities across Europe over the next years to elaborate their investment concepts;
    - In March 2019, the 2019 call for proposals for the Secure, Clean and Efficient Energy topics of the Horizon 2020 EU funding programme was launched. Under this call, around €112 million of EU funding is available for energy efficiency research, innovation and market uptake;
    - Another initiative funded under Horizon 2020 is the Sustainable Energy Investment (SEI) Forums initiative, aiming at improving finance for energy efficiency from public and private funds by stimulating dialogue between key stakeholders (e.g. relevant ministries, energy agencies and financial institutions) at local and national level.

87 https://ec.europa.eu/energy/en/content/eu-countries-2018-cost-optimal-reports

88 https://ec.europa.eu/energy/en/topics/energy-efficiency/heating-and-cooling

89 https://ec.europa.eu/info/energy-climate-change-environment/standards-tools-and-labels/products-labelling-rules-and-requirements/energy-label-and-ecodesign_en

90 https://ec.europa.eu/energy/en/topics/energy-efficiency/financing-energy-efficiency

Energy efficiency actions under the Horizon 2020 Societal Challenge 3 (Secure, Clean and Efficient Energy) have been estimated to have led to additional annual energy savings of 305,000 tCO_2e in 2015, 285,000 tCO_2e in 2016, 225,000 tCO_2e in 2017, 285,000 tCO_2e in 2018 and 340,000 tCO_2e in 2019.

4.3.2. *Transport*

EU-level transport policies contribute to the fulfilment of EU's 2020, 2030 and 2050 ambition.

This sector is however the only major sector in the EU where emissions are still growing (see Section 2 of this report).

4.3.2.1. Europe on the Move

During 2017 and 2018, the Commission adopted three Mobility Packages, including legislative initiatives to reduce CO_2 emissions from the transport and mobility sectors.

The Mobility Packages include the following initiatives:

- New CO_2 standards to help manufacturers to embrace innovation and supply low-emission vehicles to the market. The proposal also includes targets for both 2025 and 2030. The 2025 intermediary target ensures that investments kick-start already now. The 2030 target gives stability and long-term direction to keep up these investments. These targets help pushing the transition from conventional combustion-engine vehicles to clean ones;
- The Clean Vehicles Directive to promote clean mobility solutions in public procurement tenders and thereby provide a solid boost to the demand and to the further deployment of clean mobility solutions;
- An action plan and investment solutions for the trans-European deployment of alternative fuels infrastructure. The aim is to increase the level of ambition of national plans, to increase investment, and improve consumer acceptance;
- The revision of the Combined Transport Directive, which promotes the combined use of different modes for freight transport (e.g. lorries and trains), will make it easier for companies to claim incentives and therefore stimulate the combined use of trucks and trains, barges or ships for the transport of goods;
- The Directive on Passenger Coach Services, to stimulate the development of bus connections over long distances across Europe and offer alternative options to the use of private cars, will contribute to further reducing transport emissions and road congestion. This will offer additional, better quality and more affordable mobility options, particularly for people on low income
- The battery initiative to promote those vehicles and other mobility solutions of tomorrow and their components will be invented and produced in the EU.

European Local Energy Assistance

ELENA (European Local Energy Assistance) provides grants for project development assistance to public and private project promoters. It has already awarded around €120 million of EU support, triggering €4.7 billion of expected investments on the ground in 21 countries. Six transport projects are currently benefitting from €12.4 million from the ELENA facility. These projects are expected to generate a total investment of €511 million.

The six beneficiaries are:

- GVB in Amsterdam (NL): Investment Programme of €165.8 million in a regenerative braking energy system for the metro, IT backbone for smart mobility concept, 67 electric buses including charging infrastructure and 12 hybrid plug-in electric harbour ferries;
- City of Klaipeda municipal administration (LT): Investment Programme of €86.3 million in the electric tram system (10 km) and 6 electric buses with charging infrastructure;
- Trafikselskabet Movia in Copenhagen (DK): Investment Programme of €67.9 million in 75 electric buses, 4 harbour buses and related charging infrastructure;
- City of Gothenburg (SE): Investment Programme of €101 million in a cable car system (3 km and 4 stations) fully integrated with public transport ticketing scheme;
- HELLO project with SMEs operating in 6 regions in 5 countries (Regions of Rhine-Neckar, North Hessen, Cologne-Bonn, Limburg, Madrid, Oxfordshire and Île-de-France): Investment Programme of €52.8 million in 2 000 electric vehicles and 1 200 charging points for shared electricity mobility services;
- InnoBaltica in Pomorskie Region (PL): Investment Programme of €37.2m in an electronic ticketing system for the entire region, an urban bike sharing system for the Gdansk-Gdynia-Sopot area and a passenger information system available in all terminals.

4.3.2.2. Optimising the transport system and improving its efficiency

The Commission has proposed revising Regulation 1073/2009 on access to the international market for coach and bus services as part of the clean mobility package to facilitate the improvement of the connectivity of passengers using bus and coach services through a more coherent international framework.

The 1992 Combined Transport Directive set out measures that were meant to increase the competitiveness of combined transport against road-only transport. In 2017, the Commission proposed to simplify the existing rules and make combined transport more attractive by means of economic incentives. The initiative is part of the Commission ‘mobility package’ of legislative proposals to make EU transport safer, greener and more modern. The Transport Council of 3 December 2018 agreed a general approach on the proposal on combined transport, having also reached a position on three other key proposals in the road transport sector. Interinstitutional negotiations began after the European Parliament's Committee on

Transport and Tourism had adopted its report in July 2018. However, as trilogue negotiations had not made progress on reaching a compromise, Parliament adopted a legislative resolution at first reading on 27 March 2019, in advance of the European elections. Negotiations could restart in the new parliamentary term.[91]

4.3.2.3. Efficiency and technical standards

The Regulation setting emission performance standards for new passenger cars (EC 443/2009), the Regulation setting emission performance standards for new light commercial vehicles (EC 510/2011), car and tyre labelling (1999/94/EC and EC 1222/2009 respectively) and other fuel efficiency-related legislation (e.g. Regulation 661/2009 on tyre pressure monitoring systems and gear shift indicators) constitute key policies and measures aiming at improving vehicle efficiency across the EU.

Passenger car and light duty vehicle fuel efficiency: For the period after 2020, stricter new CO_2 emission standards will apply for new passenger cars and vans, as set by the revised Regulation (EU) 631/2019 on CO_2 emission performance standards for new passenger cars and vans. From 2025 on, manufacturers will have to meet the new targets set for the fleet-wide average emissions of new cars and vans registered in a given calendar year, with stricter targets applying from 2030. These targets are defined as a percentage reduction from the 2021 starting points:

- Cars: 15% reduction from 2025 on and 37.5% reduction from 2030 on;
- Vans: 15% reduction from 2025 on and 31% reduction from 2030 on.

The specific emission targets for manufacturers to comply with are based on the EU fleet-wide targets, taking into account the average test mass of a manufacturer's newly registered vehicles.

The Regulation also includes a mechanism to incentivise the uptake of zero- and low-emission vehicles (ZLEV), in a technology-neutral way. These vehicles will be incentivized using a crediting system, introduced from 2025. This works by relaxing the specific CO_2 emission target of a manufacturer if its share of ZLEVs registered in a given year exceeds certain benchmarks. These are:

- Cars: 15% ZLEV from 2025 on and 35% ZLEV from 2030 on;
- Vans: 15% ZLEV from 2025 on and 30% ZLEV from 2030 on

Heavy-duty vehicle (HDV) fuel efficiency: CO_2 emission performance standards for new HDVs are set for the first time in the EU through Regulation (EU) 2019/1242, adopted on 13 June 2019. The Regulation sets targets for fleet-wide average CO_2 emissions reductions from new HDVs of 15% in 2025 and 30% in 2030, both compared to the EU average in the reference period (1 July 2019-30 June 2020). The standards are first introduced for large

91 http://www.europarl.europa.eu/thinktank/en/document.html?reference=EPRS_BRI%282018%29623553

lorries only, while the scope will be extended to other heavy-duty vehicles (i.e. small lorries, buses, coaches) in due course. Like the CO_2 regulation for passenger cars and vans, the legislation for HDVs does include a specific mechanism to provide additional incentives to market zero- and low-emission vehicles. To ensure effective governance of the Regulation, the European Commission will collect, publish and monitor real-world fuel consumption data reported by manufacturers, based on mandatory standardised fuel consumption meters; and introduce in-service conformity tests, mandate the reporting of deviations, as well as introducing a correction mechanism. The Regulation includes financial penalties in case of non-compliance with the CO_2 targets. The level of the penalties is set at €4,250 per g CO_2/tkm in 2025 and €6,800 per g CO_2/tkm in 2030.

The Regulation (EU) 2018/956 on monitoring and reporting is a pillar on which the HDV Regulation is based. The Monitoring and Reporting Regulation requires that, as of 1 January 2019 Member States monitor and report to the Commission information on the heavy-duty vehicles registered for the first time in the Union; and lorry manufacturers monitor and report to the Commission CO_2 emission and fuel consumption data as determined pursuant to the certification Regulation for each new vehicle produced for the EU market. This information will be calculated using the new Vehicle Energy Consumption Calculation Tool (VECTO).

Car and tyre labelling: In May 2017, the Commission published a Recommendation that Member States should ensure that, after 1 January 2019, only fuel consumption and CO_2 emission values in accordance with the World Harmonised Light Vehicles Test Procedure (WLTP) are used when making information available for consumers pursuant to Directive 1999/94/EC[92]. The WLTP set out in Commission Regulation (EU) C(2017) 3521[93], is a new regulatory test procedure for measuring CO_2 emissions and fuel consumption from light duty vehicles that replaced the New European Test Cycle (NEDC) from 1 September 2017. The NEDC was previously used pursuant to Commission Regulation (EC) No 692/2008[94] but no longer corresponds to present-day's driving conditions or vehicle technologies. The WLTP provides stricter test conditions, more realistic fuel consumption, and CO_2 emission values to the benefit of consumers. Requirements regarding consumer information should include the manner in which access to this improved information will be ensured in order to provide for the necessary comparability of that information. In May 2018, the Commission published proposals to update and improve tyre labelling, to give consumers more information on fuel efficiency, safety and noise when they buy tyres.

92 COMMISSION RECOMMENDATION (EU) 2017/948 of 31 May 2017 on the use of fuel consumption and CO2 emission values type-approved and measured in accordance with the World Harmonised Light Vehicles Test Procedure when making information available for consumers pursuant to Directive 1999/94/EC of the European Parliament and of the Council (notified under document C(2017) 3525), C/2017/3525, OJ L 142, 2.6.2017, p. 100–103

93 COMMISSION REGULATION C(2017) 3521 of 1 June 2017 supplementing Regulation (EC) No 715/2007 of the European Parliament and of the Council on type-approval of motor vehicles with respect to emissions from light passenger and commercial vehicles (Euro 5 and Euro 6) and on access to vehicle repair and maintenance information, amending Directive 2007/46/EC of the European Parliament and of the Council, Commission Regulation (EC) No 692/2008 and Commission Regulation (EU) No 1230/2012 and repealing Regulation (EC) No 692/2008 (not yet published in the Official Journal).

94 COMMISSION REGULATION (EC) No 692/2008 of 18 July 2008 implementing and amending Regulation (EC) No 715/2007 of the European Parliament and of the Council on type-approval of motor vehicles with respect to emissions from light passenger and commercial vehicles (Euro 5 and Euro 6) and on access to vehicle repair and maintenance information (OJ L 199, 28.7.2008, p. 1).

The recommendation also included specific provisions of what Member States should ensure is presented upon/within:

- The label on each car at point of sale;
- The guide on fuel economy, as well as the poster or display at point of sale;
- Any promotional material.

The recommendation goes beyond these and includes further provisions.

Aviation: Aviation in the context of EU ETS is discussed in Section 4.2.1.1. Horizon 2020, and the preceding EU research and innovation framework programmes, have complemented national and private efforts and contributed significantly to the development of new technologies, optimised operations as well as development and demonstration of sustainable aviation fuel pathways. Two ongoing initiatives aim to demonstrate and integrate technologies that are likely to reduce emissions from aviation, namely SESAR[95] and Clean Sky 2. In parallel, a stream of European research effort focused on measurements, uncertainty quantification and better overall understanding of the atmospheric physics of CO_2 and non-CO_2 aviation emissions[96].

The SESAR project is comprised of three interrelated, continuous and evolving collaborative processes: the definition of the content and priorities, the development of new technological systems, components and operational procedures of the SESAR concept, and the deployment plans of the next generation of ATM systems contributing to the achievement of the Single European Sky performance targets. SESAR's vision builds on the notion of trajectory-based operations' and relies on the provision of air navigation services (ANS) in support of the execution of the business or mission trajectory - meaning that aircraft can fly their preferred trajectories without being constrained by airspace configurations[97].

Clean Sky 2 aims to contribute speeding up the development of cleaner air transport technologies for earliest possible deployment, and in particular the integration, demonstration and validation of technologies capable of: (i) increasing aircraft fuel efficiency, thus reducing CO_2 emissions by 20 to 30 % compared to 'state-of-the-art' aircraft entering into service as from 2014; (ii) reducing aircraft NOx and noise emissions by 20 to 30 % compared to 'state-of-the-art' aircraft entering into service as from 2014[98].

Other fuel efficiency-related legislation:

Maritime: As outlined in the Commission's Communication "The Road from Paris" (2016)[99], the EU is fully committed to step up its climate diplomacy and collaboration with other partners in order to keep the momentum behind the implementation of the Paris Agreement.

95 https://www.sesarju.eu/discover-sesar

96 FP6, FP7 and H2020 projects: e.g. AERO-2K, METRIC, SCENIC, TRADEOFF, QUANTIFY, REACT4C, ATTICA

97 COUNCIL REGULATION (EU) No 721/•2014 - of 16 June 2014 establishing (amending) the SESAR JU

98 COUNCIL REGULATION (EU) No 558/2014 of 6 May 2014 establishing the Clean Sky 2 JU

99 https://ec.europa.eu/transparency/regdoc/rep/1/2016/EN/1-2016-110-EN-F1-1.PDF

This includes active engagement within the International Maritime Organisation, the UN-agency overseeing international shipping.

Shipping currently represents 2-3% of global CO_2 emissions and could reach 10% by 2050 if no action is taken. In order to tackle this, the IMO's Marine Environment Protection Committee (MEPC) met to agree on an initial strategy to reduce greenhouse gas emissions from international shipping. During these talks, the EU advocated the highest level of ambition while recognising that emission reduction measures could affect small developing islands states and least developed countries. For this reason, the EU is funding a €10 million capacity-building project for climate change mitigation managed by the IMO[100].

The Initial IMO Strategy on Reduction of GHG Emissions from ships as agreed on 13 April 2018 aims to reduce GHG emissions from international shipping and phase them out as soon as possible in this century[101]. The strategy sets out three levels of ambition:

1. Carbon intensity of the ship to decline through implementation of further phases of the energy efficiency design index (EEDI) for new ships to review with the aim to strengthen the energy efficiency design requirements for ships with the percentage improvement for each phase to be determined for each ship type, as appropriate;
2. Carbon intensity of international shipping to decline to reduce CO_2 emissions per transport work, as an average across international shipping, by at least 40% by 2030, pursuing efforts towards 70% by 2050, compared to 2008; and
3. GHG emissions from international shipping to peak and decline to peak GHG emissions from international shipping as soon as possible and to reduce the total annual GHG emissions by at least 50% by 2050 compared to 2008 whilst pursuing efforts towards phasing them out as called for in the Vision as a point on a pathway of CO_2 emissions reduction consistent with the Paris Agreement temperature goals.

In the Council Conclusions of 18 February 2019 related to climate diplomacy, the EU calls on the International Maritime Organisation (IMO) to implement its initial greenhouse gas emission strategy consistent with the temperature goals of the Paris Agreement. In addition, the revised ETS Directive (recital 4 of Directive (EU) 2018/410) stresses that action from the IMO or the Union should start from 2023, including preparatory work on adoption and implementation and due consideration being given by all stakeholders.

4.3.2.4. Fuels from renewable energy sources

The main EU-wide policies and measures that influence GHG emissions from transport fuels are the Renewable Energy Directive (2009/28/EC and its recast 2018/2001[102]) and the Fuel Quality Directive (2009/30/EC)[103].

100 https://ec.europa.eu/transport/modes/maritime/news/2018-04-13-imo-agreement-co2_en

101 http://www.imo.org/en/OurWork/Environment/Documents/UN%20side%20event%205%20December%202018.pdf

102 DIRECTIVE (EU) 2018/2001 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 11 December 2018 on the promotion of the use of energy from renewable sources, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2018.328.01.0082.01.ENG

The Renewable Energy Directive aims to accelerate the uptake of renewable energy in the transport sector (which can include biofuels (including biogas), renewable electricity or hydrogen originating from renewable sources). See Section 4.3.1.2 for more details.

4.3.2.5. Infrastructure

A new initiative, VitalNodes, has been launched, aiming to enable efficient, sustainable freight delivery across the TEN-T urban nodes (urban areas), by bringing together existing European, national and regional networks. The objective of the initiative is to improve European interconnection, while developing sustainable mobility within cities. VitalNodes will deliver evidence-based recommendations for effective and sustainable integration of the nodes into the TEN-T network corridors, addressing specifically the multi- and intermodal connection between long-distance and last-mile freight logistics. It will also support the deployment of innovations in the urban nodes, while establishing a long-lasting European expert network. The VitalNodes project is funded by the Horizon 2020 Programme, and will run for 24 months.

Directive 2014/94/EU[104] requires Member States to notify to the European Commission National Policy Frameworks (NPFs) for the development of the market as regards alternative fuels in the transport sector and the deployment of the relevant infrastructure. To implement Article 10 (2) of Directive 2014/94/EU, the European Commission carried out an assessment of the NPFs and their coherence at Union level, including an evaluation of the level of attainment of the national targets and objectives referred to in Article 3 (1) of the Directive. The relevant Staff Working Document SWD/2017/0365[105] and the accompanying Member States fiches were adopted by the Commission as part of the Clean Mobility Package (Mobility package II).

In May 2017, the Commission made a proposal for revised rules on road user charges[106].

As mentioned before, as part of the Clean Mobility Package, the Commission has adopted an Alternative Fuels Infrastructure Action Plan, including the report on the implementation of Directive 2014/94/EU, to support the deployment of an EU backbone charging infrastructure. The Action Plan includes new funding opportunities with up to €800 million funds being

103 DIRECTIVE 2009/30/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 23 April 2009 amending Directive 98/70/EC as regards the specification of petrol, diesel and gas-oil and introducing a mechanism to monitor and reduce greenhouse gas emissions and amending Council Directive 1999/32/EC as regards the specification of fuel used by inland waterway vessels and repealing Directive 93/12/EEC, http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:140:0088:0113:EN:PDF

104 DIRECTIVE 2014/94/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 22 October 2014 on the deployment of alternative fuels infrastructure, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0094&from=EN

105 https://op.europa.eu/en/publication-detail/-/publication/d80ea8e8-c559-11e7-9b01-01aa75ed71a1

106 Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL amending Directive 1999/62/EC on the charging of heavy goods vehicles for the use of certain infrastructures COM/2017/0275 final – 2017/0114 (COD) http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52017PC0275

made available for blending of grants with loans or for financial instruments (debt, loans) under the Connecting Europe Facility (CEF)[107].

The European Commission has adopted new rules stepping up the deployment of Cooperative Intelligent Transport Systems (C-ITS) on Europe's roads. The new technology will allow vehicles to 'talk' to each other, to the road infrastructure, and to other road users – for instance about dangerous situations, road works and the timing of traffic lights, making road transport safer, cleaner and more efficient. The new rules are in line with the proposals on clean mobility introduced by the Juncker Commission, and thus constitute a step further for modernising the European mobility sector, preparing it for climate neutrality in the second half of the century and contributing to the EU's long-term goal of moving close to zero fatalities and serious injuries by 2050 ("Vision Zero")[108].

The European Commission has proposed to invest €695.1 million in 49 key projects to develop sustainable and innovative transport infrastructure in Europe across all transport modes. Selected projects will provide infrastructure enabling greater use of alternative fuels and electric cars, modernise Europe's air traffic management, and further develop waterborne and rail transport. Over €250 million of CEF funding will be invested in 26 projects dedicated to developing new technologies in transport notably promoting alternative fuels, such as:

- greening the maritime transport link between Swinoujscie port in Poland and Ystad port in Sweden;
- deploying hydrogen public transport infrastructure in Denmark, the UK and Latvia;
- building a network of bio-liquefied natural gas stations on roads connecting southern Spain and eastern Poland, via France, Belgium, the Netherlands and Germany;
- developing zero-emission public transport services for Amsterdam airport, as well as electrifying urban and regional bus routes in Croatia, Italy, Slovenia and Slovakia.

4.3.2.6. Other relevant policies and measures

There are a range of other relevant policies and measures that support moves at the EU level towards low-emission mobility. The revision of the Clean Vehicle Directive promotes the use of public procurement to incentivise the creation of markets for innovative and low-emitting vehicles.

The revised directive (Directive (EU) 2019/1161) makes a number of changes to the original directive to improve its effectiveness, after a review. The scope of the directive is broadened to include forms of procurement other than purchase, namely vehicle lease, rent or hire-purchase, public service contracts for passenger transport by road and service contracts including special-purpose road transport passenger services, non-scheduled passenger transport, refuse collection and the hire of buses and coaches with driver. The directive sets

107 The Connecting Europe Facility is a key EU funding instrument to promote growth, jobs and competitiveness through targeted infrastructure investments at EU level. https://ec.europa.eu/inea/en/connecting-europe-facility

108 https://ec.europa.eu/transport/themes/its/news/2019-03-13-c-its_en

definitions for "clean vehicles"; CO_2 emission thresholds to qualify as a "clean" light-duty vehicle are set at 50 grams CO_2 /km until 31 December 2025 and at zero from 1 January 2026. A "zero-emission heavy duty vehicle" is defined as a vehicle using alternative fuels without an internal combustion engine, or with an internal combustion engine that emits less than 1gCO_2/kWh[109].

4.3.3. *Industry / industrial processes*

Greenhouse gas emissions arising from industrial processes in the mineral, chemical and metal industry are covered under the EU Emissions Trading System (see Section 4.2.1 for more details). Further controls on emissions are applied through other sectoral policies and measures.

To control emissions from fluorinated greenhouse gases (F-gases), including hydrofluorocarbons (HFCs), the EU has adopted two legislative acts: the 'MAC Directive' (2006/40/EC)[110] on air conditioning systems used in small motor vehicles, and the 'F-gas Regulation' ((EC) 842/2006 replaced by (EU) 517/2014)[111] which covers all other key applications in which F-gases are used. These policies are estimated to lead to cumulative emission savings of 1.5 Gt CO_2eq. by 2030 and 5 Gt CO_2eq. by 2050. Following 13 years of increasing emissions of F-gases, emissions have declined in 2015, 2016 and 2017 compared to the previous year. This sends a signal that the policy measures are effective.

The action taken by the EU and its Member States under the F-gas Regulation will enable the EU to comply with the Kigali amendment to the Montreal Protocol on a global phase-down of hydrofluorocarbons (HFCs). The EU has ratified the Kigali amendment, which entered into force on 1 January 2019. The consumption of HFCs in the EU is already well below the limit set by the Kigali amendment.

In terms of progress, a comprehensive report on the effects of the F-gas Regulation will be published by the end of 2022. The European Environment Agency publishes every year a report on fluorinated greenhouse gases, the latest is available on the EEA website[112]. Thanks to the phase-down foreseen in Regulation 517/2014, no more than 63% of the amount of HFCs was placed on the market during 2018 in comparison to the 2009-2012 baseline (in tonnes of CO_2 equivalent). While the baseline includes only bulk gases, in 2017, HFCs imported in pre-charged equipment were also included under the phase-down limit. Thus, the reduction related to placing on the market of bulk gases only has been almost halved since the phase-down stated in 2015.

109 https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019L1161&from=EN

110 DIRECTIVE 2006/40/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 May 2006 relating to emissions from air-conditioning systems in motor vehicles and amending Council Directive 70/156/EEC https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:161:0012:0018:EN:PDF

111 REGULATION (EU) No 517/2014 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 April 2014 on fluorinated greenhouse gases and repealing Regulation (EC) No 842/2006 https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014R0517&from=FR

112 https://www.eea.europa.eu/publications/fluorinated-greenhouse-gases-2018/

Further controls on emissions from industrial activities in the EU are applied through the Industrial Emissions Directive 2010/75/EU (IED)[113]. The IED regulates greenhouse gases (CO_2, CH_4, N_2O, fluorinated gases) to the extent that they are not covered by the EU ETS; or, where this would be necessary, to prevent significant local pollution, and by regulating indirect greenhouse gases such as NO_x and SO_x and short-lived climate forcers such as black carbon. Furthermore, the IED promotes energy efficiency and makes fuel switching more attractive. A key development in this area, since the 3BR, is the adoption of secondary legislation under the IED establishing Best Available Technology (BAT) conclusions. The most pertinent ones are those for Large Combustion Plants, i.e. combustion plants with a total rated thermal input equal to or greater than 50 MW, including electricity and heat production, adopted in August 2017. A report for the Commission[114] estimated that around half of the large combustion plants assessed for 2025 would need to make investments to comply with these BAT conclusions. Subsequently, BAT conclusions have been adopted on the production of large volume organic chemicals (November 2017) and on waste treatment (August 2018), with further implementing decisions due to be adopted on the food and milk industries and waste incineration. These BAT conclusions do not set emission limits for greenhouse gases but are nonetheless likely to have an impact on emissions levels, for example through energy efficiency requirements and co-benefits.

4.3.4. *Agriculture*

Agricultural activities can result in methane emissions from livestock digestion processes and storage of animal manure; and the use of organic and mineral nitrogen fertilisers can lead to nitrous oxide emissions. The Effort Sharing Decision and Regulation (see Section 4.2.2) cover these emissions. On the other hand, agricultural lands can sequester and store carbon, thus contributing to climate change mitigation (this contribution is recognised in the LULUCF sector; see Section 4.3.5 for more details). Finally, agricultural activities supply biomass, which can be used as a renewable energy source and replace fossil-based materials and fuels. Thus, biomass can contribute to CO_2 savings that are allocated to the energy and industrial sectors (see Sections 4.3.1 and 4.3.3 for more details) as well as in construction and other sectors of bieconomy. While there is no emission reduction target specifically for the agricultural sector, the Common Agricultural Policy has integrated climate objectives and provides funding to support practices that are beneficial for the climate.

4.3.4.1. Common Agricultural Policy (CAP)

Climate change mitigation and adaptation constitute, together with the production of renewable energy and the improvement of energy efficiency, one out of the nine objectives of the proposal for the future Common Agricultural Policy, which was adopted by the

113 DIRECTIVE 2010/75/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 24 November 2010 on industrial emissions (integrated pollution prevention and control) (Recast) https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32010L0075&from=EN

114 Final report for the European Commission DG Environment Specific contract number 070201/ENV/2015/715370/C4 : "Technical support for developing the profile of certain categories of Large Combustion Plants regulated under the Industrial Emissions Directive" (2017) https://circabc.europa.eu/ui/group/06f33a94-9829-4eee-b187-21bb783a0fbf/library/49c16bc4-83d3-45a0-9e8c-0450b0f3435f?p=1&n=10&sort=modified_DESC

Commission on 1 June 2018. All CAP direct payments will be conditional to enhance environmental and climate requirements in line with the EU's environmental and climate objectives. It is expected that 40% of the overall financial envelope of the CAP will contribute to climate objectives. A minimum of 30% of the pillar 2 (rural development) funding will be spent on environmental and climate-related objectives. An evaluation published in 2019 has identified quantifiable reductions in GHG emissions, totalling 26.2 Mt CO_2eq annually, using 2016 data, which can be attributed to the operation of the CAP. Whilst these reductions have helped the agriculture sector to reduce emissions in line with its share of the emissions reduction required under the Kyoto Protocol, they do not offer a full picture of the CAP's impact which includes both positive and negative (albeit unquantifiable) other impacts[115].

In November 2018, the Commission adopted a long-term EU vision towards climate neutrality by 2050. It shows that agriculture can reduce emissions, however not completely as emissions cannot be fully eliminated, due to the biological processes involved and growing demand (food security). The role of land use and agriculture will play a key role in achieving climate neutrality by 2050, by removing carbon from the atmosphere, preserving carbon stocks, and supplying feedstock to substitute fossil materials for other sectors to decarbonise. The scenarios modelling a strong enhancement of the bioeconomy and an increase of natural carbon sinks will help Europe on its path to achieve climate neutrality by 2050 in an economically sustainable way[116].

The long-term EU vision also recognises the social importance of rural areas. Indeed, farmers and foresters are key stakeholders who can ensure that the sector can deliver on the growing and changing demand in agricultural and forestry products. Keeping the rural areas vibrant and maintaining a sufficiently skilled workforce to meet these challenges, while being confronted with a decreasing rural population, is needed.

4.3.5. *LULUCF*

Through the LULUCF Regulation, adopted in May 2018, greenhouse gas emissions and removals from LULUCF sector are included in the 2030 Climate and Energy Framework. The Regulation promotes the implementation of the Paris Agreement, which points to the critical role of the land use sector. Sustainable forest management is key in this context.

The Regulation sets a binding commitment for each Member State to balance the sector's accounted emissions with an equivalent amount of removals of CO_2 from the atmosphere, through action in the sector (the so-called no-debit rule). The new rules provide a framework to incentivise a more climate-friendly land use, without imposing new restrictions or red tape on individual actors. This framework should encourage Member States to develop practices on agricultural land and forests that support climate action, to provide clear and transparent

115 https://ec.europa.eu/agriculture/sites/agriculture/files/evaluation/market-and-income-reports/2019/cap-and-climate-evaluation-report_en.pdf

116 28/11/2018 - COM (2018) 773 - A Clean Planet for all - A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy; https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52018DC0773

rules to ensure that emissions from harvests are correctly accounted, and to highlight the climate benefits of wood products, which can store carbon sequestered from the atmosphere and substitute for emission-intensive materials and fuels.

The LULUCF Regulation:

- Brings a LULUCF commitment into the EU climate policy for the first time;
- Establishes rules to measure the changes in carbon emissions and removals from this sector;
- Requires an improvement in the accuracy of the LULUCF inventories;
- Ensures that the CO_2 impact of bioenergy and biomaterials produced from domestic sources is fully accounted.

The Regulation also allows some flexibility for Member States. For instance, if a Member State has net emissions from land use and forestry, they can use allocations from the Effort Sharing Regulation to satisfy the "no debit" commitment. Moreover, Member States can buy and sell net removals from and to other Member States. This can encourage Member States to increase CO_2 removals beyond their own commitment. On the other hand, a Member State may choose to enhance removals or reduce emissions in the LULUCF sector, thereby helping compliance in the Effort Sharing Regulation.

4.3.6. *Waste management / waste*

Policies and measures related to solid waste disposal, biological treatment of waste, waste incineration and open burning of waste, as well as wastewater treatment and discharge, are climate-relevant. Important GHGs in this sector are methane (CH_4), which mainly arises from the treatment and disposal of solid waste, and nitrous oxide (N_2O) which originates from wastewater. In addition, a substitution of primary raw materials by secondary raw materials coming from recycling allows for significant GHG savings due to lower demand for energy needed to extract raw materials and turn them into products.

The revised Waste Package (consisting of five waste directives, including the Waste Framework Directive[117] (WFD) - see the amending Directive (EU) 2018/851; Directive (EU) 2018/850; Directive (EU) 2018/852)) was adopted in May 2018. For municipal waste, the recycling targets are set at 55% in 2025, 60% in 2030 and 65% in 2035 and the cap on landfilling of municipal waste is set at 10% by 2035.

The assessment of the impacts found that, depending on the options implemented, between 13 and 62 million tons of GHG emissions could be avoided in 2030[118].

117 https://ec.europa.eu/environment/waste/framework/framework_directive.htm

118 https://eur-lex.europa.eu/resource.html?uri=cellar:0c4bbc1d-02ba-11e4-831f-01aa75ed71a1.0001.02/DOC_6&format=PDF, see table 2 in part 2/6

4.3.6.1. Circular economy

The Circular Economy Action Plan, adopted in December 2015, is being implemented. Namely, the 54 actions under the Action Plan have now been completed or are being implemented, while work on some actions will continue beyond 2019. These actions targeting different parts of the value chain (design, production, consumption, re-use, recycling, and disposal) will also contribute to developing a climate neutral, resource-efficient economy. New circular business models, re-use and recycling, energy and material efficiency and new consumption patterns have a significant potential to cut global greenhouse gas emissions.

In 2018, as part of the implementation of the Action Plan, a Europe-wide EU Strategy for Plastics in the Circular Economy was adopted with the aim of transforming the way plastics and plastic products are designed, produced, used and recycled. The strategy sets out a clear vision with quantified objectives at EU level, so that inter alia by 2030 all plastic packaging placed on the EU market is reusable or recyclable.

In 2018, the European Commission adopted other ambitious initiatives in the context of the Circular Economy Action Plan, including a proposal for a Regulation on minimum requirements for water reuse. The proposal is setting minimum requirement to boost the efficient, safe and cost-effective reuse of water for irrigation, which is a deliverable of the Circular Economy Action Plan.

In June 2019, the European Parliament and the Council agreed on a Directive on the reduction of the impact of certain plastic products on the environment, proposed as part of the EU Strategy for Plastics in the Circular Economy[119]. The Directive sets different measures for specific single use items made of plastic, taking into account the consumer behaviour as well as consumer needs and opportunities for businesses.

The Directive includes, inter alia, a target to incorporate 30% of recycled plastic in beverage bottles as from 2030 and 25% for PET bottles as from 2025, It also includes a 90% target for separate collection of plastic bottles by 2029, and the introduction of design requirements to connect caps to bottles. This will have a direct impact on increasing recycling of plastic beverage containers, which in turn will reduce demand for virgin plastics made of fossil fuel. The impact assessment of the Single Use Plastic directive showed that the four sub-options have a range of potential impacts from -1.28 to -3.97 million tonnes CO_2 equivalent. The EU Strategy for Plastics in a Circular Economy is the first EU-wide policy framework adopting a material-specific lifecycle approach to integrate circular design, use, reuse and recycling activities into plastics' value chains. As such, it is a catalyser for action. The strategy sets out a clear vision with quantified objectives at EU level, so that e.g. by 2030, all plastic packaging placed on the EU market is reusable or recyclable.

119 DIRECTIVE (EU) 2019/904 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 5 June 2019 on the reduction of the impact of certain plastic products on the environment https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019L0904

Circularity also means adapting industrial processes. The Commission has introduced circularity aspects (energy consumption and material use, waste prevention, recycling and reduction of hazardous chemicals) in specific 'Best Available Techniques Reference Documents (BREFs)' under the Industrial Emissions Directive (2010/75/EU). They became reference standards for Member States when granting permits for industrial plants.

4.3.6.2. Waste to landfill

On 30 May 2018, Directive (EU) 2018/850[120] was adopted amending Directive 1999/31/EC on the landfill of waste. Some of the key components of the new directive include limitations on the landfilling of waste collected separately, and an aspirational target for 2030 that any waste suitable for recycling and recovery should not be disposed of in landfills. By 2035, the amount of municipal waste landfilled is to be reduced to 10 % or less of the total amount of municipal waste generated (by weight).

4.3.6.3. Management of biodegradable waste

The revised WFD introduces an obligation to collect biodegradable waste separately from 2025. This will contribute to decreasing the landfilling of biodegradable waste (as separately collected waste will no longer be allowed for disposal in landfills) and its use as fertiliser will be enhanced.

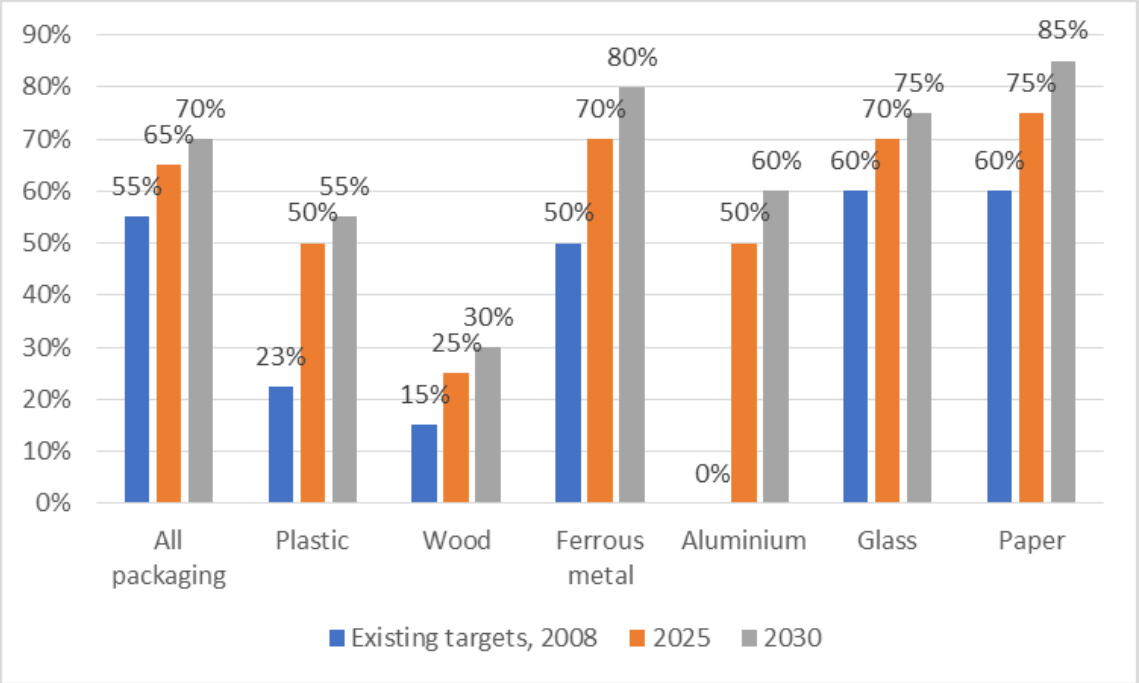
4.3.6.4. EU policies targeting waste streams

This section groups together various policies that target other specific waste streams.

For packaging waste (see Directive (EU) 2018/852), the overall recycling targets are set at 65% in 2025 and 70% in 2030. The current target on plastic packaging recycling is more than doubled and a target on aluminium packaging has been set for the first time. See the targets for packaging per material in Figure 4-1 below.

120 DIRECTIVE (EU) 2018/850 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 30 May 2018 amending Directive 1999/31/EC on the landfill of waste https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018L0850&from=EN

Figure 4-1 Recycling targets for packaging per material



4.3.6.5. Waste of Electrical and Electronic Equipment

Section 3.8.4 of the EU's 2BR describes the Directive on Waste of Electrical and Electronic Equipment[121], with the new WEEE Directive 2012/19/EU that became effective in February 2014.

On 30 May 2018, Directive (EU) 2018/849 was adopted amending Directives 2000/53/EC on end-of-life vehicles, 2006/66/EC on batteries and accumulators and waste batteries and accumulators, and 2012/19/EU on waste electrical and electronic equipment. This directive aims at simplifying reporting obligations for Member States.

4.3.6.6. Reduction of GHG Emissions from Urban Waste Water Treatment

The Urban Waste Water Treatment Directive (UWWTD) is currently being evaluated (starting October 2017[122]) and a Staff Working Document on the evaluation is scheduled to be published by the end of 2019 or early 2020. The tenth implementation report is also scheduled to be published this year. The UWWTD has had an impact on reducing GHG emissions, by requiring Member States to establish centralised aerobic waste water treatment plants (WWTP), replacing previously commonly used decentralised anaerobic systems such as sceptic tanks or anaerobic lagoons. Centralised treatment plants also allow capturing biogas as an energy source and the use of sewage sludge, either in agriculture or as an energy

122 https://ec.europa.eu/info/law/better-regulation/initiatives/ares-2017-4989291_en

source itself, in both cases reducing GHG emissions. WWTPs are also high energy users consuming an amount of power, which equals to about 0.8% of all power generated in the EU-28[123].

4.4. Assessment of the economic and social consequences of response measures

To ensure that all relevant possible impacts are taken into account, the EU has established processes that assess the economic and social consequences of climate policy measures. These have been detailed in the EU's Third Biennial Report.

123 Ganora et al (2019); Opportunities to improve energy use in urban wastewater treatment: a European-scale analysis; https://iopscience.iop.org/article/10.1088/1748-9326/ab0b54/pdf

5. PROJECTIONS

5.1. Projections of EU GHG emissions

5.1.1. *Introduction*

This section presents projections of greenhouse gas emissions (GHG emissions) for the "with existing measures scenario" (WEM), differentiated by sector and by gas, and aggregated to EU-28 level. Projections are presented for 2019, 2020, 2025, 2030, and 2035. All emissions and projections are displayed in CO_2 equivalent and exclude emissions or removals from LULUCF and NF_3, but include international aviation. This specific scope is presented to allow understanding progress towards the EU's 2020 target (see Section 3 for more detail). Nevertheless, the EU Monitoring Mechanism Regulation[124], which governs the reporting of GHG emission projections in the EU, does not require reporting indirect GHG emissions as part of the projections. Projections data on indirect GHG emissions is therefore not available.

Projections of emissions related to fuel sold to ships engaged in international transport are not included in the totals reported in this section.

The WEM projection of the EU represents a business-as-usual scenario aggregated from 28 national WEM projections where only policies and measures that have been adopted or already implemented in the Member State are considered, as far as covered by national projections. Hence, the WEM projection does not include yet the revised EU legislation adopted in 2018 to achieve the 2030 targets. The WAM scenario is an aggregation of additional national policies and measures, i.e. not yet adopted. For some, but not all Member States, the WAM projection already includes measures they envisage to take as part of their integrated national energy and climate plans, which are due end of 2019 under Regulation (EU) 2018/1999.

Information on supplementarity (Section 5.2), methodology (Section 5.3) and sensitivity analysis (Section 5.3.6) is included further below.

According to the European Commission, the effective implementation of all climate, energy and mobility targets laid down in Union law could even lead to EU-28 greenhouse gas reductions up to around 45% in 2030 compared to 1990[125].

5.1.2. *Summary*

Figure 5-1 presents total aggregate GHG emission trends and the With Existing Measures (WEM) projection for EU-28 (including international aviation, excluding LULUCF). The figure includes historical values (solid lines) and projected values (dotted line). In the WEM

124 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 Text with EEA relevance. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32013R0525

125 EU Climate Action Progress Report 2019 (page 3) https://ec.europa.eu/clima/sites/clima/files/strategies/progress/docs/com_2019_559_en.pdf

scenario, total EU-28 GHG emissions in 2020 are projected to be 25% below 1990 GHG emissions in 2020 and 30% below in 2030. Considering also planned measures (With Additional Measures - WAM scenario), GHG emission are projected to be 26% below 1990 levels in 2020 and 36% below 1990 levels in 2030.

Figure 5-1 Total, aggregate, absolute historic and projected EU-28 GHG emissions

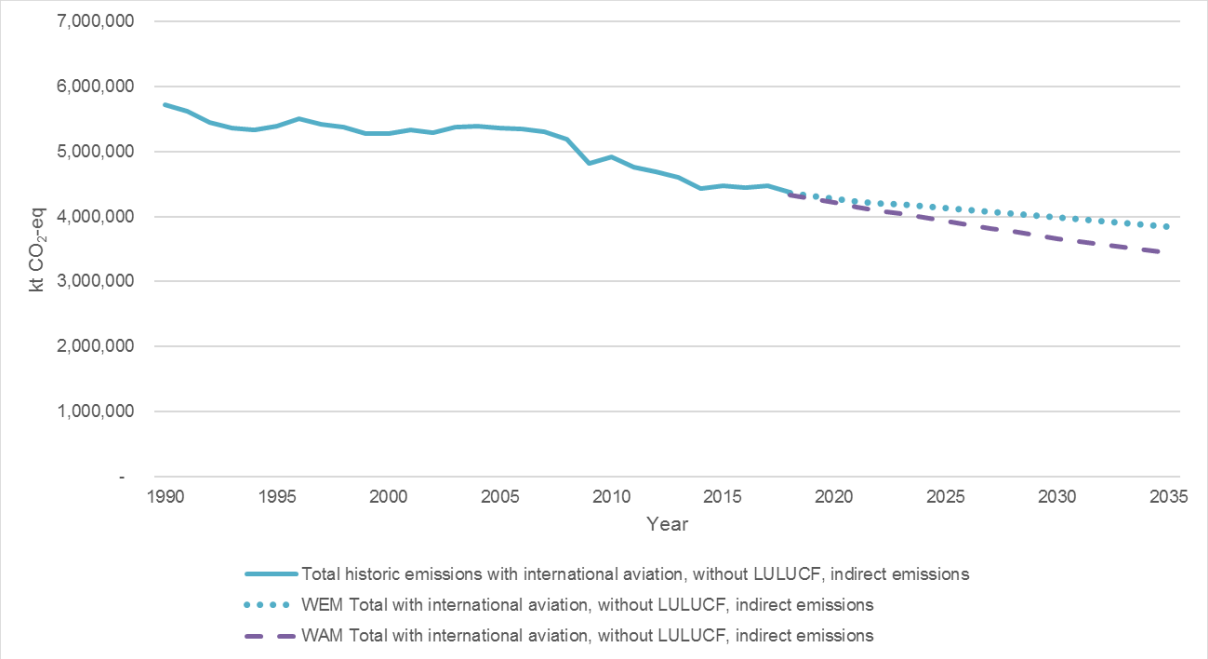


Table 5-1 summarises historical and projected greenhouse gas emissions as totals, by sector and by gas for the WEM and WAM scenarios. Please note that historical values differ from the values presented in Section 2, as they do not include indirect GHG emissions and NF_3 in line with the definition of the 2020 Convention target.

Table 5-1 Historical greenhouse gas emissions and greenhouse gas emission projections in the 'with existing measures' scenario

	GHG emissions and removals								With existing measures			
GHG emissions projections (kt CO_2-eq)	**Base Year**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2017**	**2020**	**2025**	**2030**	**2035**
Sectors												
Energy	3,555,465	3,555,465	3,242,859	3,093,691	3,143,743	2,860,514	2,460,335	2,421,953	2,261,572	2,147,505	2,049,400	1,928,564
Transport	793,200	793,200	847,270	926,942	978,838	937,607	913,264	945,872	940,260	930,537	908,052	891,347
Industry/industrial processes	517,171	517,171	498,321	455,474	465,712	394,196	376,680	377,430	366,675	344,212	325,297	320,584
Agriculture	543,255	543,255	472,567	461,255	438,004	423,381	433,822	438,994	426,573	425,056	425,630	427,038
Waste management/waste	240,421	240,421	247,432	231,455	202,009	167,818	143,160	138,866	124,940	113,992	105,873	99,185
Gases												
CO_2 emissions excluding net CO_2 from LULUCF	4,537,612	4,537,612	4,301,379	4,295,229	4,436,417	4,071,752	3,654,480	3,672,355	3,529,113	3,374,012	3,314,281	3,093,316
CH_4 emissions excluding CH_4 from LULUCF	727,474	727,474	665,599	605,513	545,566	490,380	458,923	453,443	433,432	419,859	409,102	391,399
N_2O emissions excluding N_2O from LULUCF	381,577	381,577	344,630	303,543	283,748	238,300	234,972	239,115	231,511	231,036	230,897	226,963
HFCs	35,210	35,210	50,350	57,595	78,715	104,709	110,432	106,566	93,455	71,450	52,469	45,103
PFCs	25,707	25,707	17,025	11,767	7,044	3,737	3,444	3,179	3,480	3,387	3,329	3,319
SF_6	11,074	11,074	15,227	10,614	7,871	6,352	6,228	6,725	7,130	5,293	3,560	3,340
Memo items												

	GHG emissions and removals								With existing measures			
International aviation	69,141	69,141	85,760	115,442	131,053	131,712	141,218	158,268	155,294	164,012	174,547	179,198
International navigation	110,721	110,721	111,444	136,180	162,326	161,437	138,245	145,765	158,023	165,056	170,899	176,155
Total GHG emissions (excl. LULUCF and indirect CO_2[126]; incl. international aviation)	**5,718,671**	**5,718,671**	**5,394,304**	**5,284,354**	**5,359,482**	**4,915,340**	**4,468,531**	**4,481,431**	**4,275,313**	**4,125,314**	**3,988,799**	**3,845,915**

Table 5-2 Historical greenhouse gas emissions and greenhouse gas emission projections in the 'with additional measures' scenario

	GHG emissions and removals								With additional measures			
GHG emissions projections (kt CO_2-eq)	**Base Year**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2017**	**2020**	**2025**	**2030**	**2035**
Sectors												
Energy	3,555,465	3,555,465	3,242,859	3,093,691	3,143,743	2,860,514	2,460,335	2,421,953	2,233,921	2,022,043	1,862,447	1,722,157
Transport	793,200	793,200	847,270	926,942	978,838	937,607	913,264	945,872	918,389	876,500	805,343	747,123
Industry/industrial processes	517,188	517,188	498,416	455,568	465,833	394,308	376,733	377,478	364,667	340,061	317,667	311,488
Agriculture	543,255	543,255	472,567	461,255	438,004	423,381	433,822	438,994	423,215	414,359	408,261	405,894
Waste management/waste	240,421	240,421	247,432	231,455	202,009	167,818	143,160	138,866	123,406	109,259	97,555	88,568

126 Historical GHG emissions presented in this table do not include indirect CO_2. This is done for reasons of time series consistency with projected GHG emissions. The MMR does not require the reporting of indirect CO_2 for EU Member State projections and the projections presented in this report do therefore not include indirect CO_2.

	GHG emissions and removals								With additional measures			
Gases												
CO_2 emissions excluding net CO_2 from LULUCF	4,537,612	4,537,612	4,301,379	4,295,229	4,436,417	4,071,752	3,654,480	3,672,355	3,479,210	3,193,584	3,019,439	2,738,503
CH_4 emissions excluding CH_4 from LULUCF	727,474	727,474	665,599	605,513	545,566	490,380	458,923	453,443	428,548	407,246	388,740	366,726
N_2O emissions excluding N_2O from LULUCF	381,577	381,577	344,630	303,543	283,748	238,300	234,972	239,115	230,657	225,847	222,250	216,256
HFCs	35,210	35,210	50,350	57,595	78,715	104,709	110,432	106,566	92,117	69,168	50,119	42,967
PFCs	25,707	25,707	17,025	11,767	7,044	3,737	3,444	3,179	3,470	3,368	3,294	3,279
SF_6	11,074	11,074	15,227	10,614	7,871	6,352	6,228	6,725	7,130	5,292	3,560	3,340
Memo items												
International aviation	69,141	69,141	85,760	115,442	131,053	131,712	141,218	158,268	154,403	162,238	170,965	168,624
International navigation	110,721	110,721	111,444	136,180	162,326	161,437	138,245	145,765	158,006	165,010	170,778	175,702
Total GHG emissions (excl. LULUCF and indirect CO_2[127]; incl. international aviation)	**5,718,671**	**5,718,671**	**5,394,304**	**5,284,354**	**5,359,482**	**4,915,340**	**4,468,531**	**4,481,431**	**4,218,000**	**3,924,460**	**3,662,239**	**3,443,854**

127 Historical GHG emissions presented in this table do not include indirect CO_2. This is done for reasons of time series consistency with projected GHG emissions. The MMR does not require the reporting of indirect CO_2 for EU Member State projections and the projections presented in this report do therefore not include indirect CO_2.

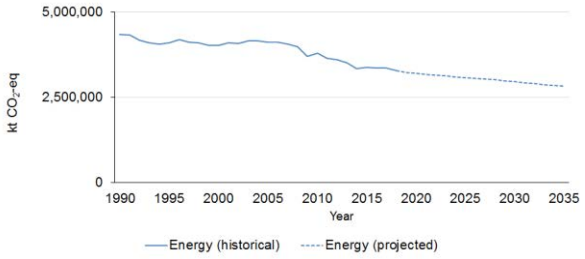
5.1.3. *GHG emission projections per sector*

The largest share of GHG emission reductions are from the energy sector (excluding transport), as Figure 5-2 shows. The energy sector also contributes the most to aggregate GHG emissions. The transport sector makes the second largest contribution to aggregate GHG emissions, followed by agriculture, industrial processes and product use (IPPU) and waste. This is the same for both WEM and WAM scenarios.

5.1.3.1. Energy

Overview

	Change from 1990 (%)	
Scenario	**2020**	**2030**
WEM	-36	-42
WAM	-37	-48



Energy sector (without transport) emissions are projected to decrease by 36% compared to 1990 in 2020 and by 42% up to 2030 under the WEM scenario, and 37% in 2020 and 48% in 2030 under the WAM scenario. In general, EU-28 GHG emissions from the energy sector show a gradual downward trend from 1990 to the present day. A short and steep decrease took place during the financial crisis (2008-2009) followed by an increase as economic activity picked up from 2010 onwards. These effects however do not interrupt the long-term downward trend, which is continued in the projections under both WEM and WAM scenario. These decreases can be explained by a variety of factors but are mainly due to the increased use of renewables, the switch from fuel to gas (which also has reduced fugitive CH_4 emissions from coal mining), increased energy and technical efficiency and decreases in fuel combustion in manufacturing industries (see section 4.3.1 for more details). Policy measures related to energy consumption and generation, e.g. the EU Emissions Trading System (see section 4.2.1 for more details) and the Renewable Energy Directive (see section 4.3.1.2 for more details) likely influence the perceived changes in these factors. In the Eastern Member States, construction and restructuring of industry have also played a role in reducing emissions. However, such reductions have been counteracted by increased housing stock and growth in the services sector, resulting in increased demand for energy services in buildings and homes, and in particular, strong growth in demand for electricity to provide these. Recent economic growth in the Eastern Member States is reflected in increased demand for energy services. Projections for the sector anticipate that emissions from energy will further decrease due to the effects of existing and additional policies and measures.

5.1.3.2. Domestic transport

Overview

	Change from 1990 (%)	
Scenario	**2020**	**2030**

WEM	+19	+14
WAM	+16	+2

The only sector which is projected to exhibit 2020 GHG emissions larger than in 1990 is the transport sector. After 2007, a slow but steady decline in transport emissions is visible until 2013, with emissions slightly increasing again until 2016. Emissions are projected to remain generally constant with a very slight downward trend. Relevant measures likely influencing this trend include higher fuel prices and more stringent policies, such as stricter CO_2 emission standards for cars and vans (see Section 4.3.2 for more details). Under the WEM scenario, GHG emissions from the transport sector[128] are projected to be 19% higher than 1990 levels in 2020 and 14% higher in 2030, under the WAM scenario 16% higher in 2020 and 2% higher in 2030.

5.1.3.3. Industry and product use

	Change from 1990 (%)	
Scenario	**2020**	**2030**
WEM	-29	-37
WAM	-29	-39

Process and product related GHG emissions from the industry sector are projected to decrease by approximately 29% in 2020 compared to 1990, and decrease by 37% by 2030 under the WEM scenario. Under the WAM scenario, this would be 29% in 2020 and 39% in 2030. Measures driving this decline include the EU ETS and the F-gas Regulation.

5.1.3.4. Agriculture

	Change from 1990 (%)	
Scenario	**2020**	**2030**
WEM	-21	-22
WAM	-22	-25

The decline of GHG emissions in the agriculture sector is projected to continue. Compared to 1990, emissions in 2020 are projected to decline by 21% in 2020 and by 22% in 2030 under the WEM scenario, by 22% in 2020 and 25% in 2030 under the WAM scenario, this is due to the lower mitigation potential as production involves biological processes and growing demand (food security). Changes in agricultural policy as well as increased productivity have driven reduced animal numbers, reduced nitrogen fertiliser production and use and improved manure management resulting in reduced emissions from agricultural soils and livestock (see section 4.3.4 for more details).

128 The transport sector as reported here does not include international aviation. According to the IPCC 2006 Guidelines for national GHG inventories, international aviation is to be reported as memo item. We therefore present the GHG emission development in the international aviation sector individually further below.

5.1.3.5. Waste

Scenario	Change from 1990 (%) 2020	2030
WEM	-48	-56
WAM	-49	-59

GHG emissions are projected to steadily decline in the waste sector. Compared to 1990, emissions in 2020 are projected to decline by 48% and decline by 56% in 2030 under the WEM scenario and by 49% in 2020 and 59% in 2030 under the WAM scenario. Past and future emission decreases can largely be attributed to successful waste legislation. Examples of this include increased recycling, bans on landfilling, objectives for the progressive reduction of biodegradable waste to landfill, landfill taxes and methane recovery from treated wastewater and landfill (see section 4.3.6 for more details).

5.1.3.6. International transport - aviation and shipping

Aviation Scenario	Change from 1990 (%) 2020	2030
WEM	+125	+152
WAM	+123	+147

Emissions from international aviation are projected to continue increasing, reaching 125% above 1990 levels by 2020, and 152% above 1990 levels by 2030 under the WEM scenario and 123% in 2020 and 147% in 2030 under the WAM scenario.

Navigation Scenario	Change from 1990 (%) 2020	2030
WEM	+43	+54
WAM	+43	+54

Emissions from international shipping are projected to increase as well, however far less steeply than for international aviation. In 2020, levels are projected to reach 43% above 1990 levels, and in 2030, 54% above 1990 levels under the WEM as well as the WAM scenario.

Figure 5-2 EU-28 GHG emissions per sector in the WEM scenario

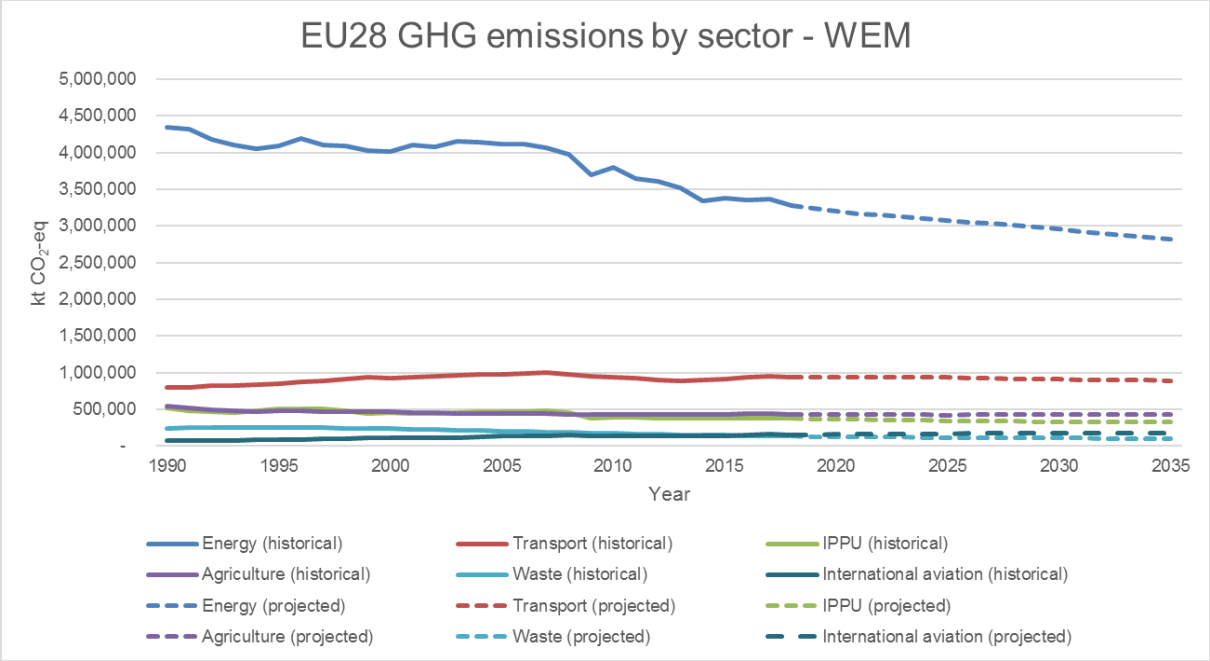
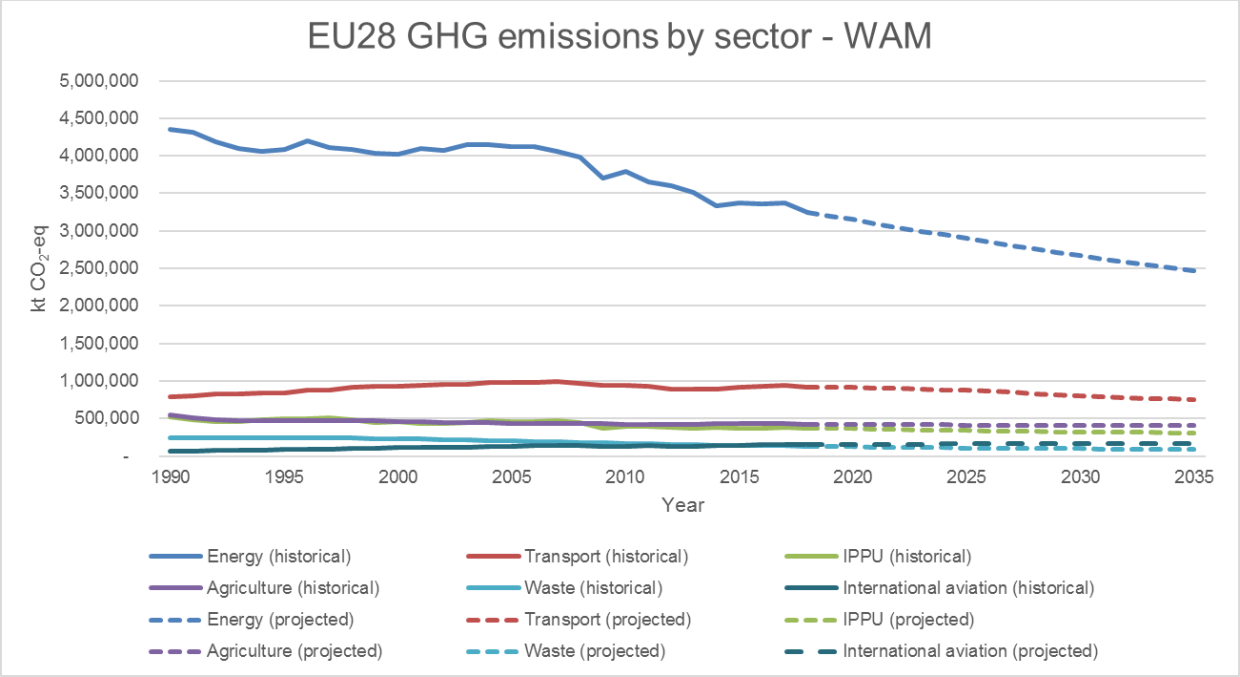


Figure 5-3 EU-28 GHG emissions per sector in the WAM scenario



5.1.4. *GHG emission projections per gas*

Figure 5-4 below illustrates the expected change in emissions from individual greenhouse gases between 1990 and 2030 under the WEM scenario. F-gases are presented as a group; the development for individual F-gases is presented in Table 5-1 above.

Figure 5-4 EU-28 GHG emissions per gas in the WEM scenario

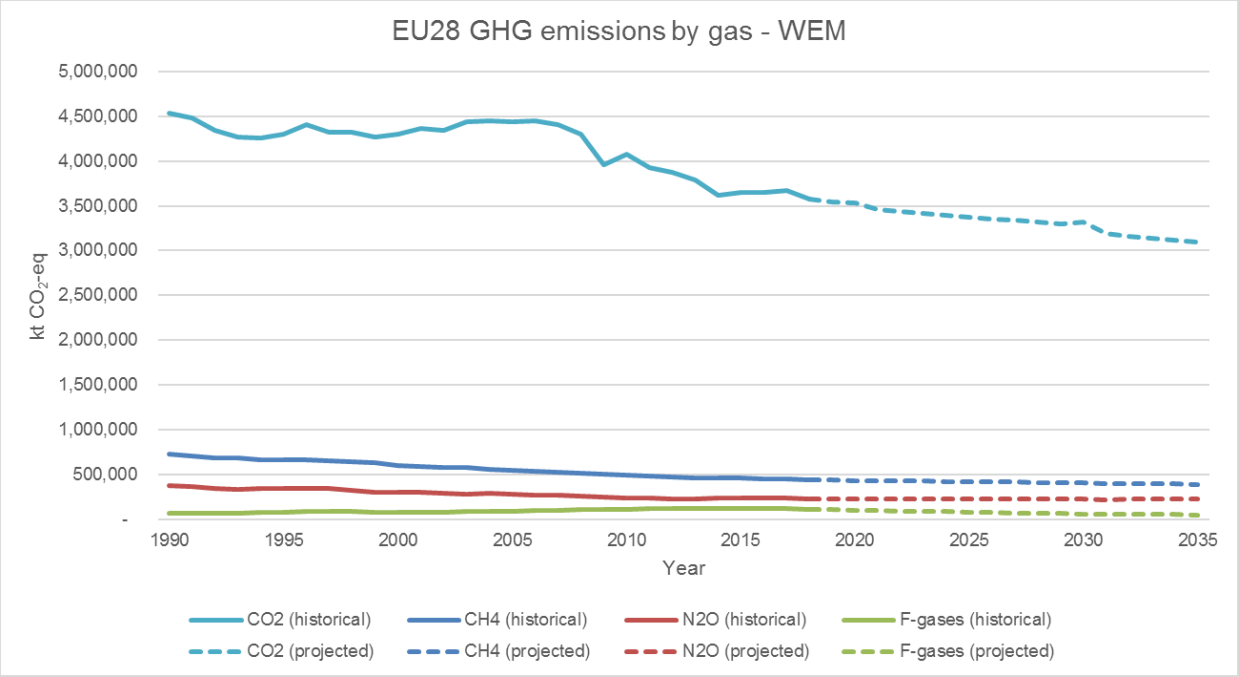
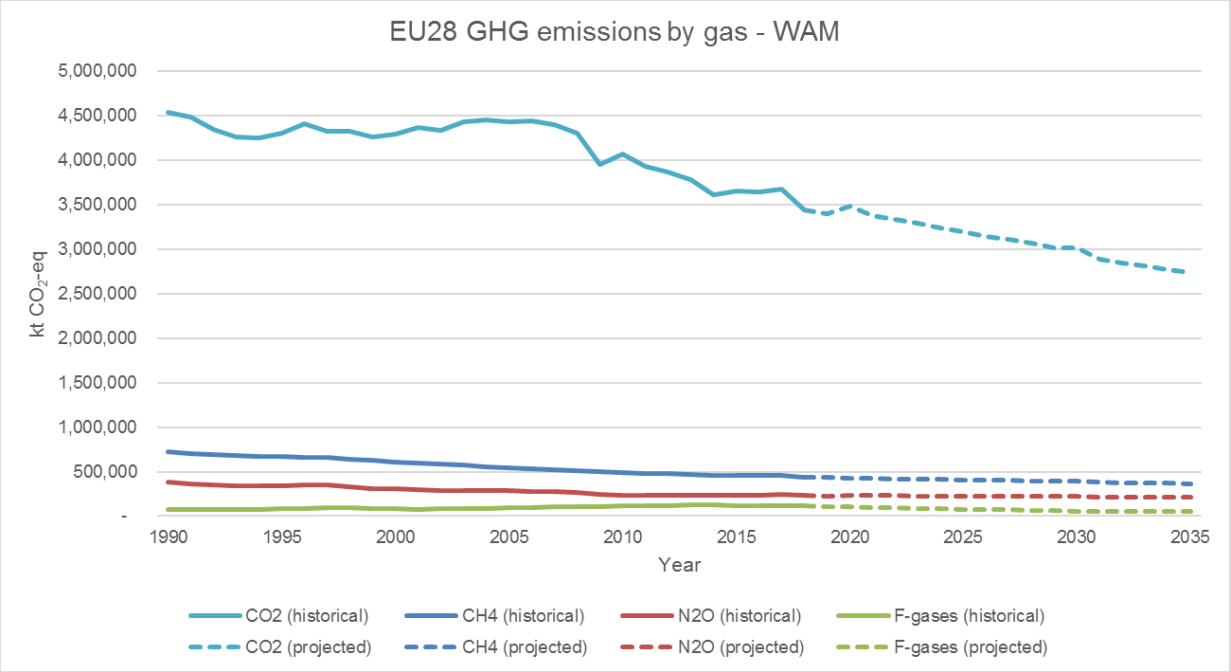


Figure 5-5 EU-28 GHG emissions per gas in the WAM scenario



The major contributor to current GHG emissions in the EU-28 is CO_2 with around 82% of total emissions in 2020 under the WEM scenario, followed by emissions of CH_4 with 10%, N_2O with 5% and F-gases 2% for the same year and scenario. These shares remain roughly the same over the timeline in both the WEM and WAM scenario.

Under the WEM scenario, emissions of CO_2 are projected to decline by approximately 22% compared to 1990 in 2020 and by about 27% by 2030. Under the WAM scenario, the decline will be by approximately 23% compared to 1990 in 2020 and by about 33 % by 2030.

Emissions of CH_4 steadily declined in the past and are projected to do so in the future, although at a slightly slower pace. Emissions will be 40% below 1990 in 2020, 44% in 2030 under the WEM scenario, 41% below 1990 in 2020, and 47% in 2030 under the WAM scenario.

Emissions of N_2O are projected to stabilise with an indication of a very slight decrease by 2030. Emissions will be 39% below 1990 in 2020 and 40% below in 2030 under the WEM scenario and 40% below 1990 in 2020 and 42% below in 2030 under the WAM scenario.

F-gas emissions have been slowly but steadily rising between 2000 and 2014, driven mainly by the use of HFCs in refrigeration and air conditioning. Based on the policies and measures e.g. of the EU F-Gas Regulation, emissions started declining from 2016 onwards. This decline is projected to continue up to 2030, achieving a level of 45% above 1990 levels under the WEM scenario in 2020 and a level of 18% below 1990 under the same scenario in 2030. For the WAM scenario, emissions are projected to fall only slightly faster with 43% above 1990 levels in 2020 and 21% below 1990 levels in 2030. The contributions of the various F-gases to these overall developments differ. As contribution of F-gases to the 2020 EU GHG emission total is relatively small at 2% in 2020 under the WAM scenario and the contribution is projected to remain roughly at this level over time in both scenarios, the projected decline in F-gas emissions has a relatively small effect on the projected decline in total GHG emissions at EU level, but matches between 2020 and 2030 the decline in CH_4 emissions.

Figure 5-6 EU-28 GHG emissions per gas in the WEM scenario – CH_4, N_2O and F-gases only

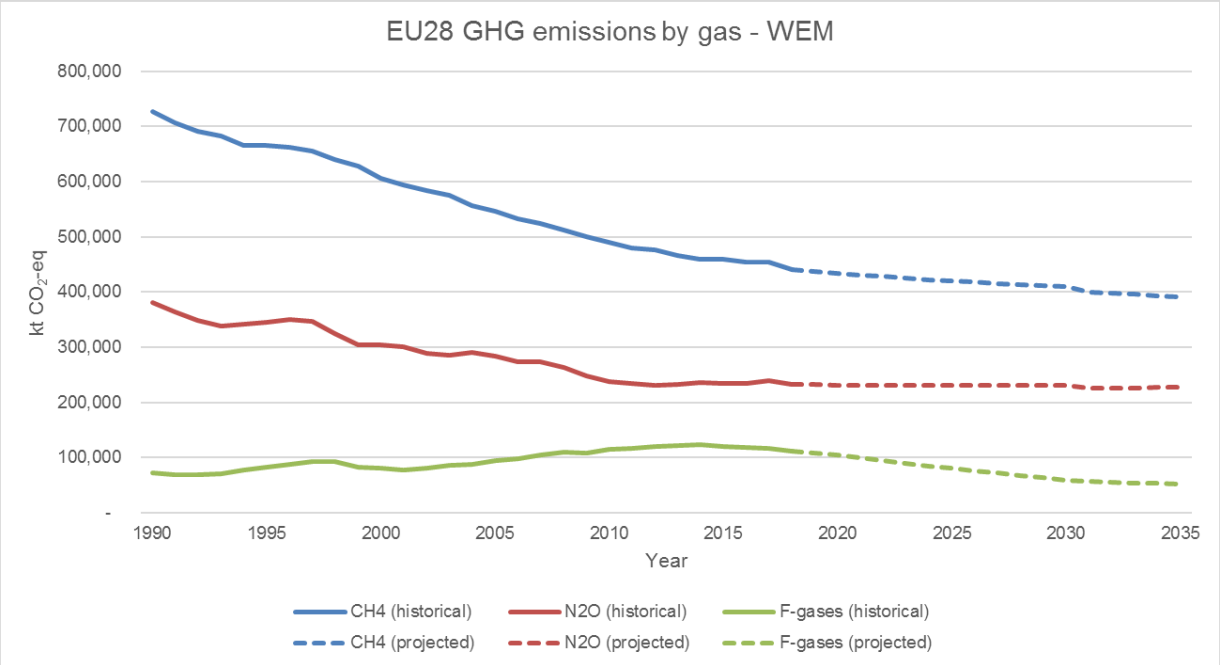
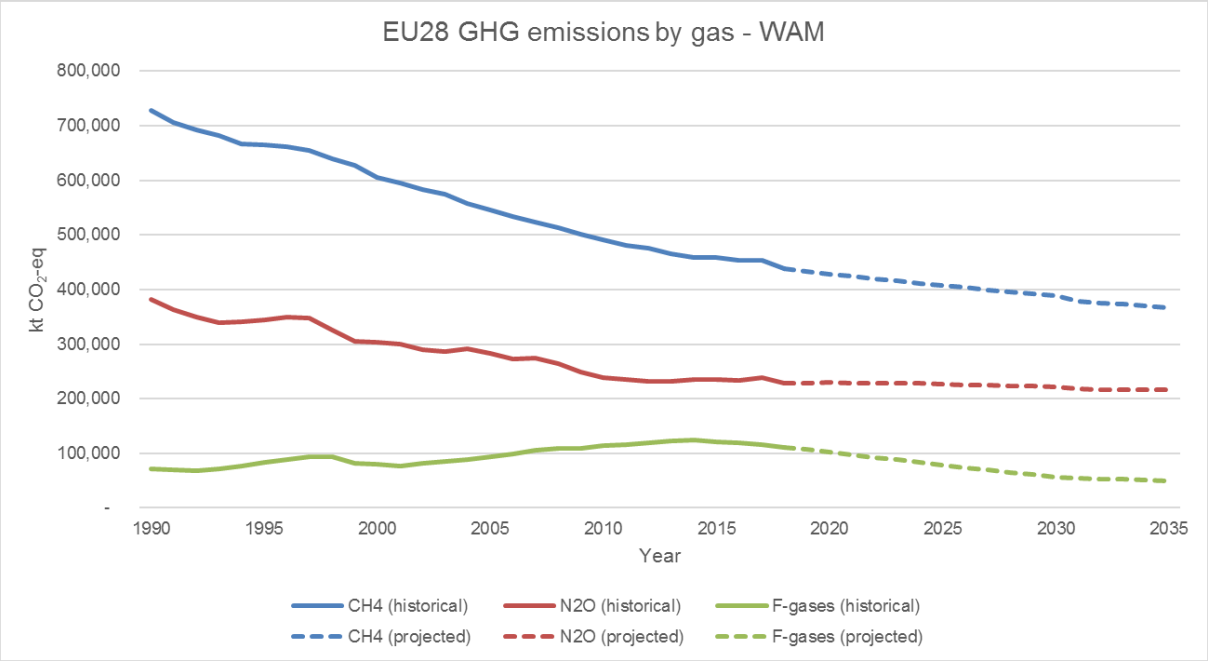


Figure 5-7 EU-28 GHG emissions per gas in the WAM scenario – CH_4, N_2O and F-gases only



5.2. Supplementarity

As an additional means of meeting commitments under the Kyoto Protocol (KP), Parties may use three market-based mechanisms to lower the overall costs of achieving emission targets for the commitment period: project-based mechanisms in industrialised countries (Joint Implementation (JI); the Clean Development Mechanism (CDM) in developing countries; and international emissions trading (IET)), which allows countries that have achieved emission reductions beyond those required by the KP to sell their surplus Kyoto units to countries finding it more difficult or expensive to meet their commitments. Use of these mechanisms must be 'supplemental to domestic action' to achieve KP targets. The three mechanisms are often referred to as flexible mechanisms.

For the EU-28 and the target for 2020, the maximum use of flexible mechanisms in the framework of the two most important cross-sector measures, the Emission Trading Scheme (ETS) and Effort Sharing Decision (ESD) are described in section 4.2.

5.3. Methodology

5.3.1. *Compilation of the EU projections*

The projections of GHG emissions for EU-28 are based on individual national projections of Member States' submissions to the European Commission under Regulation 525/2013/EU in 2019. The EEA's European Topic Centre on Air Pollution and Climate Change Mitigation (ETC/ACM) has compiled the national projections and applied QA/QC procedures to ensure consistency of the data reported by Member States (see section 5.3.4). The reported scenario is documented in section 5.1. The following points apply to the projections:

- Projections unless otherwise noted are reported excluding governmental use of Kyoto mechanisms and carbon sinks;
- The sector breakdown reported follows the structure of the CTF tables and includes: Energy (without transport), transport, industry/industrial processes and product use, Agriculture, Forestry and Other Land Use (AFOLU) (without FOLU), and waste;
- The gases which are covered are: CH_4 emissions excluding FOLU, CO_2 emissions excluding FOLU, N_2O emissions excluding FOLU, and total F-Gases;
- Figures represent historic GHG emissions up to 2017, projections are represented starting 2018.

5.3.2. *Projection methodology*

Information presented in section 5.1 for the EU-28 is derived through an aggregation of individual Member State projections. The EU-28 GHG projection has been aggregated using Member States' submissions to the European Commission under Regulation 525/2013/EU in 2019. All Member States except Romania submitted GHG projections with existing measures in 2019, for Romania the 2017 submission has been used to fill the gap. However, only 17 Member States reported projections with additional measures: Belgium, Croatia, Cyprus, Czechia, Estonia, Finland, France, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Portugal, Slovakia, Spain, and the United Kingdom. For the aggregation of the WAM scenario at EU level, Member States that have not reported a WAM scenario have been gap-filled using the WEM scenario.

Detailed descriptions of the methodologies used to generate individual Member State projections, further information on their sensitivity analyses and their key parameters and assumptions are presented in individual Member State Biennial Reports. Regarding strengths and weaknesses of projection methodologies, please refer to the Member States' Biennial Reports.

5.3.3. *Key parameters and assumptions*

The key parameter assumptions of individual Member States are documented in their national projection methodologies, and reported in their Biennial Reports. Weighted averages of selected parameters used by the EU MS for the 2019 projections are presented in Table 5-3 below.

Table 5-3 Key parameters used by EU MS for the 2019 projections[129]

Parameter	2020	2025	2030	2035
GDP (million EUR)/2016	15,589.53	16,794.88	18,150.38	19,402.48

129 These values are weighted averages excluding outliers. Outliers were identified by ordering values reported by size and comparing each to the mean value. Where a value was more than five times higher than the mean it was considered an outlier. The numbers reported by EU MS for oil. coal and gas were generally with a small range, with only one outlier identified for coal and gas, and two for oil.

Parameter	2020	2025	2030	2035
Population (million)	510.46	511.50	517.61	520.14
International Oil price (EUR (2016) / GJ)	10.42	12.37	13.74	14.08
International Gas price ('EUR (2016) / GJ)	7.42	7.08	7.76	8.06
International Coal price (EUR (2016) / GJ)	2.49	2.92	3.43	3.52
EU ETS price (EUR (2016) /tCO_2)	15.26	21.73	33.01	39.54

In order to improve the consistency of Member State projections, the Commission provided Member States with recommended values for the evolution of the EU ETS CO_2 price, and for international fuel import prices.[130] The recommended EU ETS price assumptions are based on the EU Reference scenario 2016[131]. The recommended international fuel price values 2018 to 2040 are based on PROMETHEUS world energy modelling conducted for the EU Reference scenario 2016. Respective historical values come from Platts[132]. Additionally to the EU Reference scenario 2016 values, fuel import prices are also provided as a "short term variant" for the years 2018-2024. This short-term variant is based on interpolation between price data and projected 2025 prices. The European Commission also provided consistent other assumptions to Member States, e.g. for GDP growth rates and population, based on the EU Reference scenario 2016.

The use of these parameters and assumptions by EU Member States is voluntary. They are presented in Table 5-4.

Table 5-4 Key parameters provided by the EU Commission for the 2019 GHG projections

Parameter	2020	2025	2030	2035
GDP (million EUR)/2016	15,052.902	16,155.965	17,259.029	18,680.947
Population (million)	510.03	512.95	515.86	518.29
International Oil price ('EUR (2016) / GJ)	13.86 (short term variant: 11.90)	15.73	17.33	18.08
International Gas price ('EUR (2016) / GJ)	8.91 (short term variant: 7.59)	9.64	10.49	11.20
International Coal price ('EUR (2016) / GJ)	2.64 (short term variant: 2.85)	3.16	3.79	4.01
EU ETS price ('EUR (2016) /tCO_2)	15.50	23.30	34.70	43.50

The weighted averages of parameters used by the EU MS show a good alignment in values and trends with the values suggested by the EU Commission, with GDP values generally

130 European Commission. Recommended parameters for reporting on GHG projections in 2019. 15/06/2018..Please note that the values provided for gas import prices are considered average import prices with regional divergence likely and thus deemed acceptable.

131 See European Commission. EU Reference Scenario 2016: Energy, transport and GHG emissions - Trends to 2050. 2016. https://ec.europa.eu/energy/sites/ener/files/documents/20160713%20draft_publication_REF2016_v13.pdf.

132 https://www.spglobal.com/platts/en

slightly higher, and international fuel prices and EU ETS prices slightly lower than the Commission values.

Reporting on additional aggregated parameters, e.g. aggregated sectoral parameters would enhance the transparency of the reported projections. At present, aggregation of such parameters is not considered feasible based on the data reported by EU Member States.

5.3.4. *Quality Assurance/ Quality Control procedures*

The Quality Assurance/ Quality Control (QA/QC) procedures applied to the projections data follow a clear and thorough QA/QC procedures defined by the EU. These procedures follow the core IPCC principles of QA/QC that apply to historical inventories. The procedures are required under Regulation (EU) 525/2013 and are set out in "Elements of the Union System for Policies and Measures and Projections and the Quality Assurance and Control (QA/QC) Programme"[133]. The procedures are also described in the 2015 ETC technical report "Quality assurance and quality control procedure for national and Union GHG projections". A summary is provided in the paragraphs below.

The EEA's European Topic Centre for Air Pollution and Climate Change Mitigation (ETC/ACM) has compiled the national projections as submitted by the EU Member States under the MMR and applied quality assurance and quality control (QA/QC) procedures. These procedures consist of a number of checks against quality criteria such as completeness, consistency, comparability, accuracy and transparency of reported data.

A number of qualified ETC/ACM reviewers are used to review the projections of each Member State. If the quality checks showed that the submission did not follow the quality criteria, the ETC/ACM reviewer sought explanation in the accompanying documents submitted by Member States. If no explanations could be found, the reviewers asked Member States projection experts to provide clarification or correct the dataset as necessary. If Member States did not provide the requested information, the ETC/ACM proceeded with corrective actions, which consist of filling identified data gaps, performing error corrections and the reference year calibration[134]. Such corrective actions are essential to ensure the quality of projections data used in the annual reports of the Commission and the EEA. The EU-28 emission projections presented here are the same as presented in the EEA's and European Commission's 2019 reports on progress towards the 2020 and 2030 GHG targets[135,136].

133 https://ec.europa.eu/clima/sites/clima/files/strategies/progress/monitoring/docs/union_pams_projections_en.pdf

134 It is good practice that the emissions of the starting year of projections (reference year) are consistent with the emissions of the respective historic year of the inventory. In case Member States show significant inconsistencies between the emissions in reference year and inventory year, the projections trend can be recalibrated and aligned to the historic year, as required to compile consistent Union projections.

135 European Environment Agency (2019); Trends and projections in Europe 2019. Tracking progress towards Europe's climate and energy targets; https://www.eea.europa.eu/publications/trends-and-projections-in-europe-1/at_download/file

136 European Commission. Implementing the Paris Agreement – Preparing the ground for raising long-term ambition. EU Climate Action Progress Report 2019. (COM(2019) 396 final). https://ec.europa.eu/clima/sites/clima/files/strategies/progress/docs/com_2019_559_en.pdf

5.3.5. *Changes in results, methodologies and assumptions compared to GHG projections reported under the previous Biennial Report (3BR)*

Figures 5-6 and 5-7 further compare EU-28 projection values (total without LULUCF, including international aviation) in the 3BR and 4BR under the WEM and the WAM scenario. Table 5-5 and Table 5-6 present the change in total emissions under the WEM and WAM scenarios in 2020 and 2030 compared to 1990 under the projections reported in the 3BR and the 4BR.

Under the WEM scenario, the 4BR projection values are very close to the 3BR values throughout the time series. They start out slightly higher in 2020, falling below 3BR values in 2033 and are just slightly lower (less than 1% lower than total 3BR values) in 2035.

Table 5-5 Comparison of WEM scenario values in the 3BR and 4BR

Report	WEM scenario - Change compared to 1990 (%)	
	2020	2030
3BR	26	30
4BR	25	30

The difference between the 3BR and 4BR projection values is more visible in the WAM scenarios. Here, 4BR projection values start out slightly above 3BR projection values in 2020 but fall at a quicker pace throughout the time series. 4BR projection values are lower than 3BR projection from 2023 onwards. In 2030, 4BR projection values are 5% lower than 3BR projection values; in 2035, they are 7% lower.

Table 5-6 Comparison of WAM scenario values in the 3BR and 4BR

Report	WAM scenario - Change compared to 1990 (%)	
	2020	2030
3BR	27	32
4BR	26	36

Figure 5-8 EU-28 emission projections (total without LULUCF, including international aviation) reported in the 3BR (2017) and the 4BR (2019) under the WEM scenario

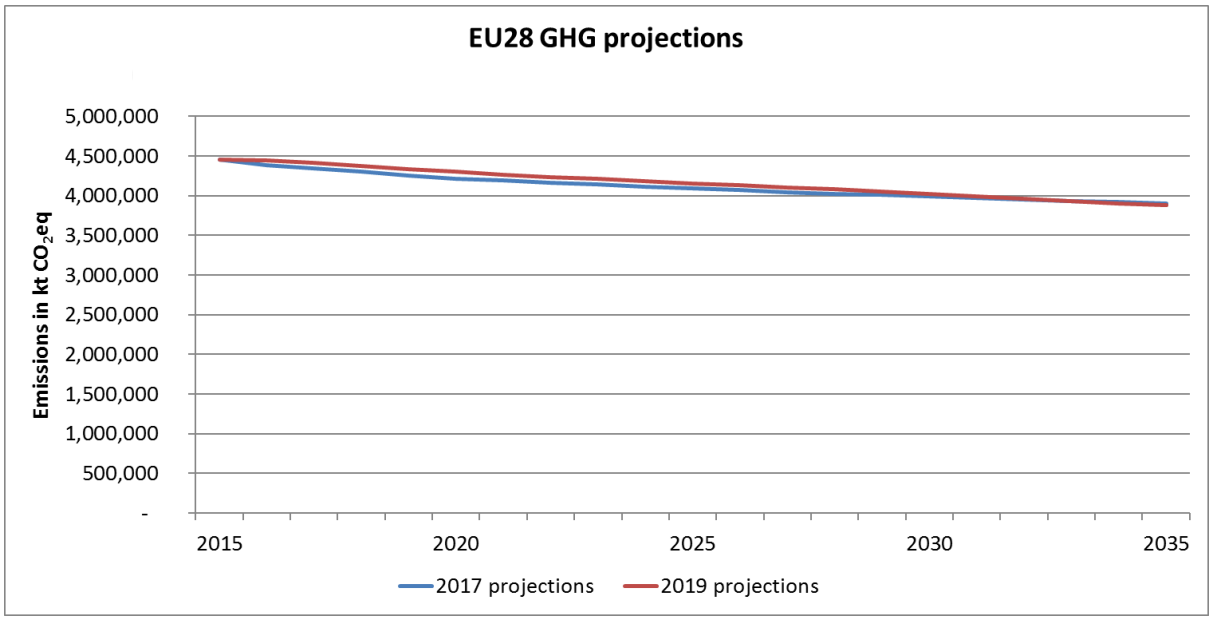
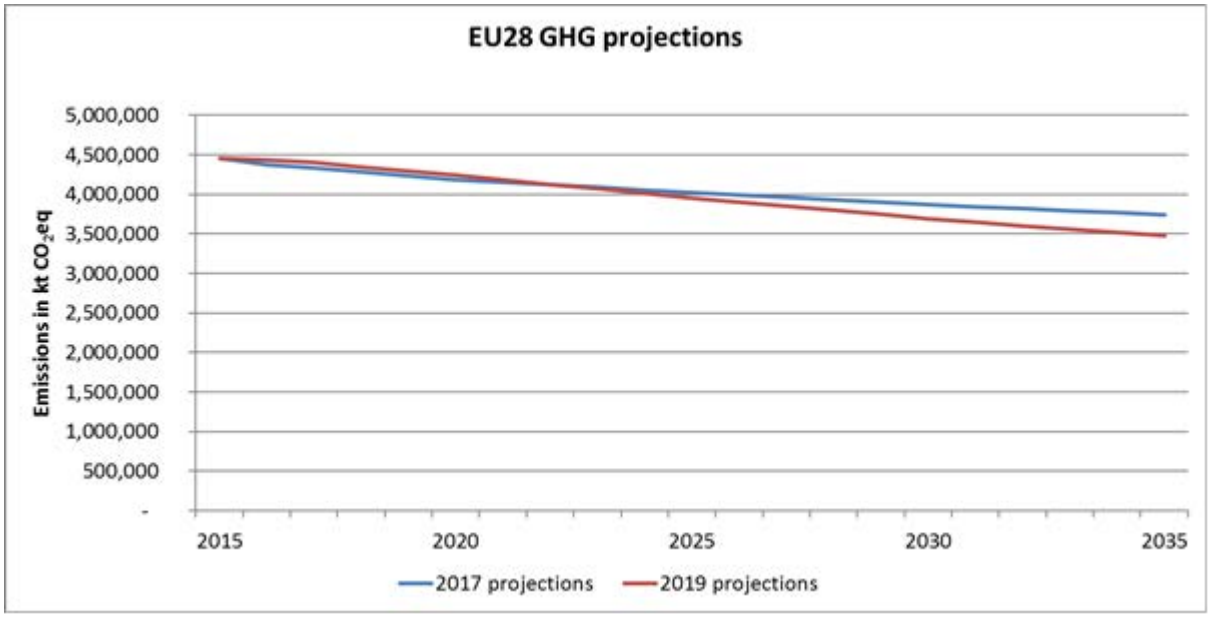


Figure 5-9 EU 28 GHG projections (total without LULUCF, including international aviation) reported in the 3BR (2017) and the 4BR (2019) under the WAM scenario



5.3.5.1. Differences according to sectors and GHGs

This section discusses differences between the 3BR and 4BR projections, first according to sectors, then to GHGs. In the interest of brevity, only the sectors and gases with relevant differences in projection values for the two reports are addressed.

These trends for total GHG emissions presented in the previous section are generally replicated within the energy sector. The subsector transport however shows higher emission levels in the 4BR projections compared to 3BR projections in the WEM scenario: values are around 6% higher in 2020 and 2025. This gap becomes smaller throughout the remainder of the time series; however, 4BR emissions are still around 1% higher than 3BR emission levels in 2035. The WAM scenario shows a similar development initially. From 2026 onwards however, 4BR emission values are lower than 3BR emission values: 6% lower in 2030 and 12% lower in 2035.

International aviation is projected to have considerably higher emissions under both the WEM and the WAM scenarios, starting 28% above 3BR projection values in 2020 and falling to 24% above 3BR projection values in 2035 under the WEM scenario. Under the WAM scenario, the trend is similar: 4BR projection values are 27% above 3BR projection values for 2020, and 18% above 3BR values for 2035.

Considering developments by GHGs, 3BR and 4BR projection values are quite similar, both in level and in trend throughout the time series.

5.3.5.2. Potential reasons for changes between 3BR and 4BR projection levels

This section discusses various potential reasons for the changes in emission levels between projections reported in the 3BR and the 4BR. One reason for the stability of the WEM projections is that new EU legislation adopted in 2018 is not yet included in the WEM projection resulting from the aggregation of national projections with existing measures.

Changes to methodologies related to the compilation of the EU-level projections are unlikely to have led to the changes as they have remained unchanged compared to those used in the 3BR and the 2BR. The QA/QC procedures remain unaltered also. Changes to planned policies and measures are likely to have led to the differences between the GHG emission levels under the WAM scenarios reported in 3BR and 4BR. A main reason for these stronger decreases is that a number of Member States have included envisaged measures under their upcoming integrated national energy and climate plans into the WAM projections submitted in 2019. (See section 4.3.21 for more information).

The higher emission levels under both scenarios in the transport sector in the 4BR could potentially be based on the, on average, lower oil prices assumed (see below) as well as the insight that the existing measures have been less effective in achieving impact than expected, considering the increase in emissions in this sector seen between 2013 and 2016.

The stronger assumed growth of emissions in international aviation could stem from the continuing growth trends seen in this area in recent years, also considering that that only limited control can be exerted by the EU MS on this sector.

Another potential reason that was checked are changes to key projection parameters. EU Member States report the parameters used for their projections together with the projections in their Biennial Reports. Table 5-7 presents key assumptions used by EU Member States in their 4BRs and 3BRs such as weighted averages for GDP, population, international oil, gas and coal prices as well as EU ETS carbon prices.[137] The weighted average assumptions used are broadly comparable. GDP assumptions for the 4BR projections are slightly lower in 2020 and 2025, similar in 2030 and slightly higher in 2035 than for the 3BR projections. Population projections are slightly higher but similar in trend compared to the 3BR projections. International coal prices are very similar to the values used for 3BR projections, with gas prices slightly lower over the time series. Finally, EU ETS prices are also comparable in level and trend to the prices assumed for the 3BR projections. Taken together, these observations contribute to explain the stability of the WEM projections.

Table 5-7 Key parameters used by EU MS for the projections reported in the 3BR and 4BR

Parameter	2020		2025		2030		2035	
	3BR	4BR	3BR	4BR	3BR	4BR	3BR	4BR
GDP (million EUR)/2016	15317.87	15,589.53	16041.46	16,794.88	18432.45	18,150.38	20274.57	19,402.48
Population (million)	514.2	510.46	518.3	511.50	521.4	517.61	524.3	520.14
International Oil price (EUR (2016) / GJ)	16.66	10.42	19.86	12.37	22.97	13.74	23.90	14.08
International Gas price (EUR (2016) / GJ)	7.76	7.42	8.79	7.08	9.83	7.76	10.55	8.06
International Coal price (EUR (2016) / GJ)	2.38	2.49	2.90	2.92	3.52	3.43	3.62	3.52
EU ETS price (EUR (2016) /tCO_2)	13.45	15.26	22.76	21.73	37.14	33.01	44.90	39.54

5.3.6. *Sensitivity analysis*

Under Article 14 of Regulation 525/2013/EU, Member States are required to report on results of a sensitivity analysis of their GHG projections. This is a mandatory reporting requirement.

137 Values for oil prices are not comparable. This is because average values calculated for the Fourth Biennial Report exclude outliers (see section 5.3.3 for the treatment of outliers), while the weighted averaged calculated for the Third Biennial Report projections do not. In the Third Biennial Report outliers appeared only for oil prices.

The European Commission recommended that Member States, which used different assumptions for key parameters than those recommended (see section 5.3.3 above), use the Commission's recommended parameters for their sensitivity analyses instead. However, this is voluntary and some Member States have not complied with the Commission's recommendation. Of course, EU Member States sensitivity analysis also have to take into account different national circumstances. As a consequence, Member States' sensitivity analyses are not based on a uniform set of assumptions and methodologies. It is thus not meaningful to aggregate the results of individual Member State sensitivities into an EU-28 sensitivity projection scenario. Information about sensitivity analyses at Member State level is reported in individual Biennial Reports of the Member States. Thus, instead of a sensitivity analysis for the aggregate projections, a cross-check or benchmarking with an alternative modelling exercise seems to be more useful for the EU projections.

In the 3BR, a sensitivity analysis was conducted by comparing the aggregated projections to the EU Reference Scenario 2016. This scenario has been developed by the European Commission in consultation with the Member States to provide insights about how current trends and existing policies in the EU translate into EU-28 projections. The Directorates General Energy, Climate Action and Mobility and Transport published this in 2016[138]. The 3BR stated that the EU Reference Scenario 2016 is comparable with the projection for the WEM scenario based on the aggregated projections reported by EU MS in 2017 (see section 5.3.9) of the 3BR.

As the compilation of the EU Reference Scenario 2016 was time intensive, the scenario has not yet been updated, nor has another EU-wide GHG projection been compiled which could be used for the purposes of a sensitivity analysis. Section 5.3.5 above shows that the projections for the WEM scenario presented in this 4BR are very close in level and trend to the projections for the respective scenario presented in the 3BR. On this basis, the WEM scenario reported in the 4BR can still be considered comparable to the results of the EU Reference Scenario 2016.

Quantified progress to 2020 targets

For the quantification of the progress to the EU 2020 target under the UNFCCC, the development of GHG emissions is the key indicator. The Convention target of a reduction of emissions by 20% from 1990 to 2020 refers to the emissions of the EU-28 as a whole. GHG emissions of the EU-28 are calculated as the sum of Member States' emissions. The trend in GHG emissions of the EU-28 is shown in section 5.1 above. Considering the scope of the EU 2020 target (which excludes LULUCF, but includes international aviation), the 2017 emissions are at 22% below the 1990 emission level, which means that EU-28 is well on track to reach its Convention target.

138 European Commission. EU Reference Scenario 2016: Energy, transport and GHG emissions - Trends to 2050. 2016. https://ec.europa.eu/energy/sites/ener/files/documents/20160713%20draft_publication_REF2016_v13.pdf

In the context of the EU's 4BR to the UNFCCC, reporting on progress on targets is standardized in the Common Tabular Format (CTF) Tables 4, 4a and 4b. Table 5-8 below corresponds to CTF Table 4. Tables 4a and 4b are not presented for the EU's 4BR. This is because Table 4a provides information on land-use, land-use change and forestry, which is not included in the EU's target under the Convention. Table 4b provides detailed information on the number of ERUs, CERs and other units used. The information required for Table 4b is not available at the necessary level of detail, i.e. differentiating between the amounts of certified emission reductions (CERs) and emission reduction units (ERUs) used.

Table 5-8 EU Reporting on progress (CTF Table 4)

	Unit	Base Year	2010	2011	2012	2013	2014	2015	2016	2017	Comment
Total (without LULUCF)[139]	kt CO_2 eq	5,718,654	4,915,228	4,761,679	4,696,506	4,603,595	4,434,461	4,468,478	4,451,350	4,481,383	Total GHG including domestic and international aviation, indirect CO_2, excluding LULUCF and NF3
Contribution from LULUCF	kt CO_2 eq	NA	NA	NA	NA	NA	NA	NA	NA	NA	Not applicable: Numbers for LULUCF are not reported because this sector is not included under the Convention target
Market-based mechanisms under the Convention[140]	Number of units in millions / kt CO_2 eq	NA	137,000	254,000	504,000	133,000	257,000	23,000	12,234	11,829	
Other market-based mechanisms	Number of units / kt CO_2 eq	NA	NA	NA	NA	NA	NA	NA	NA	NA	Not applicable: No "other" market based mechanisms are in use.

139 http://unfccc.int/files/national_reports/annex_i_ghg_inventories/national_inventories_submissions/application/zip/euc-2016-nir-21jun16.zip

140 European Environment Agency. Trends and projections in the EU ETS in 2016: The EU Emissions Trading System in numbers. 2016. http://www.eea.europa.eu/publications/trends-and-projections-EU-ETS-2016. This is the total number of international credits that were used/surrendered by operators under the EU ETS during the period, hence may not reflect the EU 28 as NO, IS, LI are in EU ETS.

Emissions and removals in the LULUCF sector are not included under the Convention target and they are not included in CTF tables related to progress to the Convention target. Emissions and removals in this sector are only accounted for under Kyoto targets. In the first Kyoto commitment period the LULUCF sector was a net sink for the EU-28 of 381 Mt CO_2 equivalent[141].

Information on the use of flexible mechanisms is presented in Table 5-8 above. The use of flexible mechanisms takes place in two forms: by operators in the EU ETS and by governments for the achievement of Effort Sharing Decision targets (see section 4.2). Under the EU ETS, since 2013, it is no longer possible to track the use of flexible mechanisms directly via information on the EU Transaction Log public website because CERs and ERUs are no longer surrendered directly. Rather they are exchanged into EUAs. These exchanges will become public on installation level after three years, with the first information reflecting the use in 2013 having become available in 2016. Aggregated data are however available for the timeframe 2013-2017. EU Member States have not used any CERs or ERUs for compliance under the ESD in the timeframe 2013-2017.[142]

According to the provisions of the revised EU ETS Directive and the Effort Sharing Regulation, international credits will no longer be used for compliance in the period 2021-2030.

141 EEA 2014 Progress towards 2008-2012 Kyoto targets in Europe. http://www.eea.europa.eu/publications/progress-towards-2008-2012-kyoto

142 Report from the Commission to the European Parliament and the Council. EU and the Paris Climate Agreement: Taking stock of progress at Katowice COP. 2018. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52018DC0716&from=EN

6. PROVISION OF FINANCIAL, TECHNOLOGICAL AND CAPACITY BUILDING SUPPORT TO DEVELOPING COUNTRIES

6.1. Introduction

This chapter includes information on the financial, technological and capacity-building support provided by the EU and its Member States. The EU support reported here is provided by EU institutions and the European Investment Bank (EIB) to developing country Parties that are part of the UNFCCC[143]. The information covers the calendar years of 2017 and 2018. More specific information on climate finance provided by individual EU Member States can be found in respective Member States' National Communication or Biennial Report.

Detailed information and data on the EU's and EIB's support provided in 2017 and 2018 are included in the Common Tabular Format (CTF) tables 7, 8 and 9, the CTF documentation box, and the supplementary technical annex of this report in Section 10.

The methodology used to track EU and EIB support is outlined in Section 6.2. This includes details on how support has been categorised as 'new and additional', and how the purpose of the support has been defined as either mitigation, adaptation or cross-cutting.

6.2. The EU's approach to provision of support, including the provision of new and additional resources

The EU tracks the provision of its support through a project-based monitoring and reporting system. The system uses OECD Development Assistance Committee (DAC) Rio Markers to categorise and track the extent to which a project is deemed to provide support, alongside more than 50 additional project markers that allow for further support tracking, for instance by geographical location, economic sector, financial instrument or funding source.

The financial resources reported in this Biennial Report are considered 'new and additional resources', meaning that they were committed after and not included in the previous National Communication or Biennial Report (i.e. the new and additional resources were committed in either 2017 or 2018). As EU budgets are determined on an annual basis, each annual commitment cycle represents new and additional resources.

This methodology, along with the process of allocating Rio Markers to projects and apportioning the resulting support, is developed in detail in Section 6.2.3 'Methodology for tracking the provision of finance, technology and capacity building support', below. Information is also provided in the same Section on how the EIB categorises its provision of climate finance.

143 This includes non-Annex I countries as well as Annex-I countries with economies in transition (the Russian Federation, the Baltic States, and several Central and Eastern European States). Specifically, Annex-I countries with economies in transition included in the National Communication and Biennial Report are Belarus, Turkey, and Ukraine.

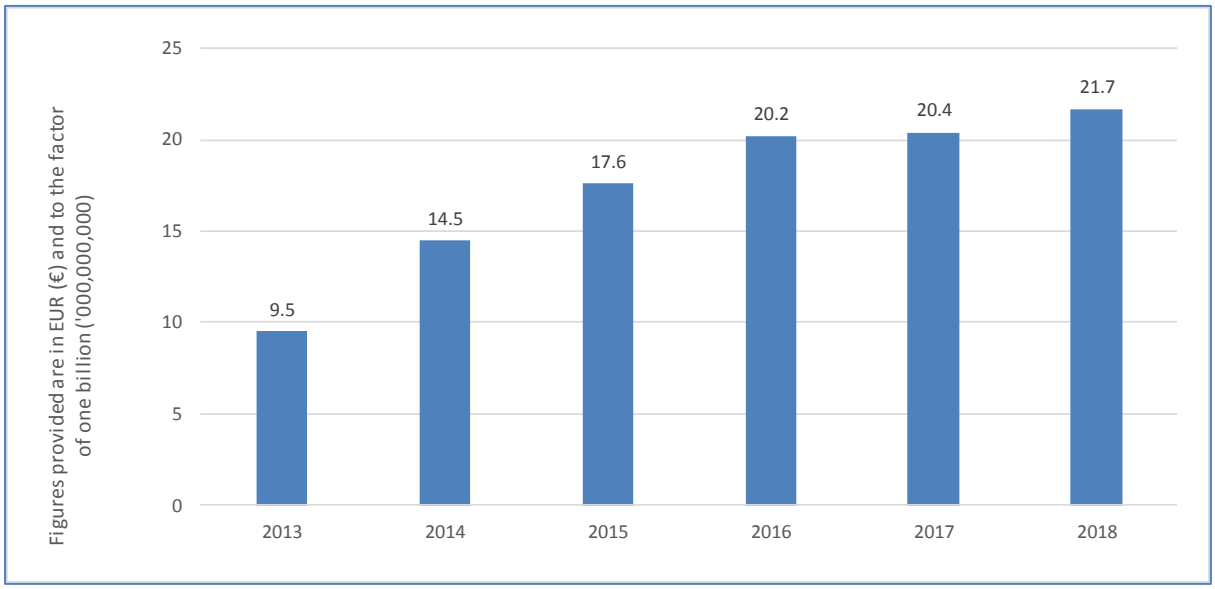
6.2.1. Addressing the needs of non-Annex I Parties

6.2.1.1. Overall approach

When taken as a collective, the EU, its Member States and the EIB are the largest providers of public climate finance to developing countries, providing €20.4 billion in 2017[144] and €21.7 billion in 2018[145]. This €20.4 billion includes €2.8 billion from the EU and €2.6 billion from the EIB[146], and the €21.7 billion includes €2.7 billion from the EU and €3 billion from the EIB. They are discussed further in Section 6.3.

This collective figure has continued to increase over the past 5 years, from €9.5 billion in 2013[147] to €14.5 billion in 2014[148], and from €17.6 billion in 2015[149] to €20.2 billion in 2016[150].

Figure 6-1 Provision of EU, Member State and EIB public climate finance to developing countries from 2013-2018



The EU considers climate change a key point of engagement with EU candidate and potential candidate countries, European Neighbourhood Policy partner countries, and all developing countries. This takes place through discussions and policy dialogues, and supporting action through financial support[151].

144 https://www.consilium.europa.eu/en/press/press-releases/2018/11/06/2018-ecofin-climate-finance-conclusions/#_ftn1

145 https://ec.europa.eu/clima/policies/international/finance_en

146 https://ec.europa.eu/clima/policies/international/finance_en

147 https://actalliance.eu/wp-content/uploads/2018/04/Analysis-of-the-climate-finance-reporting-of-the-EU.pdf

148 https://ec.europa.eu/economy_finance/articles/international/2015-10-09_climate_finance_en.htm

149 https://ec.europa.eu/clima/policies/international/finance_en

150 https://www.consilium.europa.eu/en/press/press-releases/2017/10/17/climate-finance-eu/

151 https://ec.europa.eu/clima/policies/international/finance_en

The EU recognises that climate action is most effective where support is designed and implemented in partnership with national governments. For this reason, the EU works closely with partner governments to strengthen their institutional capacity to develop climate policy, in line with their own national priorities. This approach allows for national stakeholders to be included in the design of the bilateral support programmes provided by the EU, providing the level of input necessary so that these support programmes consider the partner country's or region's own development plans. These include regional and sectoral plans such as national adaptation programmes of action (NAPAs) and national adaptation plans (NAPs)[152]. The EU categorises all of its support as bilateral, and during 2017 and 2018, it provided bilateral support for 184 and 183 projects respectively, to support developing countries to mitigate and adapt to climate change.

In addition, the EU External Action Service (EEAS)[153] and the Commission develop strategy papers for and with countries (and regions) from which actions are implemented through yearly action plans. The EU also establishes and maintains strategic partnerships, such as the Africa-EU Strategic Partnership, and the Joint Declaration on Sustainable Energy (signed between the EU, EIB and CARIFORUM)[154], which have sustainable development at their heart. The Pan-African Programme constitutes one of the main EU financial instruments for the implementation of the Joint Africa-EU Strategy; it has a budget of €845 million for the period 2014-2020 funded by the EU's Development Cooperation Instrument (DCI). The EU also participates in regional processes (e.g. African Environment Ministries (AMCEN)) and supports relevant regional institutions (e.g. Caribbean Community Climate Change Centre (CCCCC))[155].

6.2.1.2. Specific programmes, thematic instruments and focus areas

The EU has a package of instruments for the implementation of external assistance, through geographic and thematic instruments: the Development Cooperation Instrument (DCI), the European Neighbourhood Instrument (ENI), the Instrument for pre-Accession Assistance, and the European Development Fund (EDF).

EU financing instruments

The DCI covers the majority of developing countries and its thematic programme on 'Global public good and challenges' has a primary focus on climate change[156]. No less than 25% of this programme will be spent on climate change and environment objectives. The DCI budget for 2014 - 2020 is €19.6 billion, including €7 billion (36%) for the thematic programmes. The ENI supports the European Neighbourhood Policy (ENP), covering the ENP partner countries

152 https://ec.europa.eu/clima/policies/adaptation/international_en

153 https://eeas.europa.eu/topics/environment-and-climate-change_en

154 The Joint Declaration on Sustainable Energy signed between the EU, EIB and CARIFORUM aims to reinforce cooperation in the field of sustainable energy with and support Caribbean, African and Pacific group of states in meeting their obligations stipulated in the Paris Agreement on Climate Change and the UN Sustainable Development Goals.

155 https://www.caribbeanclimate.bz/

156 https://ec.europa.eu/europeaid/commision-implementing-decision-adopting-multiannual-indicative-programme-thematic-programme-global_en

and Russia. The ENI amongst other goals promotes sustainable development and the UN's Millennium Development Goals, and finances actions within environmental sustainability. For the period 2014-2020, the ENI will have a total budget of €17.5 billion, of which it is forecasted that some €2.8 billion will be spent on climate mainstreaming. The Instrument for Pre-accession Assistance (IPA) is the means by which the EU supports reforms in the EU candidate and possible candidate countries, to make the political and economic reforms required to align with EU's values and to progressively comply with EU rules. For the period 2014-2020, the IPA will have a budget of €13.1 billion, of which it is forecasted that some 1.5 billion will be spent on mainstreaming the climate action. The European Development Fund (EDF) is the EU's main instrument for providing development aid to African, Caribbean and Pacific (ACP) countries and to overseas countries and territories (OCTs). The total financial resources of the 11th EDF amount to €30.5 billion for the period 2014-2020. Funding for Climate Change, the Environment and Resilience increased 50% under the 11th EDF amounting to €475 million in the period 2014-2020.

Green Climate Fund

As of May 2018, a group of EU Member States was also the largest contributor to the Green Climate Fund (GCF) with a total of USD 4.7 billion committed (or 'signed'), accounting for almost half of the USD 10.3 billion already pledged[157]. In addition, at the October 2019 Paris Conference[158] on the first replenishment of the Green Climate Fund, 27 countries pledged USD 9.78 billion for the next four years, of which USD 7.24 billion was pledged by EU Member States.

Link with the sustainable development goals

The EU's thematic development programmes and instruments seek to help developing countries meeting the relevant sustainable development goals (SDGs) by focussing on specific themes. The EU is also encouraging all countries to develop ambitious national responses to achieve the aims of the 2030 Agenda for Sustainable Development, which puts mainstreaming of environment and climate change at the centre of its sustainable development goals (SDGs). The 2030 agenda addresses both poverty eradication and the economic, social and environmental dimensions of sustainable development in a balanced and integrated manner.

In addition to the SDGs, the EU emphasis the integration of climate policy goals into Disaster Risk Reduction (DRR), supporting the adoption of the Sendai Framework for Disaster Risk Reduction (2015-2030) as well as the Joint Communication on a Strategic Approach to Resilience in the EU's external action. The EU's five-year Sendai Action Plan[159] is the basis for a disaster-risk-informed approach to policy making and resilient sustainable development.

157 http://www.greenclimate.fund/how-we-work/resource-mobilization

158 https://www.greenclimate.fund/documents/20182/24868/First_replenishment_of_the_Green_Climate_Fund__Summary_pledge_table.pdf/96ea94f9-d8f7-1ce1-198c-3f7fe1f47c30

159 https://ec.europa.eu/echo/news/european-commission-launches-sendai-action-plan-disaster-risk-reduction_en

The Plan proposes activities covering risk knowledge, risk investments, disaster preparedness and resilience, using an all-of-society engagement approach. The Plan will create synergies between DRR and climate change strategies, promoting disaster risk management and its integration in EU policies, including investing in disaster risk reduction for resilience in Europe and developing countries.

Developing resilience

The EU places resilience as a central objective in its development and humanitarian assistance. As well as the Pilot Programme for Climate Resilience, it supports l'Alliance Globale pour l'Initiative Résilience (AGIR) in the Sahel and West Africa, which aims to foster the resilience of communities who are regularly affected by food insecurity and protracted conflicts. It also funds disaster risk reduction projects in Africa, the Caribbean and the Pacific. In 2015, the EU introduced the Resilience Marker in all the humanitarian projects it funds. This marker defines ways to reduce disaster risks and to strengthen people's coping capacities to minimise humanitarian needs. It also launched the Resilience Compendium — a collection of 29 practical examples of disaster risk reduction and resilience activities carried out by the EU, other donors, organisations and vulnerable communities. Furthermore, as of 2017, some EU Member States provide about 95% of the annual voluntary pledges to the Adaptation Fund[160].

Food security

Similarly, with regards to food security, the Pro-ACT 'Pro-Resilience Actions' is the specific Commission tool[161] designed to respond– in complementarity with the European Civil Protection and Humanitarian Aid Operations (ECHO) of the European Commission – to major post-food crises promoting resilience of affected communities and build capacity of public institutions, private organisations and civil society organisations to respond to and prevent food crises (notable examples AGIR and SHARE initiatives) by making €70 million available annually for Pro-ACT.

The Food Security and Sustainable Agriculture (FSSA) thematic instrument under the Global Public Goods and Challenges Programme (GPGC) of the DCI contributes to this policy commitment through the component 'Supporting the poor and food insecure to react to crises and strengthen resilience'. The allocation for FSSA for the period 2014–2020 is €525 million with an annual indicative allocation of €75 million[162].

Global Change Climate Alliance+

In parallel with numerous climate initiatives, the Global Change Climate Alliance+ (GCCA+)[163] aims to assist developing countries to tackle climate change alongside broader

160 https://ec.europa.eu/clima/policies/international/finance_en

161 https://ec.europa.eu/europeaid/sites/devco/files/ad-pro-resilience-acp-measure-2016_en.pdf

162 https://ec.europa.eu/europeaid/sites/devco/files/aap-gpgc-foodsec-sustagric-c_2016_5207.pdf

163 http://www.gcca.eu/about-gcca

development objectives. It is a European Union flagship initiative, which is helping the world's most vulnerable countries to address climate change. GCCA+ employs a range of innovative delivery measures designed to reflect the principles of aid effectiveness established by the Paris Declaration on Aid Effectiveness and the Accra Agenda for Action. These include joint programming and financing, sector policy support programmes, climate change mainstreaming into planning and budgeting, and a focus on dialogue, institutional strengthening and capacity building.

Forestry initiatives

The Forest Law Enforcement, Governance and Trade (FLEGT)[164] takes a multidimensional approach to overcoming the complex drivers of illegal logging. The facility contributes to strengthening forest governance while encouraging sustainable economic development in timber producing countries through the review of timber legislation, promotion of legal trade, support of private-sector initiatives and encouragement of better public procurement policy. A key element of the FLEGT Action Plan is a voluntary scheme to ensure that only legally harvested timber is imported into the EU from countries agreeing to take part in this scheme. The internal EU legal framework for this scheme is the FLEGT Regulation adopted in December 2005, and a 2008 Implementing Regulation, allowing for the control of the entry of timber to the EU from countries entering into bilateral FLEGT Voluntary Partnership Agreements (VPA) with the EU. Once agreed, the VPAs include commitments and action from both parties to halt trade in illegal timber, notably with a license scheme at the partner country and the issuance of FLEGT licences that certify the legality of timber exported to the EU.

The EU continues to support the programme to Reduce Emissions from Deforestation and forest Degradation (REDD+), including the role of conservation, sustainable management of forests and enhancement of forest carbon stocks. REDD+ aims to preserve and strengthen the role of tropical forests in mitigating and adapting to climate change, and in sustainable development.

On 23 July 2019, the European Commission adopted the Communication on Stepping up EU Action to Protect and Restore the World's Forests[165]. The Communication proposes a partnership with producer and consumer countries as well as business, the research community, and civil society, in particular through the planned multi-stakeholder platform on deforestation and forest degradation. The Communication's actions are based on five priorities addressing both the supply and demand side of the issue: i) reduce the EU consumption footprint on land and encourage the consumption of products from deforestation-free supply chains in the EU; ii) work in partnership with producing countries to reduce pressures on forests and to "deforest-proof" EU development cooperation; iii) strengthen international cooperation to halt deforestation and forest degradation, and

164 http://www.euflegt.efi.int/home

165 https://ec.europa.eu/info/publications/eu-communication-2019-stepping-eu-action-protect-and-restore-worlds-forests_en

encourage forest restoration; iv) redirect finance to support more sustainable land-use practices; v) support the availability of, quality of, and access to information on forests and commodity supply chains, and support research and innovation.

Adaptation

The EU acknowledges the importance of financial support for adaptation, mainstreaming adaptation into development cooperation, and aiming at balancing the support for adaptation and mitigation. In recognition of the Cancun Framework Agreement and UNFCCC Nairobi Work Programme, support for adaptation is provided through a range of channels. These include bilateral agreements, as well as a range of multilateral institutions and funds such as the Adaptation Fund, the Green Climate Fund, as well as the Global Environment Facility with its Least Developed Countries Fund (LDCF) and Special Climate Change Fund (SCCF).

In parallel, the EU contributes to a number of other dedicated adaptation funds and programmes. EU support builds on available vulnerability assessments and on the needs and priorities expressed by developing countries in their national development and adaptation strategies. These strategies include national adaptation programs of action (NAPAs), national strategies on DRR and national action plans on desertification, land degradation and drought (DLDD). The EU is also a strong advocate of the move towards national adaptation planning (NAPs) or equivalent strategic processes and documents. Supported actions include, among others, diversifying livelihoods, improving access to information, enhancing coastal zone management, reducing disaster risks and promoting improved agricultural techniques such as agroforestry as well as soil and water conservation.

Mobilisation of climate finance

Many developing countries stress that climate finance will be vital to enable their Nationally Determined Contributions (NDC) delivery. The EU played a lead role in mobilising funding and technical assistance for developing countries to support the preparation of their Intended Nationally Determined Contributions (INDCs). In the lead-up to COP21, the EIB announced an increased target of 35% of lending to developing countries by 2020[166]. Chapter 7 'Other reporting' of this report summarises the EU's actions to align finance flows as per Article 2.1c of the Paris Agreement.

The EU remains committed to contribute to the collective goal of developed countries of mobilising USD 100 billion per year by 2020 to support meaningful climate actions in developing countries. This goal was extended until 2025 in the context of meaningful mitigation actions and transparency on implementation, prior to which a new goal will be set. The funding will come from a variety source, i.e. public and private, bilateral and multilateral sources. The EU has set out its strategy for mobilising more climate finance and to this end, has committed to spending at least 20% of the EU budget on climate action by 2020. The Commission is on schedule to reach the target to provide at least €14 billion (an

166 http://www.eib.org/infocentre/press/releases/all/2015/2015-223-eib-sets-new-35pct-target-for-climate-lending-in-developing-countries.htm

average of €2 billion per year) of public grants to support activities in developing countries between 2014 and 2020[167], and funding for international climate action will more than double (compared to the average level in 2012-2013). In line with the Paris Agreement, the commitment of the UN 2030 Agenda and the SDGs, in May 2018, the Commission proposed to set a more ambitious goal for climate mainstreaming across all EU programmes, including in external cooperation, with a target of 25% of EU expenditure contributing to climate objectives for the period 2021 to 2027[168].

Mainstreaming climate objectives

The EU understands that mainstreaming climate objectives into broader development goals will be fundamental to the transition to a low-carbon, climate-resilient world. The EU constantly mainstreams climate change into all its policies, including development assistance, which is distributed through multi-annual strategies and programmes, which are jointly prepared by the European Action Service (EEAS) and the European Commission. The EU has established an ambitious Action Plan on Financing Sustainable Growth with a framework of measures through which it provides climate finance to non-Annex I countries. In addition, climate change is increasingly being integrated into the EU's broader strategy for development assistance through mainstreaming.

In May 2019, it was estimated that the European Commission is on track to achieve its mainstreaming target of 20% of the budget from 2014 - 2020. The current climate-related spending within and outside of the EU is projected to reach €209 billion or 19.7% of the total 2014 - 2020 budget by 2020[169]. So far, climate change mitigation and adaptation have been integrated into all major EU spending programmes[170]. Programmes under cohesion policy, agriculture, research and innovation and the Connecting Europe Facility currently account for more than 90% of EU climate-related spending.

Several recommendations, including a study commissioned by the European Commission on climate mainstreaming in the EU budget[171], have been made to ensure the 20% target will be reached by 2020.

6.2.2 Innovating in delivering support: engaging the private sector in adaptation and mitigation in developing countries

The EU is using innovative ways to deliver support that engages the private sector in adaptation and mitigation activities in developing countries. Private investment, alongside and attracted by public investment, is seen as crucial to scaling-up climate finance and closing current finance gaps. Private investors are increasingly willing to fund low-carbon investment, yet this significant potential capital remains relatively untapped. Removing

167 https://ec.europa.eu/clima/policies/international/finance_en

168 https://ec.europa.eu/clima/policies/international/finance_en

169 https://ec.europa.eu/info/sites/info/files/about_the_european_commission/eu_budget/draft-budget-2020-wd-13-web-1.4_soe.pdf

170 https://ec.europa.eu/info/about-european-commission/eu-budget/spending/topic/eu-funding-programmes-2014-2020_en

171 https://publications.europa.eu/en/publication-detail/-/publication/1df19257-aef9-11e7-837e-01aa75ed71a1

barriers and improving the enabling conditions for attracting private investment in recipient countries is essential.

The EU mobilised the aggregated sum of €144 million of private climate finance in 2018, following investments of €152 million from the European Commission. The nature of these projects is direct investment in companies as well as investments or shares in collective investment vehicles, going towards mitigation and adaptation, including the energy and agriculture sectors. In 2017, the EU mobilised the aggregated sum of €734 million of private climate finance, following investments of €222 million from the European Commission.

In addition to its reporting, the EU is developing public initiatives to mobilise private climate finance directly, and to support the creation of appropriate enabling environments. €3.7 billion is available for sustainable energy cooperation in 2014-2020[172]. With a total EU contribution of more than €300 million, the European Commission has been working with multiple development partners to further accelerate sustainable energy investments in partner countries. Through the Electrification Financing Initiative (ElectriFI)[173], Climate Investor One (CIO)[174], the Africa Renewable Energy Scale-Up Facility (ARESUF)[175], the Transferability & Convertibility Facility (T&C) and the Facility for Energy Inclusion (FEI)[176], the European Commission has decisively increased provision of risk capital for sustainable energy investments and has thus made a significant contribution to leveraging additional funds and increasing the total volume of funds available for financing.

ElectriFI

Through ElectriFI, the EU continues to support small and medium sized private sector led investments in affordable, reliable, sustainable and modern energy. The initiative has already attracted significant interest from the private sector, development financiers and global development partners as an important platform in support of the sustainable energy agenda. The EU has contributed €108 million and contributions have been allocated by USAID/Power Africa (USD 10 million) and the governments of Sweden and Italy (€5 million each). The current investment portfolio of ElectriFI is exceeding €100 million expecting to achieve at least 1.5 million direct and indirect connections or the equivalent of 7 million persons gaining new/improved access, with about 470 MW additional generation capacity and 430 GWh of electricity from renewable sources per year[177]. By the end of 2018, 16 investments were contracted and started their operations for a total value of €15 million. Moreover, four African countries (Benin, Ivory Coast, Nigeria and Zambia) and the Pacific region channelled funding from their bilateral envelopes (NIP/RIP) to establish specific ElectriFI country windows, amounting to a total allocation of €93 million. Furthermore, the

172 https://ec.europa.eu/clima/policies/international/finance_en

173 https://www.electrifi.eu/

174 https://www.climateinvestorone.com/nl/

175 https://www.proparco.fr/en/are-scale

176 https://www.gogla.org/facility-for-energy-inclusion-fei

177 https://ec.europa.eu/europeaid/news-and-events/italy-supports-eu-initiative-boost-investment-sustainable-energy-developing_en

ElectriFI concept has been replicated also in other sectors, such as agriculture and culture with the set-up of dedicated facilities (AgriFI, CultiFI).

Blending finance initiatives

Other thematic initiatives for blending finance include the Climate Finance Initiative[178].

The leveraging of private finance will be critical to achieving climate finance targets at the global level and the EU is prioritising actions to mobilise the private sector. Furthermore, non-Annex 1 Parties need to attract additional public and private financing, to transition to a low-carbon economy and drive sustainable economic growth. The EU recognises that international climate finance should be used as a lever to incentivise climate-resilient, low-carbon investments. The EU's approach is twofold: first to provide grant funding directly to the poorest and most vulnerable countries, and second to use grant funding to leverage private investment, by combining grants with loans and equities from public and private sources, including bilateral and multilateral development banks.

The EU has established a number of finance blending facilities that combine grant funding with loans, with each facility covering different regions. Through these facilities, the EU has provided grant finance to blended projects and helped unlock investments in partner countries, by combining EU grants with public and private financing.

The key Regional Investment Facilities (blending mechanisms), have been established over the years to leverage private finance (e.g. CIF, IFCA, LAIF, AIP, AIF, IFP, WBIF)[179]. Besides traditional forms of support, the EU blending facilities mobilise additional financing from private and public sources for climate change action, complementing other aid modalities. Blending is the combination of EU grants with loans or equity from public and private financiers. EU grants can take different forms: Investment grant and interest rate subsidy, technical assistance, risk capital and guarantees. EU regional blending facilities operate in all regions of EU external cooperation and help partner countries transition to low carbon and climate resilient economies. The African Investment Facility was launched in July 2015.

With the operationalisation of the new External Investment Plan (EIP) the Commission's capacity to support, unlock, accelerate and leverage sustainable energy investments will be considerably enhanced, while partnerships with countries in Africa and the EU Neighbourhood region will be strengthened in view of achieving the Sustainable Development Goals and helping to address some root causes of migration.[180] The EIP European Fund for Sustainable Development (EFSD) has an important energy component, as

178 https://ec.europa.eu/europeaid/policies/innovative-financial-instruments-blending_en

179 https://ec.europa.eu/europeaid/policies/innovative-financial-instruments-blending_en

180 https://ec.europa.eu/europeaid/eu-external-investment-plan-factsheet_en

eight (six focusing in Africa) out of a total of 28 approved guarantee tools[181] are under the Sustainable Energy and connectivity window, accounting to a total of €603.5 million.

Between 2014 and 2020, the EU expects to double the volume of grant finance to €2 billion, aiming to mobilise projects of about €50 billion. The majority of EU blending projects are in the energy and transport sectors; climate change and environmental considerations are mainstreamed in all the blending activities.

Insurance coverage is another finance model, which can be harnessed to reduce the risks faced by low-income populations due to climate change. G7 leaders have agreed to increase by up to 400 million the number of people in the most vulnerable developing countries who have access to direct or indirect insurance coverage against the negative impact of climate-change-related hazards by 2020. This will build on existing risk insurance facilities such as the African Risk Capacity and the Caribbean Catastrophe Risk Insurance Facility. In addition, the EU is a member of the "InsuRelisience Global Partnership for Climate and Disaster Risk Finance and Insurance Solutions" which brings together countries, civil society, international organizations, the private sector, and academia. It particularly builds on a collaboration between the G20 and the V20 countries[182].

The EU has also devised numerous innovative or regional initiatives for the provision of climate finance, including:

- **B4Life[183]** — The Biodiversity for Life is a flagship initiative of the European Commission, for the period 2014-2020. It responds to global threats to biodiversity as part of efforts to conserve ecosystems in the world's most deprived areas. Critical ecosystems and biodiversity hotspots, weak institutions, food insecurity and illegal wildlife trafficking will be addressed in cooperation and coordination with the EU's partners worldwide;
- **SWITCH to Green[184]** — SWITCH to Green is a flagship initiative that facilitates the transition to an inclusive green economy that generates growth, creates decent jobs, and helps reduce poverty. It links complementary programmes to improve the overall coherence, coordination and visibility of existing and future EU-funded international cooperation initiatives on green economy. Among others, it aims to strengthen the linkages between macro-level initiatives -such as the UN Partnership for Action on Green Economy (PAGE) – and micro-level interventions -such as the green business components of the SWITCH regional programmes in order to reinforce synergies and create stronger enabling environments for green economies;
- **ECCM Facility[185]** — The Environment & Climate Change Mainstreaming Facility aims to improve the effectiveness of EU interventions that have effects on or are affected by environment and climate change, throughout EU thematic and geographic

181 https://ec.europa.eu/commission/eu-external-investment-plan/how-you-can-engage-external-investment-plan-one-stop-shop_en

182 https://www.insuresilience.org/members-partners/

183 https://publications.europa.eu/en/publication-detail/-/publication/2e26b18c-82a4-4275-b23f-bc1c601e2853

184 http://www.switchtogreen.eu/?p=128

185 https://europa.eu/capacity4dev/public-environment-climate/blog/eccm-facility-supporting-delegation-eu-haiti-mainstreaming-environment-and-climate-change

programmes, thereby contributing to poverty eradication, sustainable development and green growth. To this end, it provides training and capacity building support to EU and partner country staff. The Facility also systematically provides inputs into the Quality Support Groups (QSG) process from an environment, climate change and biodiversity perspective in priority sectors: agriculture, economic development, energy, transport and infrastructure; and,

6.2.3 *Methodology for tracking the provision of finance, technology and capacity building support*

The methodology used by the EU and the EIB for tracking the provision of finance, technology and capacity building support is described below, starting with a list of definitions for important terms used in the EU's methodologies. Following this list of terms, Table 6-1 describes the EU's approach to applying the Rio Markers. The EIB's approach to tracking climate relevant financial flows are then described, followed by a brief description of how the EU completes the annual OECD survey regarding mobilised climate finance from the private sector.

- **Climate finance:** The UNFCCC defines climate finance aims at reducing emissions, and enhancing sinks of greenhouse gases and aims at reducing the vulnerability of, and maintaining and increasing the resilience of, human and ecological systems to negative climate change impacts (adapted from the UNFCCC Standing Committee on Finance's definition of climate finance)[186].
- **Mitigation activities:** An activity should be considered as climate change mitigation related if it contributes to the objective of stabilisation of GHG concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system by promoting efforts to reduce or limit GHG emissions or to enhance GHG sequestration (adapted from the operational definition and criteria for eligibility used in the OECD-DAC Policy Markers)[187];
- **Adaptation activities:** An activity should be considered as adaptation related if it intends to reduce the vulnerability of human or natural systems to the impacts of climate change and climate-related risks, by maintaining or increasing adaptive capacity and resilience. This encompasses a range of activities from information and knowledge generation, to capacity development, planning and the implementation of climate change adaptation actions (adapted from the operational definition and criteria for eligibility used in the OECD-DAC Policy Markers);
- **Climate relevant technology development and transfer:** a broad set of processes covering the flows of know-how, experience and equipment for mitigating and adapting to climate change amongst different stakeholders such as governments, private sector entities, financial institutions, non-governmental organizations (NGOs) and research/education institutions. The broad and inclusive term 'transfer' comprises

186 https://unfccc.int/files/cooperation_and_support/financial_mechanism/standing_committee/application/pdf/2014_biennial_assessment_and_overview_of_climate_finance_flows_report_web.pdf

187 https://www.oecd.org/dac/stats/48785310.pdf

the process of learning to understand, utilize and replicate the technology, including the capacity to choose and adapt to local conditions and integrate it with indigenous technologies (adapted from the IPCC definition of climate relevant technology transfer);

- **Climate relevant capacity building:** capacity-building is a process which seeks to build, develop, strengthen, enhance and improve existing scientific and technical skills, capabilities and institutions particularly in developing countries, to enable them to assess, adapt, manage and develop technologies. Capacity building must be country-driven, addressing specific needs and conditions of developing countries and reflecting their national sustainable development strategies, priorities and initiatives (adapted from the UNFCCC definition of capacity building activities).

The Rio markers are policy indicators and were not originally intended to accurately quantify climate finance. Therefore, an activity can have more than one principal or significant policy objective (i.e. it can be marked for several Rio markers; mitigation, adaptation and other Rio conventions such as Biodiversity and Desertification). The EU has adopted the following approach to 'translate' the Rio marked data into estimated flows of climate finance:

Table 6-1 Rio marker approach

Markers	Mitigation (%)	Adaptation (%)	Cross-cutting (%)	Total (%)
2 M & 0 A	100	0	0	100
1 M & 0 A	40	0	0	40
0 M & 2 A	0	100	0	100
0 M & 1 A	0	40	0	40
2 M & 1 A	100	0	0	100
1 M & 2 A	0	100	0	100
2 M & 2 A	0	0	100	100
1 M & 1 A	0	0	40	40

For example, if an EU commitment of €1 million was made to a project going to a developing country Party that was marked as 'Principal' for mitigation ('2 M' in the above table) and 'Significant' for adaptation ('1 A' in the above table), then 100% of that €1 million would be categorised as mitigation and 0% as adaptation.

Similarly, if the above project was not marked for mitigation but was marked as 'Significant' for adaptation, 40% of that €1 million would be categorised adaptation, and 0% as mitigation.

This Biennial Report covers support that has been committed in 2017 and 2018. A commitment requires that a final decision has been taken on the allocation of the funds to a specific project and programme. In general, disbursement will follow commitment unless exceptional circumstances arise. The EU is working towards tracking climate relevant disbursements in the near future.

The EU also completes the annual OECD survey on data regarding mobilised climate finance from the private sector in the form of a supplementary Common Reporting Standard (CRS) Excel file. This file provides information on the recipient country, project title, amounts mobilised from the private sector, amounts invested by the EU, as well as what type of financing mechanism is being used (Guarantees, syndicated loans, investments/shares in collective investment vehicles, direct investment in companies and project finance special purpose vehicles (SPVs), credit lines, simple co-financing arrangements).

The EIB's climate relevant financial flows are tracked using the joint approach developed by the Multilateral Development Banks (MDBs) that does not use the Rio markers. In 2015, Common Principles for tracking mitigation and adaptation activities were developed together with the International Development Finance Club (IDFC), and a set of guidelines was established and applied to set a common approach for reporting on climate co-financing flows that are invested alongside MDBs' climate finance activities. Climate co-finance is defined as the amount of financial resources contributed by external entities alongside climate finance invested by MDBs. This encompasses financial resource providers that are government or government-affiliated, as well as those that are private.

The MDBs' methodologies for climate finance tracking are aligned with the Common Principles, and are detailed in their latest 'Joint report on multilateral development banks' climate finance 2018', published in June 2019[188].

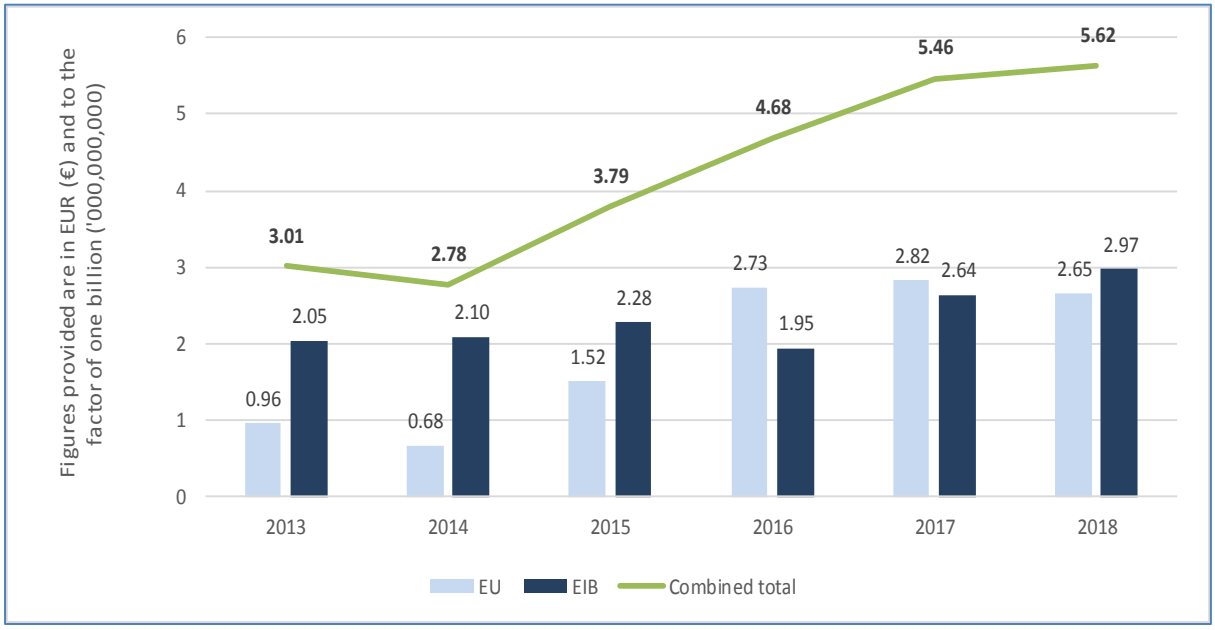
6.3 Financial Resources

This section provides information on the total climate finance provided to developing countries through bilateral channels (by the EU) and multilateral channels (by the EIB) during 2017 and 2018. Climate finance provided through bilateral channels is reported in section 6.3.1, and climate finance provided through multilateral channels is reported in section 6.3.2.

Over the last 6 years, the total EU climate finance has increased by 87%, from €3 billion in 2013 to €5.6 billion in 2018. This is displayed in Figure 6-2.

188 https://publications.iadb.org/en/2018-joint-report-multilateral-development-banks-climate-finance

Figure 6-2 Provision of EU and EIB climate finance to developing countries from 2013-2018



Sources: Data for 2013-2014[189], 2015-2016[190], 2017[191], 2018[192]

During 2017 and 2018, the total bilateral and multilateral climate finance provided is presented in Figure 6-3, which shows that 47% of this climate finance is provided through multilateral channels for mitigation purposes, and 20% is provided through bilateral channels for adaptation purposes.

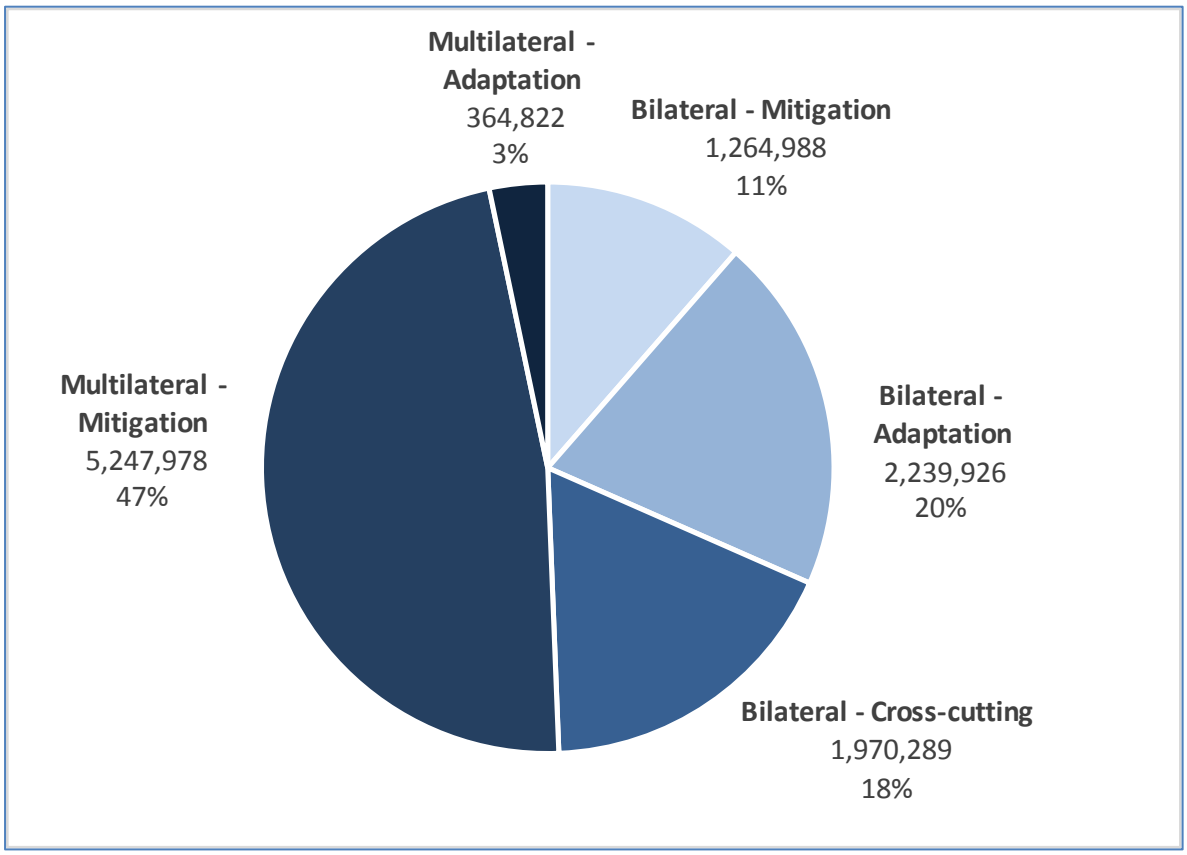
189 https://actalliance.eu/wp-content/uploads/2018/04/Analysis-of-the-climate-finance-reporting-of-the-EU.pdf

190 https://unfccc.int/files/national_reports/annex_i_natcom/submitted_natcom/application/pdf/459381_european_union-nc7-br3-1-nc7_br3_combined_version.pdf

191 https://ec.europa.eu/clima/sites/clima/files/docs/climate_finance_leaflet_en.pdf

192 https://ec.europa.eu/clima/policies/international/finance_en

Figure 6-3 Total bilateral and multilateral finance in Euros provided in 2017 and 2018 by type of support



6.3.1 *Provision of financial support through bilateral channels*

All the European Commission's climate finance provided to developing country Parties to the UNFCCC (provision of financial support through bilateral channels) in 2017 and 2018 was in the form of grants, and classified as official development assistance (ODA). This climate finance was marked by the Rio markers, as described in Section 6.2.3, and is summarised below per year since the last National Communication and Biennial Report. It shows the amounts marked for mitigation, adaptation or cross-cutting activities, and how much of this finance went to least developed countries (LDCs). Only climate-specific finance provided by the EU is reported here.

In 2017 and 2018, the EU provided €5.5 billion of total climate finance to developing country Parties to the UNFCCC. Of this total climate finance, €1.3 billion was marked for mitigation, €2.2 billion for adaptation, and €2 billion as cross-cutting, as depicted in Figure 6-4.

Figure 6-4 EU bilateral climate finance provided for both 2017 and 2018

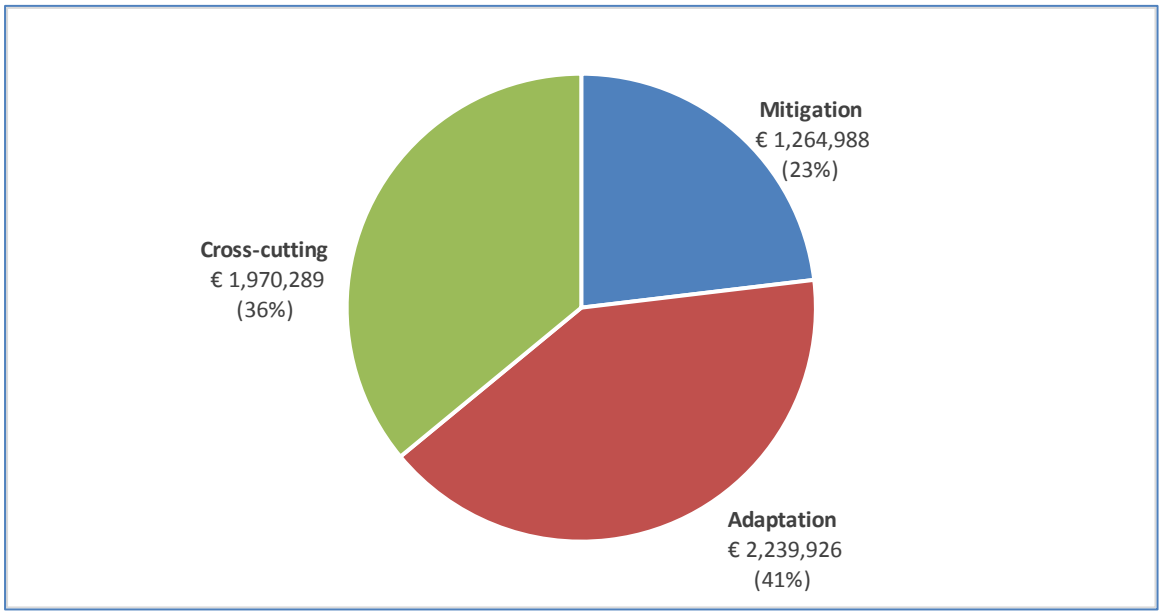


Table 6-2 Provision of EU bilateral climate finance in 2017-2018
Figures provided are to the factor of one thousand ('000)[193]

Year	Mitigation		Adaptation		Cross-cutting		Total	
	EUR (€)	USD	EUR (€)	USD	EUR (€)	USD	EUR (€)	USD
2017	708,132	798,346	1,238,097	1,395,825	876,481	988,141	2,822,710	3,182,311
2018	556,856	657,445	1,001,829	1,182,797	1,093,808	1,291,390	2,652,493	3,131,632
Total	1,264,988	1,455,790	2,239,926	2,578,622	1,970,289	2,279,531	5,475,203	6,313,944

Of total climate finance provided by the EU in 2017 and 2018, at least €1.5 billion (27%) was provided to LDCs. The reason this reads 'at least' is because the EU marks its funding by country and by region, but in some cases climate finance goes to a collection of countries, and only a regional marker is used as a result, rendering it not possible to assign specific amounts to the individual countries in this regional group. However, of the total climate finance provided in 2017 and 2018 to LDCs, at least €305 million was marked for mitigation, €908 million for adaptation and €246 million for cross-cutting.

Further disaggregation of the climate finance provided by the EU in 2017 and 2018 is available in Tables 6.4 and 6.5, categorised by sector and by region.

193 EUR have been converted to USD for all figures using the OECD-DAC annual average exchange rates: https://data.oecd.org/conversion/exchange-rates.htm

Table 6-3 Provision of EU bilateral climate finance for mitigation, adaptation and cross-cutting by sector for 2017 and 2018[194]
Figures provided are to the factor of one thousand ('000)

Sector[195]	Mitigation		Adaptation		Cross-cutting		Total		%
	EUR	USD	EUR	USD	EUR	USD	EUR	USD	
2017									
Energy	382,709	431,465	-	-	92,531	104,319	475,240	535,784	17%
Transport	11,973	13,498	14,392	16,225	16,800	18,940	43,165	48,664	2%
Industry	-	-	18,400	20,744	76,000	85,682	94,400	106,426	3%
Agriculture	6,000	6,764	346,521	390,667	242,200	273,055	594,721	670,486	21%
Forestry	6,000	6,764	16,550	18,658	12,500	14,092	35,050	39,515	1%
Water & sanitation	53,541	60,362	160,001	180,384	-	-	213,542	240,746	8%
Cross-cutting	176,630	199,132	210,344	237,141	357,578	403,132	744,552	839,405	26%
Other	71,280	80,361	471,888	532,005	78,872	88,920	622,040	701,286	22%
Total	708,132	798,346	1,238,097	1,395,825	876,481	988,141	2,822,710	3,182,311	
2018									
Energy	303,463	358,279	4,602	5,434	8,920	10,531	316,985	374,244	12%
Transport	12,600	14,876	151,272	178,597	57,220	67,556	221,092	261,030	8%
Industry	35,600	42,031	0	-	242,950	286,836	278,550	328,867	11%
Agriculture	0	-	147,582	174,241	232,600	274,616	380,182	448,858	14%
Forestry	37,000	43,684	0	-	8,500	10,035	45,500	53,719	2%
Water & sanitation	8,284	9,781	105,560	124,628	156,500	184,770	270,344	319,179	10%
Cross-cutting	133,215	157,279	279,002	329,400	217,478	256,762	629,694	743,441	24%
Other	26,694	31,516	313,811	370,497	169,640	200,284	510,145	602,296	19%
Total	556,856	657,445	1,001,829	1,182,797	1,093,808	1,291,390	2,652,493	3,131,632	

194 Please note that individual sectors presented in the table may not sum to the total due to rounding. Percentages may not sum to 100 % due to rounding.

195 The sector categorisations in the EU's 4th Biennial Report differ slightly with the approach taken in the 7th National Communication and 3rd Biennial Report in that several CRS codes have been moved from being categorised in the "Other" sector, to a more appropriate sector (CRS code 313 moved to "Agriculture" sector, CRS code 322 moved to "Industry" sector, and CRS code 410 moved to "Cross-cutting" sector).

Table 6-4 Provision of EU bilateral climate finance for mitigation, adaptation and cross-cutting by region for 2017[196]
Figures provided are to the factor of one thousand ('000)

Region	Mitigation		Adaptation		Cross-cutting		Total		%
	EUR (€)	USD	EUR (€)	USD	EUR (€)	USD	EUR (€)	USD	
Europe	75,913	85,584	4,036	4,550	117,366	132,318	197,315	222,452	7%
Africa	402,100	453,326	716,821	808,141	348,260	392,627	1,467,181	1,654,094	52%
North of Sahara	2,000	2,255	6,000	6,764	32,500	36,640	40,500	45,660	1%
South of Sahara	362,900	409,132	710,821	801,377	287,760	324,419	1,361,481	1,534,928	48%
Regional	37,200	41,939	0	0	28,000	31,567	65,200	73,506	2%
America	18,000	20,293	142,866	161,067	73,800	83,202	234,666	264,561	8%
North & Central	18,000	20,293	91,866	103,569	29,800	33,596	139,666	157,459	5%
South	0	0	51,000	57,497	4,000	4,510	55,000	62,007	2%
Regional	0	0	0	0	40,000	45,096	40,000	45,096	1%
Asia	79,400	89,515	73,672	83,058	68,440	77,159	221,513	249,732	8%
Middle East	20,400	22,999	1	1	11,040	12,447	31,441	35,447	1%
South & Central	0	0	67,671	76,292	57,400	64,713	125,071	141,005	4%
Far East	0	0	6,000	6,764	0	0	6,000	6,764	0%
Regional	59,000	66,516	0	0	0	0	59,000	66,516	2%
Oceania	0	0	70,880	79,910	5,520	6,223	76,400	86,133	3%
Bilateral unallocated	132,719	149,627	229,821	259,099	263,095	296,612	625,635	705,338	22%
Total	708,132	798,346	1,238,097	1,395,825	876,481	988,141	2,822,710	3,182,311	

196 Please note that individual sectors presented in the table may not sum to the total due to rounding. Percentages may not sum to 100 % due to rounding.

Table 6-5 Provision of EU bilateral climate finance for mitigation, adaptation and cross-cutting by region for 2018[197]
Figures provided are to the factor of one thousand ('000)

Region	Mitigation		Adaptation		Cross-cutting		Total		%
	EUR (€)	USD	EUR (€)	USD	EUR (€)	USD	EUR (€)	USD	
Europe	126,169	148,960	91,872	108,468	164,165	193,820	382,206	451,247	14%
Africa	222,850	263,105	277,500	327,627	211,540	249,752	711,890	840,484	27%
North of Sahara	20,000	23,613	4,000	4,723	0	0	24,000	28,335	
South of Sahara	192,350	227,096	273,500	322,904	199,740	235,821	665,590	785,821	
Regional	10,500	12,397	0	0	11,800	13,932	22,300	26,328	
America	14,015	16,547	102,500	121,015	66,840	78,914	183,355	216,476	7%
North & Central	14,015	16,547	102,500	121,015	66,840	78,914	183,355	216,476	
South	0	0	0	0	0	0	0	0	
Regional	0	0	0	0	0	0	0	0	
Asia	34,484	40,713	142,322	168,031	92,850	109,622	269,657	318,367	10%
Middle East	23,884	28,199	50,340	59,433	17,400	20,543	91,624	108,175	
South & Central	10,600	12,515	55,900	65,998	37,450	44,215	103,950	122,727	
Far East	0	0	36,082	42,600	18,000	21,251	54,082	63,852	
Regional	0	0	0	0	20,000	23,613	20,000	23,613	
Oceania	1,600	1,889	55,800	65,880	38,400	45,336	95,800	113,105	4%
Bilateral unallocated	157,738	186,231	331,835	391,777	520,012	613,946	1,009,585	1,191,954	38%
Total	556,856	657,445	1,001,829	1,182,797	1,093,808	1,291,390	2,652,493	3,131,632	

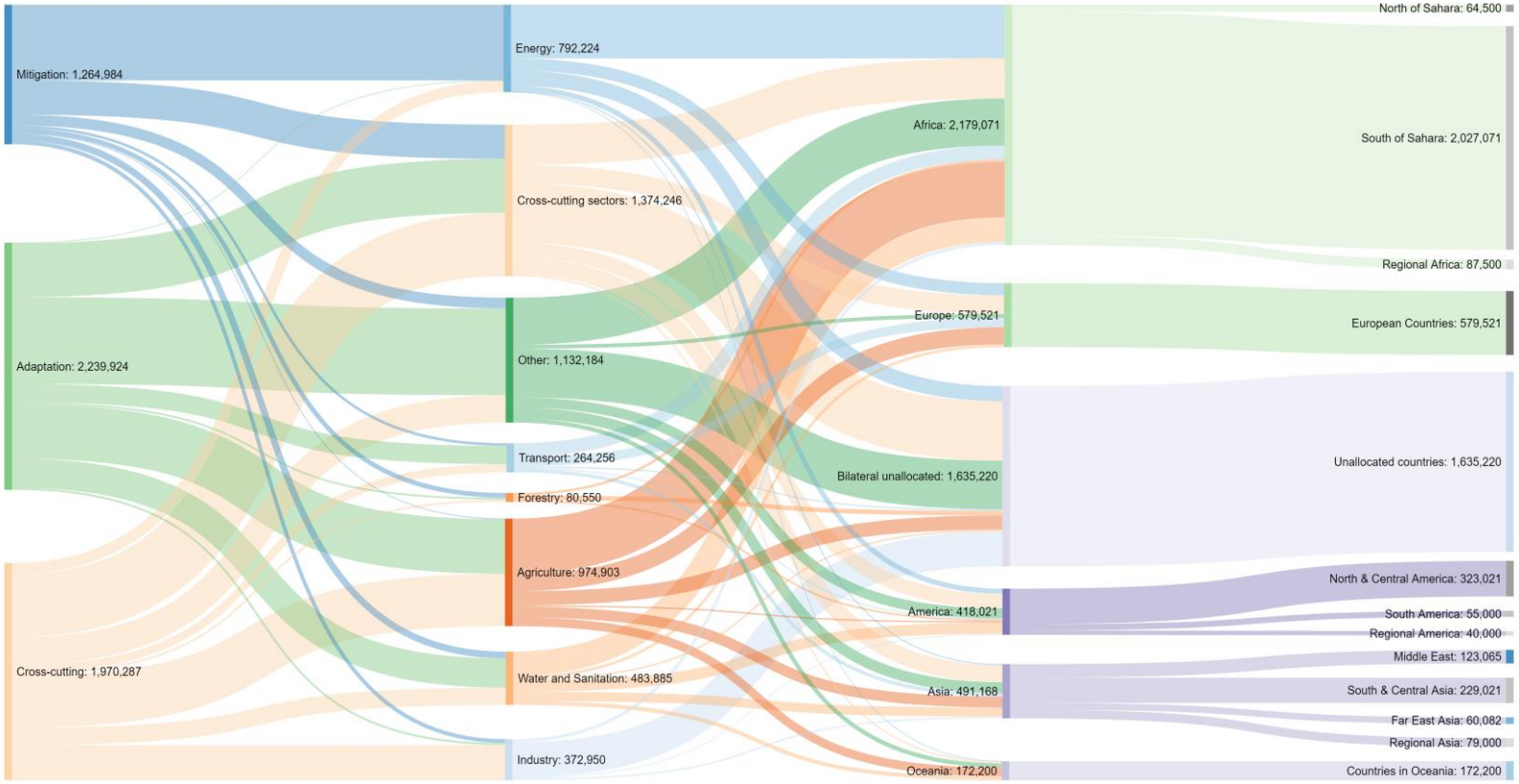
Figure 6-5 is a Sankey diagram that visualises the flow of EU climate finance from 2017 and 2018 (€5.5 billion) through different sectoral categorisations. It starts by showing the total EU climate finance as categorised by type of support, before then shifting to show how this finance flows through the different sectoral categorisations. This then flows through to the different regional categorisations, both in summary form (Africa, Europe, Bilateral unallocated, America, Asia, and Oceania) and in a more detailed breakdown.

197 Please note that individual sectors presented in the table may not sum to the total due to rounding. Percentages may not sum to 100 % due to rounding.

The diagram helps to visualise that during these years, the largest amount of climate finance provided by type of support was for adaptation. Similarly, this diagram helps to show that of the climate finance for mitigation, most of this climate finance flowed through to projects in the energy sector. Lastly, this diagram also helps to show that regionally, most climate finance flowed through to Africa, and then within Africa, almost all of this climate finance flowed through to the South of Sahara sub-region.

Figure 6-5 Sankey diagram of EU financial support for mitigation, adaptation and cross-cutting by sector and region for 2017 and 2018[198]

Figures provided are in EUR (€) and to the factor of one thousand ('000)



198 The figure changes size only to allow for representation of various categories. The total values in each "Sankey zone" vary slightly due to the use of Excel TRUNC functions.

6.3.2 *Provision of financial support through multilateral channels*

The EU supports a variety of global programmes and Trust Funds managed by multilateral organisations, including the UNDP, UNEP, FAO and the World Bank. The EU also provides support to the operating entities of the financial mechanism of UNFCCC, the Global Environment Facility (GEF) and the Green Climate Fund (GCF). However, the EU's statistical system categorises all climate finance support as bilateral with multiple recipients, even where the finance is delivered through a multilateral organisation, with the exception of core contributions to the UNFCCC, which are reported in CTF Table 7(a). Therefore, all other finance provided through a multilateral organisation is reported in CTF 7(b).

The EIB channels significant climate finance to developing country Parties to the UNFCCC. All EIB funds that are reported here are provided in the form of loans alongside several equity investments and grants.

The EIB is the largest multilateral provider of climate finance worldwide. Over the last two years (2017-2018), the EIB has invested over €35 billion in climate change mitigation and adaptation projects worldwide, most of which is in the EU, but with over €5.6 billion in developing countries. EIB funding acts as a catalyst to mobilise finance for climate action by encouraging others to co-finance with its long-term lending.

The EIB contributes to the EU's climate and energy objectives by supporting a range of mitigation projects, for example in renewable energy, energy efficiency and low-carbon transport, as well as investing in adaptation measures. The EIB has a target of ensuring that at least 25% of the bank's activity is for climate action, and a target of 35% for developing countries by 2020. All EIB-financed projects, regardless of sector, must comply with EIB environmental standards that reflect EU climate objectives. The EIB Climate Strategy announced in September 2015 further reinforces the bank's support for low-carbon and climate-resilient development.

Unlike in the EU's combined 7th National Communication and 3rd Biennial Report, the provision of financial support by the EIB in this Biennial Report is categorised as multilateral, rather than bilateral, as EIB is considered a multilateral development bank. All climate finance provided by the EU to recipient countries is reported as bilateral under Section 6.3.1 and all finance provided by the EIB to recipient countries is reported under Section 6.3.2 as multilateral. Only the EIB's climate-specific outflows are reported here. In order to keep the same level of transparency, this report's Technical Annex in Section 10 contains that data and information.

Total climate finance provided by the EIB to developing country Parties to the UNFCCC in 2017 and 2018 was €5.6 billion. In 2017, total climate finance provided was €2.6 billion and in 2018, €3.0 billion was provided. This information is provided in Table 6.3, which is based on the EIB's established procedure for tracking its climate finance, using signed finance contracts in the given financial year.

Table 6-6 Provision of EIB financial support in 2017-2018
Figures provided are to the factor of one thousand ('000)

Year	Mitigation		Adaptation		Total	
	EUR (€)	USD	EUR (€)	USD	EUR (€)	USD
2017	2,509,384	2,829,068	130,979	147,665	**2,640,362**	2,976,733
2018	2,738,594	3,233,287	233,843	276,084	**2,972,438**	3,509,372
Total	5,247,978	6,062,356	364,822	423,749	**5,612,800**	6,486,105

Of total climate finance provided by the EIB in 2017 and 2018, €1 billion was channelled to developing countries as ODA and €86 million was delivered as Other Official Flows (OOF). For the remaining €4.5 billion, this information is not available because at the time of signature, the interest rate of the loan is not known, as this is first set at disbursement. It is therefore not possible to establish whether a given loan is concessional or not at the time of signature, and therefore whether it is classified as ODA or OOF, and as a result they are classified as 'other' in Technical Annex table. Once loans are classified, the data is submitted to the European Commission, who then submit the consolidated EU ODA/DAC data to the OECD.

6.4 Technology development and transfer

The development and deployment of new technologies has an essential role to play in meeting global climate change objectives, as well as contributing to new jobs and sustainable economic growth. The EU is a lead player in the area of low-carbon technologies, yet while emissions are falling in Europe, they are rising in the rest of the world. By 2020, around two-thirds of the world's emissions are expected to come from developing and emerging economies. Providing developing countries with greater access to sustainable technology is therefore essential to support action to reduce greenhouse gas emissions and adapt to the adverse effects of climate change.

The EU has mainstreamed technology transfer activities into many development cooperation activities. Because these activities form one component of a larger project, disaggregating the finance dedicated to these activities alone is not currently possible. This section will outline the platforms and measures the EU employs to encourage the transfer of technology, and provide case studies of relevant programmes.

The EU is already contributing significantly to the transfer of technology to developing countries by financing climate action and development projects with a technology dimension, as well as through research collaboration. The EU's joint research programmes contribute to a higher level of knowledge amongst local scientists and to the sharing of the benefits of research and development. The EU's research framework programme, Horizon 2020,

promotes research collaboration and the mobility of researchers between the EU and third countries, including developing countries, in areas of common interest. Similarly, the Network for the Coordination and Advancement of Sub-Saharan Africa-EU Science and Technology Cooperation (CAAST-Net)[199] continues to provide local capacity building in scientific research, such as in its Intra-Africa Academic Mobility Scheme[200]. Following the publication of the call for proposals in July 2017[201], seven projects have been selected for funding which will offer 450 scholarship opportunities during a five-year implementation period. This will include 273 Master students (61%), 108 PhD candidates (24%) and 69 academic and administrative staff members (15%), with overall funding of close to €10 million.

In addition, the African, Caribbean and Pacific (ACP) EU Technical Centre for Agricultural and Rural Cooperation (CTA)[202] also supports the development and enhancement of endogenous capacities and technologies of developing country Parties, combining this with facilitating innovation in the private sector. In 2017, finalists were rewarded with funding for agriculture innovations during the CTA's Pitch AgriHack![203] West Africa conference in the Ivory Coast, and in 2016, the CTA worked to equip over 3,000 farmers from small-scale producers or young entrepreneurs to access and profit from domestic, regional and international markets[204].

The EU recognises that the private sector will be critical to the successful transfer of technologies to developing countries. The private sector is able to mobilise larger amounts of capital and is a key driver of technological innovation. The ElectriFI-family of innovative financing instruments, to which the EU has contributed over €300 million has increased the provision of risk capital to private sector led investments, targeting a wide range of segments in the sector, addressing the lack of access to seed financing, mid- and long-term capital in difficult countries, the reluctance of commercial banks to provide suitable lending that meet investors' needs and existing capacity limitations in terms of structuring and bringing projects to financial close.

The EU also provides support to explore opportunities for public-private partnerships and supports innovative multi-stakeholder alliances between national or local authorities, enterprises and NGOs for skills development and the provision of basic services. These partnerships facilitate access to sustainable and affordable energy, water and agriculture. They develop synergies between public and private interests in technology transfer, and engage stakeholders in the development and diffusion of technology, particularly to and between developing countries.

199 https://caast-net-plus.org/tag/view/Mobility

200 https://eacea.ec.europa.eu/intra-africa/news/Project_Selection_results_Intra_Africa_Academic_Mobility_Scheme_2017_en

201 https://caast-net-plus.org/object/link/1662

202 http://www.cta.int/en/

203 http://www.cta.int/en/news/agrf-2017/media-room/pitch-agrihack-winners.html

204 http://www.cta.int/en/article/2016-09-21/developing-the-business-of-agriculture-in-the-caribbean.html

By proposing a new Alliance for Sustainable Investment and Jobs between Europe and Africa, the Commission has reiterated its commitment to work together with African partner countries based on reciprocal commitments and to continue championing true and fair partnerships. Sustainable energy is one of the priorities under the Alliance and to ensure rapid operationalisation a High Level Platform on Sustainable Energy Investments was launched by the European Commission , focusing on identifying and exploiting strategic opportunities for accelerating further the pace and effectiveness of sustainable energy cooperation under the enhanced EU-Africa partnership, in particular starting by improving the investments environment.

Some examples of these EU led partnerships include the SWITCH to Green Flagship initiative that provides technical assistance to a large number of EU actors aiming at improving coordination as well as building awareness and capacities on inclusive green economy.

In addition, the GCCA+ has enhanced cooperation with non-state actors and civil society organisations as well as new alliances with new stakeholders such as the private sector. The GCCA+ has also been recognised as a viable instrument for practical cooperation combining global, national and regional centres of interest.

With the EU Covenant of Mayors for Climate & Energy, the successful model established by the EU has been replicated in other regions, including among others, the set-up of the EU-funded Covenant of Mayors in Sub-Saharan Africa (CoM SSA). Under it, the Commission has been directly supporting 13 pilot cities[205]. Thanks to the success of the work performed with these pilot cities, the initiative's impact is currently being scaled-up together with four Member State Agencies (AECID, AFD/EF, GIZ). In this third phase of implementation, the aim is to reach a greater number of beneficiaries (up to 15 cities), bridging the gap to finance investments (including linkages with the EIP) and fostering coordination with other initiatives.

A selection of activities related to technology transfer, including success stories, are presented in Table 6-7(adapted from Table 6 of the National Communication guidelines). For more detailed information, please see CTF 8. CTF 8 includes a non-exhaustive list of initiatives selected to represent technology transfer support provided by the EU.

205 The 13 pilot cities are: Kampala – Uganda; Lubumbashi – DRC; Dakar and Pikine – Senegal; Bouaké - Ivory Coast; Zou – Benin; Nouakchott – Mauritania; Tsévié – Togo; Yaoundé III and Yaoundé IV – Cameroon; Bangui - Central African Republic; Bissau - Guinea-Bissau and Monrovia – Liberia. The supported actions target the development of Sustainable Energy Access and Climate Action Plans (SEACAP), and include among others, capacity building for local authorities on their development, guidelines, webinars on data collection and support for participation in international events such as COP24 or Africities.

Table 6-7 Examples of activities related to technology transfer

Project/programme title: Climate Technology Centre & Network (CTCN)			
Recipient country	**Sector**	**Total funding**	**Years in operation**
Global	Multisector	$59,038,848 to date[206]	5

Purpose & Description:

The CTCN promotes the accelerated transfer of environmentally sound technologies for low carbon and climate resilient development at the request of developing countries. CTCN provide technology solutions, capacity building and advice on policy, legal and regulatory frameworks tailored to the needs of individual countries[207].

The CTCN facilitates the transfer of technologies through three core services:

- Providing technical assistance at the request of developing countries to accelerate the transfer of climate technologies;
- Creating access to information and knowledge on climate technologies.
- Fostering collaboration among climate technology stakeholders via the Centre's network of regional and sectoral experts from academia, the private sector, and public and research institutions.

Through these services, CTCN aim to address barriers that hinder the development and transfer of climate technologies, and to thereby help create an enabling environment for:

- Reduced greenhouse gas emissions and climate vulnerability
- Improved local innovation capacities

Increased investments in climate technology projects.

Factors which led to the project's success:

Tailoring to a country's needs:

1. Academic, government, NGO and/or private sector representatives work with their National Designated Entity, the CTCN focal point selected by each country, to identify the type of technical assistance they need in order to implement their technology-related climate plans
2. The NDE conveys the request to CTCN

A team of climate technology experts from the CTCN, its Consortium, and Network work with the NDE to provide a solution that is tailored to the needs of the individual country[208]

Technology transferred: The online Technology Portal serves as a gateway to the CTCN's technical assistance and capacity building services, where users can access

206 https://www.ctc-n.org/files/resources/ctcn-ar18-book-final.pdf

207 https://www.ctc-n.org/about-ctcn

208 https://www.ctc-n.org/sites/www.ctc-n.org/files/ctnc_progressreport_01dec_complete_screen_final_a4.pdf

technology webinars and practical information about climate technology solutions. The CTCN also provides tailored knowledge exchanges and training for one or multiple counties, upon request[209].

The CTCN delivers five main types of technical support on climate technologies:

- Technical assessments, including technical expertise and recommendations related to specific technology needs, identification of technologies, technology barriers, technology efficiency, as well as piloting and deployment of technologies.
- Technical support for policy and planning documents, include strategies and policies, roadmaps and action plans, regulations and legal measures
- Trainings
- Tools and methodologies
- Implementation plans

Impact on greenhouse gas emissions/sinks: No total estimates available

Project/programme title: Switch Asia/ Africa Green

Recipient country	Sector	Total funding	Years in operation
Global26 countries in East Asia-Pacific, Latin America and Caribbean, South Asia and Sub-Saharan Africa Regions	Asia: Manufacturing and tourism Africa: agriculture, integrated waste management, manufacturing and tourism	Asia: €500,000,000 approx. (2007-2020)[210] Africa: € 19,500,000[211]	Asia: 12 Africa: 5

Purpose & Description:

The European Union launched the SWITCH-Asia Programme in 2007 to support Sustainable Consumption and Production (SCP) and the transition to green economy in Asia. The programme has been extended to Central Asia in 2019[212]. The type of projects funded are: product design for sustainability, sustainability labels, corporate sustainability reporting, cleaner production, sustainable supply chain management, consumer awareness raising and sustainable public procurement.

The SWITCH-Asia Programme focuses on the environmental performance of small and medium-sized enterprises (SMEs), which form the backbone of the economy of Asian countries. As these SMEs embrace more environment friendly and sustainable practices, more green products are available on the market, workers enjoy healthier working conditions and SMEs benefit from more cost-effective production brought by increased

209 https://www.ctc-n.org/sites/www.ctc-n.org/files/ctnc_progressreport_01dec_complete_screen_final_a4.pdf

210 https://www.switch-asia.eu/programme/facts-and-figures/

211 https://ec.europa.eu/europeaid/projects/switch-africa-green_en

212 https://eeas.europa.eu/headquarters/headquarters-homepage/64747/launch-eu-switch-asia-programme-central-asia_et

resource efficiency.

SWITCH Africa Green: The overall objective of the programme is to contribute to poverty reduction in Africa in the context of sustainable development through support to private sector led inclusive green growth that fosters transformation towards green economy. SWITCH Africa Green is being implemented in 6 countries: Burkina Faso, Ghana, Kenya, Mauritius, South Africa and Uganda. SWITCH Africa Green is implemented across 4 sectors: agriculture, integrated waste management, manufacturing and tourism.

Factors which led to the project's success:

There are three strategic and intertwined components in the SWITCH-Asia Programme to secure significant impact[213]:

- Grant projects,
- a Network Facility
    a. The Network Facility contributes to the effectiveness of the SWITCH-Asia Programme by facilitating networking and knowledge sharing among projects and with Programme stakeholders, in order to maximise the impacts of individual project activities and promote their replication.
- and Policy Support Components.
    b. The national and regional policy support components (PSCs) target national and regional policy frameworks and their potential to encourage the uptake of SCP practice.

Also, it promotes scale-up, replication and dissemination of innovative SCP solutions through a combination of different tools (multimedia, publications, website, events), thus maximising the impact of individual projects[214].

Technology transferred: Facilitating networking and knowledge sharing among projects and with Programme stakeholders by using a Network Facility[215].

For SWITCH-Africa Green the development and provision of toolkits related to eco-entrepreneurial competences and skills is envisaged[216].

Impact on greenhouse gas emissions/sinks: No total estimate available

6.5 Capacity-building

Access to knowledge and technologies are not enough on their own; the right set of specific local conditions needs to be in place to attract project developers and investors. This so-called 'enabling environment' involves a set of interrelated conditions - legal, organisational, fiscal,

213 EuropeAid Development and Cooperation Directorate-General. 2016. FactSheet Brochure. Switch-Asia Programme. 95 Projects at a Glance. https://www.switch-asia.eu/fileadmin/user_upload/Publications/2016/FactSheet_2016_72dpi_DoublePages.pdf

214 EuropeAid Development and Cooperation Directorate-General. 2016. FactSheet Brochure. Switch-Asia Programme. 95 Projects at a Glance. https://www.switch-asia.eu/fileadmin/user_upload/Publications/2016/FactSheet_2016_72dpi_DoublePages.pdf

215 https://www.switch-asia.eu/fileadmin/user_upload/Publications/2016/FactSheet_2016_300dpi_DoublePages.pdf

216 https://www.switchafricagreen.org/index.php?option=com_content&view=article&id=225&Itemid=1314&lang=en

informational, political, and cultural. A skilled workforce is also crucial to maintain know-how in the community. Therefore, the successful transfer of climate technologies to developing countries requires support to increase local administrative capacities. The EU works closely with governments in developing countries to reinforce administrative capacities and support the development of legal and regulatory frameworks that are conducive to mitigating and adapting to climate change.

The EU has mainstreamed capacity-building activities into all development assistance, in line with the provisions of the Paris Declaration on Aid Effectiveness and the Accra Agenda for Action. Because these activities form one component of a larger project, disaggregating the finance dedicated to these activities alone is not currently possible. This section will outline the platforms and measures the EU employs to build capacity, and provide case studies of relevant programmes.

The EU's development activities in the field of climate change are based on, and emphasize the importance of, the principles of national ownership, stakeholder participation, country driven demand, cooperation between donors and across programmes, and impact assessment and monitoring (when appropriate). Since EU support is partner country-driven, only information from partner countries, for example through their National Communications, is the best way to get a picture of capacity building support and activities and their effectiveness.

A selection of activities related to capacity building, including success stories, are presented in Table 6-8 (adapted from Table 6 of the NC guidelines). For more detailed information, please see CTF Table 9.

Table 6-8 Examples of activities related to capacity building

Project/programme title: Technical Cooperation and Capacity Building Facility (TECCBUF)			
Recipient country	**Sector**	**Total funding**	**Years in operation**
Pacific Region: The action shall be carried out throughout all 15 Pacific ACP countries (P-ACP's)	Cross-sector, Technical Cooperation and Capacity Building Facility	€7,000,000	July 2018 – August 2022
Purpose & Description: The overall objective is to contribute to the effective implementation of the EU's development cooperation within the Pacific ACP region in in line with the Pacific Leaders' vision for a region of peace, harmony, security, social inclusion and prosperity so that all Pacific people can lead free, healthy and productive lives.			

In terms of the specific objectives of the programme, these are as follows:

i) strengthen the capacities of the Regional Authorising Officer (RAO) for improved management of the EDF portfolio (including Intra-ACP programmes) and

ii) strengthening the voices of the CSO's where regional policy dialogue is concerned and ensuring effective participation in policy engagement and implementation.

Overall, this Action will :

- Foresee the RAO to better improve coordination and steer the design and implementation of RIP and Intra-ACP funded actions in the Pacific region, providing effective oversight, monitoring and reporting.

- Improve capacities of regional organizations and other relevant stakeholders at regional and national level in the Pacific to implement EU programmes in light of joint commitments made under the SDGs and the Paris Agreement on Climate Change.

- Enhance policy dialogue and coordination between Pacific ACP States, the Overseas Countries and Territories (OCTs), Council of Regional Organizations in the Pacific (CROPS), the Duly Mandated Regional Organization (DMRO), the EU and other development partners, contributing to more sustainable cooperation programmes.

- Strengthen the voices of the CSO's/NSA's in regional policy making, development and implementation process.

Factors which led to the project's success: No data available

Technology transferred: Short term and medium technical assistance, studies, capacity building and training activities including gender mainstreaming, organisation of and participation in conferences/seminars/workshops in relation to EU and Pacific-African Caribbean and Pacific (ACP) development cooperation as well as setting up of a helpdesk at the RAO unit to provide guidance on EU's procedures.

Impact on greenhouse gas emissions/sinks: No data available

Project/programme title: Strengthening financial resilience and accelerating risk reduction in Central Asia

Recipient country	**Sector**	**Total funding**	**Years in operation**
Central Asian countries including Kazakhstan, Kyrgyz Republic, Tajikistan, Turkmenistan, Uzbekistan. (The action shall be carried out at the following location: the countries of Central	Regional Stability and Security	Total estimated cost: €8,500,000 Total amount of EU budget contribution €8,050,000 This action is co-financed in joint co-	2014-2020

Asia and the EU)		financing by: - World Bank: €300,000 - UNISDR: €150,000	

Purpose & Description:

The main objective of this programme is to build disaster and climate resilience in Central Asia, and lay the foundations for a future disaster risk financing solution at regional level in line with the Sendai Framework. The programme will aim to embed an approach that shifts from managing disasters to managing risks and will allow investments to be risk-informed and livelihoods and growth to be sustainable.

The programme's specific objectives are to (1) Increase the use of risk and disaster data in decision and policy making (2) Improve financial resilience and risk informed investment planning. The Action is based on two mains result areas:

1: Building the foundations for greater resilience in Central Asia through data, capacity, governance and cooperation at regional, national and local level; and,

2: Strengthening the evidence and capacity for financial resilience and risk reduction at national and regional levels in Central Asia.

The programme will support the Almaty-based Centre for Emergency Situations and Disaster Risk Reduction (CESDRR), which was has been supported by UNISDR and UN-OCHA3 with DG ECHO funding, with the objective of strengthening its role as a regional Centre of Excellence on DRR. To do so, the programme, which will be implemented by the World Bank and UNISDR, will actively engage the Centre in implementation of relevant initiatives across all Central Asian countries with a special focus on Uzbekistan, Turkmenistan and Tajikistan, thereby fostering the possibility of them in joining the Centre.

Factors which led to the project's success:

1. Existing knowledge foundation: UNISDR has been present in the Central Asian region since 2004 and, since then, has supported an extensive range of relevant action plans and projects in the region.
2. Complementarity, synergy and donor coordination: The action builds on existing regional platforms and initiatives (CASC Sub-Regional Platform, CAHMP, Strengthening Early Warning of Mountain Hazards in Central Asia and Central Asia Earthquake Risk Reduction Forum (2015)). Furthermore, the programme builds on existing national engagements with two Ministries of Finance (Tajikistan and Kyrgyz Republic), and ensures synergies and coordination between the organisations involved.
3. Aligned with existing Government actions: Governments have already initiated activities towards achieving these commitments, such as establishing national platforms and emergency management plans. This programme provides support towards the development of robust DRR strategies, and involve and strengthen the national platforms through relevant components.

Technology transferred: Knowledge sharing across regions and sectors, improved understanding of disaster and climate risks and their application in development planning, disaster risk reduction and financial protection, with an overall focus on aid to the environment, good governance and gender equality.
Impact on greenhouse gas emissions/sinks: No data available

7. OTHER REPORTING

7.1. Making finance flows consistent with a pathway towards low GHG emissions and climate resilient development

Article 2.1 of the Paris Agreement outlines that "*this Agreement, in enhancing the implementation of the Convention, including its objective, aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by:*

> *(c) Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development."*

As a signatory to the Paris Agreement, the EU aims to implement this Article 2.1c in the coming years with, as a first step, measurement of progress concerning finance flows and their contribution to low GHG emissions and climate-resilient development. In practice, the European Commission is taking the following steps to implement this Article 2.1c:

- **The European Commission is committed to mainstream climate change mitigation and adaptation into all major EU spending programmes.** The European Commission has pledged to make at least 20% of EU expenditure climate-related in the period 2014 to 2020, as well as to report on the "at least 25%" earmarking for the next financial framework 2021 to 2027. In 2018, the European Commission reported that the EU is on track to meet the 20% target, but further effort is needed in 2020 to fully achieve the target 20% as presented in the table below[217].

Table 7-1 Climate finance under the EU budget (2014-2020)[218]
Figures provided are to the factor of one million ('000 000)

Programme	2014 – 2017 Actuals				2018 – 2020 estimates			Total 2014 - 2020
	2014	2015	2016	2017	2018	2019	2020	
Total EU budget	118,054	158,607	151,498	154,507	156,623	160,554	164,880	**1,064,724**

217 https://ec.europa.eu/clima/policies/budget/mainstreaming_en

218 https://ec.europa.eu/clima/policies/budget/mainstreaming_en

Climate Change Finance	16,098	27,452	31,738	29,793	30,481	31,956	32,607	**200,125**
Share of climate	**13.6%**	**17.3%**	**20.9%**	**19.3%**	**19.5%**	**19.9%**	**19.8%**	**18.8%**

- In addition to climate mainstreaming, the EU is also implementing a range of project, programmes and initiatives aimed at making finance flows consistent with the climate commitments of the EU under the Paris Agreement. This includes: Revenue spending from auctioning of EU ETS allowances:
    - Diverting subsidies under renewables directive for transport sector from biofuel feedstocks with high indirect land use change emissions risks,
    - Sustainable finance initiative and climate-related financial disclosure requirements.

The EIB Climate Strategy published in 2015 sets out the mission of the Bank with respect to addressing climate change: *"to play a leading role, amongst financial institutions, in mobilising the finance needed to achieve the worldwide commitment to keep global warming below 2˚C and to adapt to the impacts of climate change".*

To accomplish this, the Strategy sets out three strategic areas:

1. Reinforcing the impact of climate financing
2. Building resilience to climate change
3. Integrating climate change considerations across all EIB standards, methods and processes

Published ahead of the COP21 in Paris in 2015[219], the EIB Climate Strategy sets out a solid framework upon which the Bank is working to ensure that all of its activities are aligned with the goals of the Paris Agreement. In addition to the internal work being undertaken by the EIB, it is also working closely with other MDBs and IFIs on Paris Alignment. The MDBs and the International Development Finance Club (IDFC) pledged in December 2017 to align their financial flows with the objectives of the Paris Agreement[220]. In December 2018, at COP 24 in Katowice, the MDBs announced a joint framework for aligning their activities with the goals of the Paris Agreement[221] [222].

219 https://www.eib.org/en/publications/eib-climate-strategy

220 https://www.eib.org/attachments/general/events/20171212-joint-idfc-mdb-statement.pdf

221 https://www.eib.org/en/press/all/2018-320-multilateral-development-banks-announce-joint-framework-for-aligning-their-activities-with-the-goals-of-the-paris-agreement

222 https://www.eib.org/attachments/press/20181203-joint-declaration-mdbs-alignment-approach-to-paris-agreement_cop24.pdf

The EIB already has a range of measures supporting this, including an Emissions Performance Standard (EPS), which sets a maximum threshold for power generation[223], and incorporation of a shadow price of carbon into the economic analysis of projects[224]. To address climate resilience, a climate risk management system that screens all new operations for physical climate change has been implemented[225].

In addition, the EIB Climate Strategy includes a commitment to consider within all sector lending policies, longer-term horizons consistent with temperature goals taking into account the most recent scientific knowledge and available best practice. The Bank's Energy Lending Policy is currently under review, due for publication in late 2019, and will incorporate Paris Alignment as a central driver[226].
Lastly, the EU is also committed to support the development of metrics and monitoring methodologies to track progress towards alignment with Article 2.1c. Examples of this include:

- The development of Sustainable Energy Investment (SEI) Metrics funded by Horizon 2020 and developed by 2Degrees Investing Initiative or Paris Agreement Capital Transition Assessment (PACTA),
    - This metric is aimed at measuring finance flows and their climate performance to ensure capital is shifted towards clean energy,
- The development of a unified EU classification system (taxonomy) of sustainable economic activities developed by an EU technical expert group.

223 https://www.eib.org/attachments/consultations/elp_methodology_emission_performance_standard_20130722_en.pdf (note that the EPS will be superseded in a new version of the EIB's Energy Lending Policy, which is expected to be approved by the EIB's Board of Directors end of 2019)

224 https://www.eib.org/attachments/thematic/economic_appraisal_of_investment_projects_en.pdf

225 https://www.eib.org/en/projects/priorities/climate-and-environment/climate-action/continued-mainstreaming.htm

226 https://www.eib.org/en/about/partners/cso/consultations/item/public-consultation-energy-lending-policy.htm

8. LIST OF ABBREVIATIONS

Abbreviation	Description
1BR	First Biennial Report
2BR	Second Biennial Report
3BR	Third Biennial Report
4BR	Fourth Biennial Report
7NC	Seventh National Communication
AAU	Assigned amount unit
AEAs	Annual emission allocations
AGIR	l'Alliance Globale pour l'Initiative Résilience
AR4	Fourth Assessment Report
AR5	Fifth Assessment Report
AVR	Accreditation and Verification Regulation
BR	Biennial Report
CAP	Common Agricultural Policy
CB	Capacity building
CCS	Carbon capture and storage
CDM	Clean Development Mechanism
CER	Certified emission reduction
CFP	Common Fisheries Policy
CH_4	Methane
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
CoM	Covenant of Mayors
COP21	21st Conference of the Parties
CP1	First commitment period
CP2	Second commitment period
CRF	Common Reporting Format
CTF	Common tabular format
DCFTA	Deep and Comprehensive Free Trade Area
DG	Directorate-General
DLDD	Desertification, Land Degradation and Drought
DRR	Disaster Risk Reduction
E3P	European Energy Efficiency Platform
EAFRD	European Agricultural Fund for Rural Development
EAP	Environmental Action Programme
EcAMPA	Economic assessment of GHG mitigation policy options for EU agriculture
ECCM	Environment & Climate Change Mainstreaming Facility
ECCP II	The Second European Climate Change Programme
EDF	European Development Fund
EEA	European Environment Agency
EEEF	European Energy Efficiency Fund
EIB	European Investment Bank
EIONET	European Environment Information and Observation Network

ENP	European Neighbourhood Policy
ENI	European Neighbourhood Instrument
ERA	European Research Area
ERC	European Research Council
ERDF	European Regional Development Fund
ERU	Emission reduction unit
ESD	Effort Sharing Decision
ESIF	European Structural and Investment Funds
ETC/ACM	European Topic Centre on Air Pollution and Climate Change Mitigation
EU	European Union
EU ETS	EU Emissions Trading System
EU NIR 2019	EU national inventory report, as submitted to the UNFCCC in 2019
EU-15	Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, th Netherlands, Portugal, Spain, Sweden and the United Kingdom
EU-27	EU-15 plus Bulgaria, Cyprus, Czechia, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia and Slovenia
EU-28	28 Member States of the European Union. EU-27, plus Croatia
EUFIWACC	The European Financing Institutions Working Group on Adaptation to Climate Change
EUR	Euro
EUSEW	EU Sustainable Energy Week
FACCE-JPI	Joint Programming Initiative on Agriculture, Food Security and Climate Change
F-gases	Fluorinated greenhouse gases
FP7	EU's Seventh Framework Programme for Research and Technological Development
FRL	Forest reference levels
GAEC	Good agricultural and environmental conditions
GCCA+	Global Climate Change Alliance Plus
GCF	Green Climate Fund
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse gas
GPGC	Global Public Goods and Challenges Programme
GVA	Gross Value Added
GWP	Global Warming Potential
HFCs	Hydrofluorocarbons
ICAP	International Carbon Action Partnership
IDFC	International Development Finance Club
IED	Industrial Emissions Directive
IPCC	Intergovernmental Panel on Climate Change
ITL	Independent Transaction Log
JPI	Joint Programming Initiatives
JRC	Joint Research Centre
JU	The 'Fuel Cells and Hydrogen Joint Undertaking'
Km	Kilometre
KP	Kyoto Protocol
LCER	Long-term certified emission reduction
LDCs	Least developed countries
LECB	Low emission capacity building programme

LIFE	EU financial instrument for the Environment
LULUCF	Land use, land-use change and forestry
M&E	Monitoring and evaluation
MAC	Mobile air conditioning systems
MDBs	Multilateral development banks
MMR	Monitoring Mechanism Regulation
MRS	Macro-regional strategy
MS	Member State
Mt	Megatonnes
N_2O	Nitrous Oxide
NAP	National adaptation plan
NAS	National adaptation strategy
NC	National Communication
NCFF	Natural Capital Financing Facility
NDC	Nationally Determined Contribution
NF_3	Nitrogen Trifluoride
NGO	Non-governmental organisation
NIR	National Inventory Report
NMVOC	Non-methane volatile organic compound
NO_x	Nitrogen oxides
ODA	Official development assistance
PAGE	Partnership for Action on Green Economy
PaMs	Policies and measures
PDA	Project Development Assistance
PFCs	Perfluorocarbons
PMR	World Bank Partnership for Market Readiness
PPS	Purchasing power standards
QA/QC	Quality Assurance / Quality Control
QSG	Quality support group
R&I	Research and innovation
REA	Research Executive Agency
REFIT	The Regulatory Fitness and Performance programme
RES	Renewable energy sources
RES-E	Renewable energy sectors of electricity
RES-H&C	Renewable energy sectors of heating and cooling
RES-T	Renewable energy sectors of transport
RMU	Removal unit
RSO	Research and Systematic Observations
SAR	Second Assessment Report
SDGs	Sustainable development goals
SDS	Sustainable development strategy
SE4ALL	Sustainable Energy for All
SF_6	Sulphur Hexafluoride
SFIC	Strategic Forum for International Science and Technology Cooperation
SHERPA	Screening for High Emission Reduction Potential on Air

SIDS	Small island developing states
SITC	Standard International Trade Classification
SMEs	Small and medium sized enterprises
SO_2	Sulphur dioxide
SWD	Staff Working Document
tCER	temporary certified emission reduction
TFEU	Treaty on the Functioning of the European Union
Toe	Tonnes of Oil Equivalent
TWh	Terawatt hour
UAA	Utilised agricultural area
UHI	Urban heat island
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
USD	US Dollars
WAM	With additional measures
WEEE	Waste Electricals and Electronic Equipment
WEM	With existing measures
WFD	Waste Framework Directive
WOM	Without measures

9. APPENDIX: CTF FOR EU 4TH BIENNIAL REPORT

Overview on CTF tables provided with the Third EU Biennial Report:

CTF Table 1 (EU-28):	Emission trends
CTF Table 2 (EU-28):	Description of quantified economy-wide emission reduction target
CTF Table 3 (EU-28):	Progress in achievement of the quantified economy-wide emission reduction target: information on mitigation actions and their effects
CTF Table 4 (EU-28):	Reporting on progress
CTF Table 4(a)II (EU-28):	Progress in achievement of the quantified economy-wide emission reduction targets – further information on mitigation actions relevant to the counting of emissions and removals from the land use, land-use change and forestry sector in relation to activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol
CTF Table 4(b) (EU-28):	Reporting on progress
CTF Table 5 (EU-28):	Summary of key variables and assumptions used in the projections analysis
CTF Table 6(a)/(c) (EU-28):	Information on updated greenhouse gas projections under a 'with measures' scenario and under a 'with additional measures' scenario
CTF Table 7 (EU-28):	Provision of public financial support: summary information from 2017-2018
CTF Table 7(a) (EU-28):	Provision of public financial support: contribution through multilateral channels in 2017-2018
CTF Table 7(b) (EU-28):	Provision of public financial support: contribution through bilateral, regional and other channels in 2017-2018
CTF Table 8	Provision of technology development and transfer support in 2017-2018
CTF Table 9	Provision of capacity-building support in 2017-2018

CTF Table 1: Emission Trends (EU-28)

This table is based on the latest currently available inventory (EU inventory submission for EU-28). Table 1 consists of five parts.

Table 1 – Emission trends (summary)

	Base year[a] (kt CO_2 eq)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Change from base to latest reported year ((%))
CO_2 emissions without net CO_2 from LULUCF	4,469,106.60	4,469,106.60	4,416,637.68	4,271,612.81	4,189,142.66	4,171,078.72	4,216,399.39	4,319,593.66	4,231,575.35	4,224,398.23	4,158,854.45	4,180,837.62	4,251,915.66	4,230,009.05	4,320,360.44	4,330,022.08	4,306,543.91	4,310,987.15	4,260,780.43	4,162,049.95	3,825,045.49	3,941,224.86	3,796,390.61	3,737,539.80	3,650,090.76	3,480,708.45	3,514,526.95	3,497,545.54	3,515,490.07	-21.34
CO_2 emissions with net CO_2 from LULUCF	4,197,475.21	4,197,475.21	4,122,118.20	4,007,493.99	3,925,527.65	3,895,603.72	3,922,081.31	3,990,323.79	3,908,889.93	3,886,368.06	3,813,367.13	3,856,490.78	3,901,904.80	3,903,698.71	4,013,517.71	3,991,403.14	3,972,331.40	3,968,900.65	3,947,893.31	3,815,122.64	3,478,312.04	3,601,333.07	3,468,506.32	3,410,105.99	3,319,032.48	3,162,340.70	3,194,667.38	3,185,038.78	3,231,149.46	-23.02
CH_4 emissions without CH_4 from LULUCF	727,448.60	727,448.60	706,217.36	691,425.44	682,585.84	666,420.52	665,577.28	661,614.56	655,295.26	639,768.81	627,736.62	605,491.44	594,940.43	583,111.54	574,743.25	557,264.34	545,545.48	532,926.61	524,129.25	513,001.15	500,856.73	490,359.24	480,153.64	475,595.39	465,905.56	458,907.04	458,901.63	454,079.28	453,421.84	-37.67
CH_4 emissions with CH_4 from LULUCF	734,873.67	734,873.67	713,023.99	698,006.93	690,044.95	675,992.11	674,512.40	669,583.87	663,224.74	648,086.08	634,582.60	613,315.27	601,655.01	589,327.68	582,218.43	563,454.19	552,260.87	538,835.38	531,615.63	518,527.76	506,675.20	496,119.24	485,824.95	482,250.24	471,179.97	464,119.72	464,270.26	459,872.62	461,436.80	-37.21
N_2O emissions without N_2O from LULUCF	380,965.67	380,965.67	362,519.85	348,193.94	338,470.91	340,915.50	343,870.76	349,451.55	346,138.77	323,920.89	303,722.98	302,512.90	298,957.13	288,030.52	284,788.26	289,727.45	282,588.16	272,024.33	272,573.34	262,461.72	247,024.08	237,134.69	233,213.09	230,400.48	230,773.70	234,154.66	233,728.36	232,931.50	237,732.53	-37.6
N_2O emissions with N_2O from LULUCF	400,195.75	400,195.75	381,540.17	367,093.29	357,874.45	360,464.37	359,019.27	364,504.77	361,146.96	343,241.34	322,787.54	322,033.82	314,080.20	303,113.25	300,241.75	304,839.27	302,049.17	291,269.76	292,073.05	282,059.80	266,339.75	256,326.62	252,469.88	249,933.15	249,780.71	253,483.72	249,109.98	253,806.76	255,983.77	-36.04
HFCs	29,140.94	29,140.94	29,198.13	31,636.54	34,630.89	39,378.51	44,149.80	51,721.30	59,806.85	61,634.07	53,409.06	54,925.49	54,681.80	58,439.07	65,929.36	70,331.25	77,246.47	83,528.03	90,781.81	96,383.70	97,856.51	103,844.77	105,503.77	108,554.34	110,845.71	113,298.68	109,201.20	107,067.32	104,900.12	259.98
PFCs	25,707.04	25,707.04	23,321.49	18,997.63	18,063.12	17,412.93	17,024.78	16,326.93	15,083.56	14,247.08	13,799.51	11,766.58	10,516.75	12,237.08	9,942.92	8,404.12	7,043.80	6,245.80	5,860.62	5,035.21	3,216.65	3,736.66	4,087.83	3,548.64	3,812.09	3,360.67	3,443.76	3,958.21	3,178.87	-87.63
Unspecified mix of HFCs and PFCs	6,069.46	6,069.46	5,602.62	5,587.13	5,580.29	5,844.79	6,200.52	4,778.27	4,708.35	4,603.14	4,477.37	2,669.33	2,274.36	2,360.40	1,584.71	1,379.40	1,468.05	1,235.52	1,155.62	1,245.83	1,501.87	863.93	801.29	1,121.22	1,354.47	1,258.00	1,230.74	1,282.84	1,666.09	-72.55
SF_6	11,074.14	11,074.14	11,530.20	12,356.55	13,044.11	14,220.67	15,226.99	15,098.79	13,614.68	12,877.38	10,575.34	10,614.01	9,757.73	8,613.45	8,106.30	8,130.40	7,871.27	7,462.36	7,009.21	6,681.49	6,324.76	6,351.80	6,113.77	6,222.37	6,081.95	5,892.95	6,227.80	6,476.72	6,725.32	-39.27
NF3	16.9	16.9	18.61	20.49	22.57	25.61	94.48	86.84	94.01	69.88	68.59	94.53	74.55	121.73	127.44	109.61	121.48	115.08	154.97	140.37	72.37	111.82	118.21	82.47	56.24	55.33	52.77	50.47	48.32	185.98
Total (without LULUCF)	5,649,529.34	5,649,529.34	5,555,045.95	5,379,830.54	5,281,540.39	5,255,297.27	5,308,544.00	5,418,671.89	5,326,316.82	5,281,519.48	5,172,643.92	5,168,911.90	5,223,118.41	5,182,922.84	5,265,582.69	5,265,368.65	5,228,428.62	5,214,524.89	5,162,425.25	5,046,999.43	4,681,900.46	4,783,627.79	4,626,382.21	4,563,064.71	4,468,920.46	4,297,635.77	4,327,313.20	4,303,391.87	4,323,163.15	-23.48
Total (with LULUCF)	5,404,553.10	5,404,553.10	5,286,353.41	5,141,192.56	5,044,788.04	5,008,942.73	5,038,309.55	5,112,424.55	5,026,569.08	4,971,127.04	4,853,067.14	4,871,909.80	4,894,945.20	4,877,911.37	4,981,668.63	4,948,051.38	4,920,392.51	4,897,592.58	4,876,524.22	4,725,196.80	4,360,301.15	4,468,687.93	4,323,426.02	4,261,818.42	4,162,143.61	4,003,809.77	4,028,203.89	4,017,553.71	4,065,088.75	-24.78
Total (without LULUCF, with indirect)	5,653,747.34	5,653,747.34	5,559,044.30	5,383,630.53	5,285,246.56	5,258,906.27	5,312,058.71	5,422,091.04	5,329,628.77	5,284,745.68	5,175,668.11	5,171,784.06	5,225,853.54	5,185,522.62	5,268,143.70	5,267,827.78	5,230,902.57	5,216,987.68	5,164,813.91	5,049,289.41	4,684,035.75	4,785,807.13	4,628,444.04	4,565,052.23	4,470,758.50	4,299,411.14	4,329,086.60	4,305,107.49	4,324,868.02	-23.5
Total (with LULUCF, with indirect)	5,408,771.54	5,408,771.54	5,290,352.21	5,144,993.00	5,048,494.66	5,012,552.18	5,041,824.71	5,115,844.13	5,029,881.45	4,974,353.65	4,856,091.74	4,874,782.37	4,897,680.73	4,880,511.55	4,984,230.04	4,950,510.91	4,922,866.86	4,900,055.77	4,878,913.28	4,727,487.18	4,362,436.85	4,470,867.68	4,325,488.25	4,263,806.35	4,163,982.04	4,005,585.54	4,029,977.70	4,019,269.75	4,066,794.04	-24.81
1. Energy	4,348,665.27	4,348,665.27	4,316,348.57	4,180,116.88	4,101,866.34	4,054,216.83	4,090,128.87	4,198,348.61	4,106,520.97	4,090,831.15	4,028,465.12	4,020,633.33	4,100,286.27	4,074,807.52	4,153,852.25	4,144,897.76	4,122,581.41	4,119,700.52	4,060,635.06	3,981,143.01	3,702,145.02	3,798,121.33	3,650,603.35	3,606,173.47	3,517,191.09	3,337,943.07	3,373,598.28	3,354,721.96	3,367,824.37	-22.55
2. Industrial processes and product use	517,187.92	517,187.92	482,533.72	464,043.83	455,416.16	483,301.79	498,415.70	499,606.87	505,127.54	482,376.23	442,865.01	455,568.48	440,415.78	436,607.82	450,374.96	466,890.03	465,833.38	464,704.43	475,982.85	450,780.30	376,766.38	394,307.59	389,848.30	377,313.41	375,333.45	381,329.65	376,732.57	373,724.63	377,478.43	-27.01
3. Agriculture	543,254.95	543,254.95	512,137.80	489,592.32	477,217.27	471,191.37	472,567.23	474,068.04	471,054.09	468,158.98	466,580.17	461,255.34	455,039.59	448,043.67	443,969.29	444,724.57	438,004.47	434,277.96	436,696.04	433,936.79	427,849.61	423,381.31	423,874.60	421,653.84	425,222.89	432,870.25	433,822.11	434,836.62	438,994.20	-19.19
4. Land Use, Land-Use Change and Forestry[b]	-244,976.24	-244,976.24	-268,692.54	-238,637.98	-236,752.35	-246,354.54	-270,234.44	-306,247.34	-299,747.74	-310,392.45	-319,576.78	-297,002.10	-328,173.21	-305,011.47	-283,914.06	-317,317.27	-308,036.11	-316,932.31	-285,901.03	-321,802.63	-321,599.31	-314,939.86	-302,956.20	-301,246.29	-306,776.86	-293,826.00	-299,109.31	-285,838.15	-258,074.40	5.35
5. Waste	240,421.21	240,421.21	244,025.85	246,077.51	247,040.62	246,587.29	247,432.19	246,648.37	243,614.23	240,153.11	234,733.62	231,454.75	227,376.77	223,463.82	217,386.18	208,856.29	202,009.36	195,841.97	189,111.30	181,139.33	175,139.45	167,817.55	162,055.96	157,923.98	151,173.03	145,492.79	143,160.24	140,108.65	138,866.16	-42.24
6. Other	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	NO, NA	0
Total (including LULUCF)	5,404,553.10	5,404,553.10	5,286,353.41	5,141,192.56	5,044,788.04	5,008,942.73	5,038,309.55	5,112,424.55	5,026,569.08	4,971,127.04	4,853,067.14	4,871,909.80	4,894,945.20	4,877,911.37	4,981,668.63	4,948,051.38	4,920,392.51	4,897,592.58	4,876,524.22	4,725,196.80	4,360,301.15	4,468,687.93	4,323,426.02	4,261,818.42	4,162,143.61	4,003,809.77	4,028,203.89	4,017,553.71	4,065,088.75	-24.78

The base year column refers to 1990 as the EU's base year for the quantified economy -wide emission reduction target as reported in CTF table 2.

Table 1 - Emission data (CO_2)

	Base year[a] (kt)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Change from base to latest reported year (%)
1. Energy	4,123,610.00	4,123,610.00	4,101,487.56	3,972,645.57	3,896,991.40	3,861,600.03	3,896,538.53	4,007,095.14	3,914,963.42	3,909,228.18	3,852,802.63	3,862,367.89	3,945,442.82	3,924,292.08	4,003,787.34	4,001,654.24	3,982,319.93	3,984,270.36	3,928,990.94	3,849,539.95	3,576,939.24	3,671,346.05	3,527,557.96	3,482,362.15	3,396,979.82	3,222,704.57	3,257,617.90	3,241,109.68	3,253,659.99	-21.1
A. Fuel combustion (sectoral approach)	4,093,717.00	4,093,717.00	4,073,217.93	3,943,958.19	3,868,375.67	3,833,501.09	3,866,632.78	3,977,221.12	3,885,246.59	3,881,721.01	3,826,105.04	3,835,588.91	3,919,742.34	3,898,217.39	3,976,961.53	3,976,048.30	3,955,475.38	3,956,413.07	3,900,960.98	3,822,882.70	3,551,824.32	3,645,914.54	3,502,043.66	3,457,306.83	3,370,385.21	3,196,696.74	3,231,499.10	3,215,475.52	3,227,132.18	-21.17
1. Energy industries	1,666,062.59	1,666,062.59	1,632,046.77	1,573,509.38	1,506,769.32	1,513,427.28	1,514,848.83	1,543,891.61	1,499,408.05	1,516,145.42	1,471,138.09	1,501,897.20	1,543,854.04	1,560,648.84	1,610,217.27	1,598,532.17	1,588,377.78	1,598,947.49	1,608,221.55	1,536,534.25	1,412,971.87	1,439,173.81	1,413,347.79	1,405,851.07	1,330,304.39	1,246,508.75	1,233,186.23	1,186,115.58	1,167,337.57	-29.93
2. Manufacturing industries and construction	829,443.15	829,443.15	789,864.85	753,056.77	726,053.00	724,597.90	741,631.87	733,646.60	724,937.17	689,501.06	672,504.09	678,753.65	660,905.09	641,091.73	646,213.30	638,000.35	631,570.96	622,128.78	625,402.08	597,232.98	495,411.96	526,999.51	511,971.28	491,101.82	482,554.08	475,361.39	477,593.48	478,194.50	493,720.06	-40.48
3. Transport	778,676.22	778,676.22	786,074.49	809,219.87	813,427.91	819,302.44	830,757.72	856,273.04	867,068.94	895,875.89	914,872.83	911,711.82	925,647.11	937,870.97	947,253.88	966,896.96	966,855.44	974,272.91	984,032.14	959,810.45	933,024.73	927,390.49	915,393.17	885,969.41	878,748.42	885,981.63	902,860.52	921,764.44	934,931.94	20.07
4. Other sectors	796,319.05	796,319.05	845,934.28	791,384.50	807,404.57	761,739.79	765,613.32	831,133.18	781,457.40	768,581.27	757,142.03	733,504.71	780,401.55	749,664.85	763,720.69	762,066.37	757,661.99	750,548.66	672,465.16	719,348.89	701,622.27	743,849.33	653,015.91	666,997.71	671,618.61	581,980.51	611,230.17	622,866.15	624,499.38	-21.58
5. Other	23,216.00	23,216.00	19,297.54	16,787.67	14,720.88	14,433.67	13,781.03	12,276.69	12,375.03	11,617.37	10,447.99	9,721.54	8,934.54	8,941.00	9,556.39	10,552.46	11,009.21	10,515.22	10,840.05	9,956.12	8,793.49	8,501.40	8,315.51	7,386.82	7,159.71	6,864.46	6,628.71	6,534.85	6,643.24	-71.39
B. Fugitive emissions from fuels	29,893.00	29,893.00	28,269.63	28,687.39	28,615.74	28,098.94	29,905.75	29,874.02	29,716.82	27,507.17	26,697.59	26,778.98	25,700.48	26,074.69	26,825.81	25,605.94	26,844.55	27,857.30	28,029.96	26,657.25	25,114.92	25,431.51	25,514.30	25,055.33	26,594.61	26,007.83	26,118.81	25,634.16	26,527.80	-11.26
1. Solid fuels	7,585.98	7,585.98	5,839.81	5,644.92	5,024.70	3,521.67	4,396.60	3,859.27	5,120.07	3,209.72	3,986.02	4,782.83	4,065.57	4,243.89	4,809.05	4,106.25	3,590.14	4,120.08	4,126.46	3,568.71	2,518.70	3,306.65	3,423.24	3,541.29	3,856.08	3,886.00	3,829.62	3,508.37	4,166.09	-45.08
2. Oil and natural gas and other emissions from energy production	22,307.02	22,307.02	22,429.82	23,042.46	23,591.04	24,577.27	25,509.15	26,014.75	24,596.76	24,297.44	22,711.57	21,996.14	21,634.91	21,830.80	22,016.76	21,499.69	23,254.41	23,737.21	23,903.50	23,088.54	22,596.22	22,124.86	22,091.06	21,514.03	22,738.53	22,121.83	22,289.19	22,125.80	22,361.71	0.25
C. CO_2 transport and storage	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	0
2. Industrial processes	325,532.81	325,532.81	297,869.67	283,318.69	276,998.88	294,817.51	304,499.84	297,307.64	302,225.37	300,660.91	291,913.45	304,858.32	293,222.09	292,139.16	302,186.65	314,397.83	310,523.16	313,351.45	318,324.66	299,245.43	234,947.01	256,959.11	255,710.78	242,084.33	239,770.68	244,192.06	243,606.00	242,704.89	248,306.90	-23.72
A. Mineral industry	143,965.25	143,965.25	131,637.96	127,785.46	122,468.27	130,451.63	134,953.80	130,923.79	133,903.17	136,553.01	137,167.42	139,503.65	136,770.13	136,278.15	137,973.54	143,967.24	143,854.82	147,769.02	153,110.22	142,980.02	115,145.95	116,447.14	117,224.51	110,371.56	105,952.47	109,207.90	108,513.64	107,800.56	110,750.66	-23.07
B. Chemical industry	58,587.74	58,587.74	54,994.63	53,212.56	50,922.73	54,598.86	58,579.70	59,215.07	57,442.74	57,238.31	56,732.33	60,126.33	57,336.40	54,925.40	57,724.36	59,936.14	61,398.47	58,636.42	61,644.87	58,431.18	49,961.12	55,508.21	56,918.74	55,064.66	54,360.08	53,269.91	53,062.57	52,086.44	55,336.05	-5.55
C. Metal industry	108,705.15	108,705.15	97,759.08	88,421.28	90,185.89	96,627.41	97,671.77	93,166.60	97,446.45	93,547.06	85,298.50	92,291.16	86,681.70	88,244.41	94,088.93	96,749.78	92,516.20	94,342.32	90,963.92	85,323.92	59,208.15	73,041.84	70,184.99	65,585.01	68,671.65	70,733.77	71,824.15	72,298.54	71,409.07	-34.31
D. Non-energy products from fuels and solvent use	13,366.74	13,366.74	12,564.34	12,979.32	12,549.98	12,270.82	12,431.74	13,107.81	12,554.43	12,458.43	11,848.32	12,044.52	11,575.54	11,861.63	11,579.91	12,977.90	11,995.66	11,845.30	11,834.91	11,743.00	9,905.61	11,166.26	10,657.69	10,347.02	10,075.03	10,269.98	9,545.86	9,860.61	10,109.16	-24.37
E. Electronic industry																														
F. Product uses as ODS substitutes																														
G. Other product manufacture and use	789.82	789.82	811.97	810.62	769.72	791.55	787.25	801.88	791.21	787.79	779.21	804.57	777.82	756.49	720.8	667.13	661.66	672.13	684.62	658.31	622.1	680.24	615.41	601.31	597.31	613.16	553.52	553.7	581.79	-26.34
H. Other	118.11	118.11	101.69	109.46	102.28	77.24	75.58	92.49	87.37	76.3	87.66	88.09	80.5	73.08	99.11	99.64	96.34	86.27	86.13	109	104.09	115.42	109.43	114.76	114.14	97.34	106.25	105.03	120.16	1.74
3. Agriculture	14,749.44	14,749.44	12,106.18	10,424.17	10,049.03	9,828.90	10,706.76	10,653.49	10,446.13	10,720.89	10,647.36	10,186.42	9,765.15	9,839.78	10,364.15	10,261.52	9,924.98	9,552.36	9,698.52	9,572.60	9,592.05	9,268.04	9,664.46	9,625.86	9,994.68	10,460.44	10,284.50	10,641.86	10,366.17	-29.72
A. Enteric fermentation																														
B. Manure management																														
C. Rice cultivation																														
D. Agricultural soils																														
E. Prescribed burning of savannas																														
F. Field burning of agricultural residues																														
G. Liming	10,419.26	10,419.26	8,225.20	6,794.96	6,430.73	6,322.13	7,304.63	7,225.52	6,999.64	7,090.39	6,920.32	6,400.23	5,908.85	6,035.82	6,584.31	6,327.48	6,245.75	5,718.88	5,731.07	5,738.18	5,586.31	5,391.41	5,572.03	5,440.55	5,848.32	6,191.35	5,643.83	5,791.17	5,535.69	-46.87
H. Urea application	3,765.82	3,765.82	3,365.63	3,133.06	3,147.91	3,100.88	2,961.68	3,011.73	3,056.47	3,249.33	3,340.60	3,370.85	3,501.27	3,466.04	3,454.08	3,594.47	3,345.43	3,507.64	3,688.86	3,502.96	3,729.72	3,562.86	3,763.84	3,859.42	3,831.69	3,963.36	4,305.25	4,541.81	4,514.31	19.88
I. Other carbon-containing fertilizers	564.37	564.37	515.35	496.15	470.39	405.89	440.45	416.23	390.02	381.17	386.44	415.34	355.03	337.92	325.76	339.58	333.8	325.84	278.59	331.46	276.02	313.77	328.58	325.9	314.66	305.73	335.43	308.89	316.17	-43.98
J. Other	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	0
4. Land Use, Land-Use Change and Forestry	-271,631.39	-271,631.39	-294,519.48	-264,118.82	-263,615.01	-275,475.00	-294,318.08	-329,269.88	-322,685.42	-338,030.17	-345,487.32	-324,346.85	-350,010.86	-326,310.35	-306,842.73	-338,618.93	-334,212.51	-342,086.50	-312,887.12	-346,927.31	-346,733.46	-339,891.79	-327,884.29	-327,433.81	-331,058.28	-318,367.75	-319,859.57	-312,506.76	-284,340.60	4.68
A. Forest land	-393,925.16	-393,925.16	-425,178.41	-397,650.01	-397,261.20	-397,048.69	-409,823.19	-439,080.51	-432,578.55	-444,963.36	-452,701.38	-422,685.62	-446,266.56	-419,012.19	-395,532.84	-418,503.74	-415,054.61	-421,857.10	-392,221.01	-443,250.62	-458,120.01	-430,778.94	-425,134.43	-425,257.20	-432,810.25	-417,529.81	-407,368.12	-403,173.44	-372,631.95	-5.41
B. Cropland	73,521.10	73,521.10	71,649.81	72,600.26	72,043.59	70,119.31	73,798.38	70,116.15	73,081.33	72,390.58	74,561.93	74,864.28	68,085.00	68,994.00	67,861.74	63,248.08	63,716.44	66,699.12	63,895.35	66,331.41	63,858.52	59,371.84	65,737.83	62,274.14	66,820.75	67,439.19	56,938.14	59,597.58	59,630.12	-18.89
C. Grassland	25,629.13	25,629.13	21,848.46	20,855.01	23,595.37	20,766.12	15,183.59	15,335.85	17,405.74	17,508.44	15,495.63	15,310.47	13,411.42	13,032.13	14,609.01	13,876.09	13,859.33	13,508.38	19,215.90	12,444.38	13,017.90	9,842.15	7,679.60	10,230.03	4,902.60	5,254.40	4,403.37	4,254.32	7,303.01	-71.51
D. Wetlands	13,721.75	13,721.75	13,711.67	13,223.83	12,291.31	13,953.55	13,398.20	13,656.31	13,476.43	12,008.59	14,210.24	13,603.03	14,082.70	14,845.86	15,573.45	15,070.68	16,697.04	17,181.86	15,850.53	15,091.80	15,859.72	15,823.47	16,163.73	15,203.07	17,054.25	16,052.42	17,851.97	15,974.66	17,346.11	26.41
E. Settlements	37,101.29	37,101.29	39,179.43	38,111.62	41,775.16	39,307.83	40,248.46	37,922.88	39,198.10	39,378.86	40,791.52	39,797.40	39,478.93	40,009.56	41,113.45	43,116.61	43,694.17	45,728.13	47,245.99	48,276.30	48,085.45	45,271.47	44,713.21	44,126.01	43,633.54	44,841.70	44,116.62	49,589.23	44,715.46	20.52
F. Other land	3,155.79	3,155.79	2,511.97	2,252.35	1,943.67	1,761.54	408.24	357.13	323.46	286	269.88	1,304.67	1,131.17	905.88	786.63	658.05	540.87	1,700.79	-158.26	-281.64	-43.03	-56.4	165.05	476.53	-68.59	-112.28	-63.89	-154.81	-166.71	-105.28
G. Harvested wood products	-30,835.29	-30,835.29	-18,242.41	-13,511.88	-18,002.91	-25,368.67	-28,749.19	-28,639.46	-34,517.93	-35,446.91	-38,819.50	-47,155.38	-40,469.29	-45,552.85	-51,661.68	-56,440.12	-57,975.72	-65,318.01	-66,951.41	-45,744.56	-29,571.35	-39,521.78	-37,345.69	-34,605.36	-30,694.34	-34,403.87	-35,816.59	-38,663.13	-40,596.67	31.66
H. Other	IE, NA, NE, NO	IE, NA, NE, NO	IE, NA, NE, NO	IE, NA, NE, NO	IE, NA, NE, NO	1,034.00	1,217.43	1,061.77	926.02	807.62	704.36	614.31	535.77	467.27	407.52	355.42	309.98	270.34	235.78	205.63	179.34	156.41	136.41	118.97	103.76	90.49	78.93	68.83	60.03	100
5. Waste	5,214.35	5,214.35	5,174.27	5,224.38	5,103.35	4,832.29	4,654.26	4,537.39	3,940.43	3,788.25	3,491.01	3,424.99	3,485.60	3,738.04	4,022.30	3,708.49	3,775.84	3,812.98	3,766.31	3,691.96	3,567.19	3,651.66	3,457.41	3,467.45	3,345.58	3,351.38	3,018.56	3,089.11	3,157.01	-39.46
A. Solid waste disposal	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	0
B. Biological treatment of solid waste																														
C. Incineration and open burning of waste	5,194.04	5,194.04	5,153.46	5,202.24	5,082.98	4,811.93	4,631.66	4,514.53	3,918.88	3,768.25	3,470.01	3,404.26	3,465.10	3,717.99	4,000.53	3,688.88	3,755.62	3,792.34	3,745.02	3,671.47	3,547.35	3,634.22	3,440.35	3,451.96	3,329.52	3,337.01	3,003.50	3,044.39	3,141.31	-39.52
D. Waste water treatment and discharge																														
E. Other	20.31	20.31	20.81	22.14	20.37	20.36	22.61	22.86	21.55	20	21	20.73	20.5	20.04	21.78	19.61	20.22	20.64	21.29	20.49	19.84	17.44	17.06	15.5	16.05	14.37	15.06	44.72	15.7	-22.71
6. Other (as specified in the summary table in CRF)	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	0
Memo items:																														
International bunkers	177,892.28	177,892.28	175,249.68	182,385.62	187,143.62	190,335.10	194,966.44	206,889.82	221,042.43	233,308.23	236,403.58	248,951.49	252,543.34	254,598.42	261,169.38	278,304.80	290,408.91	307,467.41	319,856.21	321,812.31	292,409.09	290,192.64	295,519.53	281,192.30	274,411.39	273,431.51	276,674.26	290,204.33	301,015.52	69.21
Aviation	68,505.01	68,505.01	67,420.19	72,917.28	76,956.93	80,411.56	84,979.21	89,077.33	93,210.49	99,996.89	108,469.82	114,391.14	112,789.22	109,783.77	114,183.07	121,861.89	129,872.92	135,321.16	139,859.36	140,487.40	129,960.11	130,526.99	134,199.48	132,322.04	133,519.93	135,650.12	139,952.92	146,690.93	156,864.58	128.98
Navigation	109,387.27	109,387.27	107,829.49	109,468.35	110,186.68	109,923.55	109,987.23	117,812.49	127,831.94	133,311.34	127,933.76	134,560.35	139,754.13	144,814.65	146,986.32	156,442.91	160,535.99	172,146.25	179,996.85	181,324.92	162,448.99	159,665.65	161,320.05	148,870.26	140,891.46	137,781.39	136,721.34	143,513.40	144,150.94	31.78
Multilateral operations	1.3	1.3	1.73	1.51	1.51	1.73	2.16	2.38	2.78	2.63	2.53	3.09	2.29	3.15	1.49	1.27	1.52	1.52	1.73	1.75	1.99	1.73	1.58	1.52	1.33	1.44	1.86	1.86	1.92	47.8
CO_2 emissions from biomass	201,086.67	201,086.67	212,397.50	210,990.67	229,512.96	229,397.23	235,254.32	250,724.36	262,056.44	265,318.22	271,584.88	273,557.86	283,333.32	281,191.03	311,971.45	325,746.69	351,686.84	373,252.99	400,983.93	435,468.95	460,367.52	509,174.93	498,700.04	513,401.69	528,294.96	520,507.43	539,516.29	554,954.59	566,203.58	181.57
CO_2 captured	NO, NE, IE, NA	NO, NE, IE, NA	NO, NE, IE, NA	NO, NE, IE, NA	0.86	20.07	54.15	73.54	106.08	127.68	156.47	181.77	177.15	176.34	188.91	208.06		211.83	233.99	213.2	184.96	197.62	179.59	146.64	139.81	142.65	138.28	133.85	127.1	100
Long-term storage of C in waste disposal sites	119,242.70	119,242.70	123,532.40	127,698.50	131,669.81	135,621.68	139,490.41	143,247.84	147,067.75	150,597.52	154,029.76	157,901.12	161,616.73	165,368.49	169,560.53	172,722.48	175,997.48	179,199.15	182,747.63	185,952.88	188,664.92	192,339.74	194,363.39	196,587.55	199,591.64	202,460.77	203,976.85	205,852.74	207,663.32	74.15
Indirect N_2O																														
Indirect CO_2 (3)	4,218.43	4,218.43	3,998.80	3,800.44	3,706.62	3,609.45	3,515.15	3,419.58	3,312.36	3,226.61	3,024.60	2,872.56	2,735.53	2,600.18	2,561.42	2,459.54	2,474.35	2,463.19	2,389.06	2,290.38	2,135.70	2,179.75	2,062.23	1,987.93	1,838.44	1,775.78	1,773.81	1,716.03	1,705.29	-59.58
Total CO_2 equivalent emissions without land use, land-use change and forestry	4,469,106.60	4,469,106.60	4,416,637.68	4,271,612.81	4,189,142.66	4,171,078.72	4,216,399.39	4,319,593.66	4,231,575.35	4,224,398.23	4,158,854.45	4,180,837.62	4,251,915.66	4,230,009.05	4,320,360.44	4,330,022.08	4,306,543.91	4,310,987.15	4,260,780.43	4,162,049.95	3,825,045.49	3,941,224.86	3,796,390.61	3,737,539.80	3,650,090.76	3,480,708.45	3,514,526.95	3,497,545.54	3,515,490.07	-21.34
Total CO_2 equivalent emissions with land use, land-use change and forestry	4,197,475.21	4,197,475.21	4,122,118.20	4,007,493.99	3,925,527.65	3,895,603.72	3,922,081.31	3,990,323.79	3,908,889.93	3,886,368.06	3,813,367.13	3,856,490.78	3,901,904.80	3,903,698.71	4,013,517.71	3,991,403.14	3,972,331.40	3,968,900.65	3,947,893.31	3,815,122.64	3,478,312.04	3,601,333.07	3,468,506.32	3,410,105.99	3,319,032.48	3,162,340.70	3,194,667.38	3,185,038.78	3,231,149.46	-23.02
Total CO_2 equivalent emissions, including indirect CO_2, without land use, land-use change and forestry	4,473,324.60	4,473,324.60	4,420,636.04	4,275,412.80	4,192,848.83	4,174,687.73	4,219,914.10	4,323,012.81	4,234,887.29	4,227,624.43	4,161,878.63	4,183,709.78	4,254,650.79	4,232,608.83	4,322,921.45	4,332,481.21	4,309,017.86	4,313,449.94	4,263,169.08	4,164,339.92	3,827,180.79	3,943,404.21	3,798,452.44	3,739,527.32	3,651,928.79	3,482,483.83	3,516,300.35	3,499,261.16	3,517,194.94	-21.37
Total CO_2 equivalent emissions, including indirect CO_2, with land use, land-use change and forestry	4,201,693.64	4,201,693.64	4,126,117.00	4,011,294.43	3,929,234.28	3,899,213.17	3,925,596.46	3,993,743.37	3,912,202.30	3,889,594.67	3,816,391.73	3,859,363.34	3,904,640.34	3,906,298.89	4,016,079.13	3,993,862.68	3,974,805.75	3,971,363.85	3,950,282.36	3,817,413.02	3,480,447.74	3,603,512.82	3,470,568.55	3,412,093.92	3,320,870.92	3,164,116.48	3,196,441.19	3,186,754.82	3,232,854.75	-23.06

Table 1 - Emission data (CH_4)

	Base year[a] (kt)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
1. Energy	7,810.38	7,810.38	7,409.97	7,120.66	7,009.39	6,499.24	6,482.72	6,339.09	6,330.87	5,916.60	5,720.30	5,082.47	4,956.66	4,812.61	4,769.94
A. Fuel combustion (sectoral approach)	1,291.02	1,291.02	1,304.25	1,203.32	1,220.48	1,124.02	1,114.39	1,165.63	1,103.21	1,039.52	1,010.92	950.03	944.24	889.73	928.84
1. Energy industries	47.88	47.88	48.88	48.4	49.85	54.2	63.47	70.07	70.33	72.9	73.86	70.91	71.69	73.87	86.51
2. Manufacturing industries and construction	58.28	58.28	56.35	55.59	55.11	56.72	62.47	63.87	65.9	67.68	69.58	74.72	76.23	78.52	84.18
3. Transport	265.69	265.69	255.16	252.92	241.58	227.03	216.14	210.13	198.8	189.45	178.49	161.83	151.39	140.89	131.23
4. Other sectors	907.18	907.18	933.93	840.77	869.76	783.44	770.22	819.64	766.64	708.29	687.55	641.43	642.43	593.82	624.36
5. Other	11.98	11.98	9.92	5.64	4.19	2.62	2.1	1.91	1.53	1.2	1.43	1.14	2.5	2.62	2.56
B. Fugitive emissions from fuels	6,519.36	6,519.36	6,105.72	5,917.33	5,788.92	5,375.22	5,368.33	5,173.46	5,227.66	4,877.08	4,709.38	4,132.44	4,012.42	3,922.88	3,841.10
1. Solid fuels	3,898.69	3,898.69	3,651.67	3,556.35	3,416.65	3,047.54	3,115.17	2,974.57	3,172.42	2,888.68	2,790.99	2,607.65	2,522.35	2,434.59	2,348.75
2. Oil and natural gas and other emissions from energy production	2,620.67	2,620.67	2,454.06	2,360.99	2,372.26	2,327.68	2,253.16	2,198.89	2,055.25	1,988.40	1,918.39	1,524.79	1,490.06	1,488.29	1,492.35
C. CO_2 transport and storage															
2. Industrial processes	69.25	69.25	66.26	67.4	67.62	73.2	71.28	68.77	70.02	68.28	69.34	71.58	70.72	70.62	75.43
A. Mineral industry															
B. Chemical industry	52.66	52.66	51.1	53.28	53.68	58.26	56.38	54.97	55.76	54.69	56.1	57.81	57.11	57.25	61.49
C. Metal industry	12.64	12.64	11.37	10.37	10.35	11.18	11.04	9.89	10.3	9.74	9.46	9.91	9.81	9.54	9.94
D. Non-energy products from fuels and solvent use	0.19	0.19	0.2	0.22	0.2	0.2	0.2	0.18	0.19	0.2	0.18	0.18	0.21	0.18	0.15
E. Electronic industry															
F. Product uses as ODS substitutes															
G. Other product manufacture and use	2.27	2.27	2.32	2.38	2.36	2.45	2.55	2.69	2.75	2.66	2.74	2.79	2.71	2.76	2.91
H. Other	1.49	1.49	1.27	1.16	1.03	1.12	1.12	1.03	1.01	0.98	0.86	0.9	0.89	0.89	0.94
3. Agriculture	12,181.23	12,181.23	11,584.02	11,195.91	10,906.35	10,772.75	10,716.83	10,732.18	10,582.01	10,516.34	10,438.49	10,319.39	10,191.36	10,037.74	9,998.33
A. Enteric fermentation	9,901.09	9,901.09	9,460.65	9,091.98	8,849.39	8,733.04	8,679.61	8,697.73	8,571.04	8,489.71	8,429.50	8,305.79	8,199.82	8,046.82	7,994.07
B. Manure management	2,101.48	2,101.48	1,956.04	1,923.05	1,890.92	1,877.72	1,876.78	1,859.64	1,848.95	1,862.85	1,856.52	1,853.61	1,852.68	1,845.91	1,853.07
C. Rice cultivation	120.11	120.11	110.78	108.4	106.96	109.77	109.55	116.18	116	109.7	105.59	102	101.8	103.35	106.56
D. Agricultural soils	IE, NA, NE, NO	IE, NA, NE, NO	IE, NA, NE, NO	IE, NA, NE, NO	IE, NA, NE, NO	IE, NA, NE, NO	IE, NA, NE, NO	IE, NA, NE, NO	IE, NA, NE, NO	IE, NA, NE, NO	IE, NA, NE, NO	IE, NA, NE, NO	IE, NA, NE, NO	IE, NA, NE, NO	IE, NA, NE, NO
E. Prescribed burning of savannas	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
F. Field burning of agricultural residues	58.55	58.55	56.53	72.46	59.03	52.17	50.76	58.4	45.72	53.42	46.14	56.82	35.4	39.26	41.8
G. Liming															
H. Urea application															
I. Other carbon-containing fertilizers															
J. Other	0.01	0.01	0.03	0.04	0.05	0.06	0.14	0.23	0.29	0.65	0.74	1.18	1.67	2.4	2.83
4. Land use, land-use change and forestry	297	297	272.27	263.26	298.36	382.86	357.4	318.77	317.18	332.69	273.84	312.95	268.58	248.65	299.01
A. Forest land	160.19	160.19	145.06	142.71	165.06	157.29	133.81	123.41	141.51	155.33	128.8	160.59	127.93	123.07	154.39
B. Cropland	34.76	34.76	35.16	34.64	34.31	34.33	33.81	33.57	33.14	33.29	32.91	32.74	32.56	32.36	33.64
C. Grassland	82.07	82.07	71.04	70.65	82.75	75.76	59.23	61.33	66.44	74.9	59.81	69.82	62.89	55.94	65.42
D. Wetlands	11.23	11.23	10.38	9.89	11.23	11.53	12.59	12.99	11.47	10.44	10.47	11.62	13.65	10.46	15.72
E. Settlements	3.08	3.08	3.04	2.98	2.94	3.12	3	2.89	3.23	3.14	3.81	2.88	3.08	3.35	3.25
F. Other land	5.66	5.66	7.59	2.38	2.08	3.24	7.06	4.77	1.73	10.35	3.15	7.84	6.32	5.13	10.97
G. Harvested wood products															
H. Other	IE, NA, NE, NO	IE, NA, NE, NO	IE, NA, NE, NO	IE, NA, NE, NO	IE, NA, NE, NO	97.59	107.9	79.81	59.67	45.23	34.89	27.47	22.15	18.35	15.61
5. Waste	9,037.09	9,037.09	9,188.45	9,273.04	9,320.07	9,311.63	9,352.25	9,324.55	9,228.91	9,089.54	8,881.34	8,746.23	8,578.87	8,403.49	8,146.02
A. Solid waste disposal	7,573.25	7,573.25	7,776.76	7,892.50	7,971.89	8,013.42	8,050.68	8,031.93	7,952.96	7,837.34	7,657.26	7,532.74	7,443.80	7,288.70	7,029.72
B. Biological treatment of solid waste	15.44	15.44	17.75	19.43	22.31	27.59	31.37	35.51	39.03	42.41	47.39	53.18	58.16	64.93	71.68
C. Incineration and open burning of waste	11.84	11.84	12.44	12	11.1	9.69	9.18	8.99	6.9	6.88	7	6.52	6.45	6.71	6.79
D. Waste water treatment and discharge	1,434.70	1,434.70	1,379.72	1,347.43	1,313.22	1,259.58	1,259.82	1,247.01	1,229.09	1,202.04	1,168.79	1,152.83	1,069.47	1,042.08	1,036.74
E. Other	1.85	1.85	1.78	1.68	1.55	1.34	1.2	1.1	0.93	0.87	0.9	0.95	0.98	1.07	1.09
6. Other (as specified in the summary table in CRF)	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO
Total CH_4 emissions without CH_4 from LULUCF	29,097.94	29,097.94	28,248.69	27,657.02	27,303.43	26,656.82	26,623.09	26,464.58	26,211.81	25,590.75	25,109.46	24,219.66	23,797.62	23,324.46	22,989.73
Total CH_4 emissions with CH_4 from LULUCF	29,394.95	29,394.95	28,520.96	27,920.28	27,601.80	27,039.68	26,980.50	26,783.35	26,528.99	25,923.44	25,383.30	24,532.61	24,066.20	23,573.11	23,288.74
Memo items:															
International bunkers	8.16	8.16	7.99	8.16	7.95	7.86	7.95	8.38	9.04	9.43	9.45	9.89	10.29	10.32	10.36
Aviation	1	1	0.89	0.89	0.86	0.85	0.87	0.88	0.89	0.92	0.92	0.85	0.78	0.75	0.76
Navigation	7.16	7.16	7.11	7.27	7.09	7.02	7.08	7.5	8.14	8.51	8.53	9.05	9.51	9.57	9.6
Multilateral operations	C, IE, NA, NE, NO	C, IE, NA, NE, NO	C, IE, NA, NE, NO	C, IE, NA, NE, NO	C, IE, NA, NE, NO	C, IE, NA, NE, NO	C, IE, NA, NE, NO	C, IE, NA, NE, NO	0	0	0	0	0	0	0
CO_2 emissions from biomass															
CO_2 captured															
Long-term storage of C in waste disposal sites															
Indirect N_2O															
Indirect CO_2 (3)															

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Change from base to latest reported year (%)
1. Energy	4,494.94	4,385.72	4,192.67	4,039.80	4,045.61	3,854.90	3,893.90	3,767.84	3,796.53	3,667.39	3,491.91	3,490.15	3,396.21	3,400.37	-56.46
A. Fuel combustion (sectoral approach)	911.29	926.06	926.63	945.49	994.5	991.24	1,067.02	979.13	1,036.64	1,042.17	955.22	983.84	999.54	1,016.64	-21.25
1. Energy industries	87.16	90.66	99.73	106.56	112.44	116.32	132	134.17	140.34	152.52	155.77	162.72	169.87	175.02	265.52
2. Manufacturing industries and construction	90.61	93.34	80.01	84.63	83.04	71.45	78.66	81.31	82.98	88.87	82.58	82.93	82	88.17	51.28
3. Transport	122.24	112.57	103.37	94.83	86.19	77.33	71.55	65.75	59.46	56.05	53.85	51.87	50.45	49.82	-81.25
4. Other sectors	608.99	626.39	640.68	657.02	710.63	724.19	782.79	696.64	752.64	743.66	661.99	684.59	695.29	701.9	-22.63
5. Other	2.29	3.1	2.84	2.44	2.21	1.95	2.01	1.26	1.21	1.08	1.02	1.73	1.94	1.73	-85.6
B. Fugitive emissions from fuels	3,583.65	3,459.65	3,266.04	3,094.31	3,051.11	2,863.66	2,826.88	2,788.71	2,759.89	2,625.21	2,536.69	2,506.31	2,396.67	2,383.73	-63.44
1. Solid fuels	2,141.84	2,018.92	1,885.29	1,748.57	1,724.96	1,592.71	1,535.18	1,520.34	1,529.71	1,412.48	1,361.99	1,378.39	1,273.75	1,250.00	-67.94
2. Oil and natural gas and other emissions from energy production	1,441.81	1,440.73	1,380.75	1,345.74	1,326.15	1,270.95	1,291.71	1,268.37	1,230.17	1,212.74	1,174.70	1,127.92	1,122.91	1,133.73	-56.74
C. CO_2 transport and storage															
2. Industrial processes	76.59	76.97	76.83	76.41	69.55	61.62	66.34	64.14	61.97	61.6	64.46	62.15	61.83	63.39	-8.46
A. Mineral industry															
B. Chemical industry	62.12	61.34	60	59.53	54.84	51.43	55.09	52.49	50.4	50.27	52.75	50.8	50.52	52.42	-0.46
C. Metal industry	10.53	11.72	12.62	12.58	10.99	6.39	7.4	7.8	7.71	7.43	7.89	7.47	7.6	7.18	-43.17
D. Non-energy products from fuels and solvent use	0.17	0.18	0.15	0.14	0.14	0.13	0.11	0.11	0.1	0.09	0.07	0.08	0.08	0.09	-52.72
E. Electronic industry															
F. Product uses as ODS substitutes															
G. Other product manufacture and use	2.85	2.91	2.9	2.96	2.84	3.1	3.16	3.19	3.29	3.31	3.22	3.29	3.07	3.14	38.35
H. Other	0.92	0.83	1.15	1.2	0.74	0.56	0.57	0.55	0.47	0.49	0.52	0.52	0.56	0.56	-62.4
3. Agriculture	9,895.70	9,821.37	9,760.00	9,832.29	9,705.07	9,656.14	9,500.53	9,441.85	9,396.34	9,405.32	9,527.87	9,612.73	9,643.30	9,663.68	-20.67
A. Enteric fermentation	7,907.46	7,871.37	7,817.03	7,862.71	7,808.47	7,739.42	7,664.94	7,578.28	7,561.18	7,597.91	7,682.29	7,747.98	7,779.81	7,797.16	-21.25
B. Manure management	1,842.45	1,803.04	1,794.37	1,795.55	1,745.13	1,743.82	1,661.77	1,682.11	1,642.00	1,624.04	1,664.32	1,676.19	1,675.27	1,684.80	-19.83
C. Rice cultivation	112.14	108.54	106.32	109.25	102.84	116.95	116.98	117.03	113.36	107.37	104.32	107.09	110.07	106.86	-11.03
D. Agricultural soils	IE, NA, NE, NO	IE, NA, NE, NO	IE, NA, NE, NO	IE, NA, NE, NO	IE, NA, NE, NO	IE, NA, NE, NO	IE, NA, NE, NO	IE, NA, NE, NO	IE, NA, NE, NO	IE, NA, NE, NO	IE, NA, NE, NO	IE, NA, NE, NO	IE, NA, NE, NO	IE, NA, NE, NO	0
E. Prescribed burning of savannas	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	0
F. Field burning of agricultural residues	29.98	28.64	28.77	46.62	27.81	29.7	24.41	24.67	38.02	25.86	24.93	27.49	24.53	20.54	-64.91
G. Liming															
H. Urea application															
I. Other carbon-containing fertilizers															
J. Other	3.67	9.78	13.51	18.17	20.82	26.25	32.44	39.75	41.77	50.13	52	53.98	53.62	54.32	500,719.00
4. Land use, land-use change and forestry	247.59	268.62	236.35	299.45	221.06	232.74	230.4	226.85	266.19	210.98	208.51	214.75	231.73	320.6	7.94
A. Forest land	117.24	135.34	115.41	151.45	100.86	106.4	101.27	102.5	132.24	95.72	96.84	104.35	115.25	179.82	12.25
B. Cropland	32.31	32.39	32.57	32.72	32.88	32.77	32.67	32.61	33.11	32.99	32.16	32.44	32.7	34.5	-0.75
C. Grassland	60.77	57.87	56.59	87	60.34	63.22	59.01	60.77	71.31	48.31	52.13	48.64	49.83	57.21	-30.29
D. Wetlands	14.1	14.66	12.74	11.93	11.47	11.82	17.62	13.62	11.09	12.91	13.03	13.34	12.08	19.75	75.78
E. Settlements	3.71	4.05	4.15	4.38	4.76	4.47	4.19	4.16	4.18	4.23	4.24	4.33	4.61	4.58	48.62
F. Other land	5.82	12.06	3.64	1.45	0.75	4.42	6.27	4.01	5.21	7.85	1.23	2.82	8.47	15.97	182.22
G. Harvested wood products															
H. Other	13.66	12.25	11.25	10.53	10.01	9.64	9.37	9.18	9.05	8.95	8.88	8.83	8.79	8.77	100
5. Waste	7,823.34	7,537.76	7,287.57	7,016.67	6,699.81	6,461.61	6,153.59	5,932.32	5,768.99	5,501.92	5,272.05	5,191.04	5,061.83	5,009.44	-44.57
A. Solid waste disposal	6,714.07	6,450.92	6,211.41	5,952.05	5,658.39	5,451.42	5,135.22	4,926.72	4,781.51	4,519.66	4,291.56	4,208.42	4,076.02	4,028.06	-46.81
B. Biological treatment of solid waste	76.97	86.04	93.07	100.68	104.63	110.9	122.87	132.85	141.51	154.7	162.42	172.09	180.56	181.92	1,078.06
C. Incineration and open burning of waste	7.05	6.68	6.61	6.45	6.49	6.17	5.99	5.92	5.93	5.82	5.69	5.92	5.99	5.83	-50.76
D. Waste water treatment and discharge	1,024.16	993.07	975.51	956.48	929.28	892.44	889.23	866.55	839.75	821.47	812.11	804.34	798.73	793.36	-44.7
E. Other	1.08	1.05	0.96	1.03	1.02	0.67	0.28	0.29	0.28	0.27	0.27	0.27	0.52	0.26	-85.88
6. Other (as specified in the summary table in CRF)	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	0
Total CH_4 emissions without CH_4 from LULUCF	22,290.57	21,821.82	21,317.06	20,965.17	20,520.05	20,034.27	19,614.37	19,206.15	19,023.82	18,636.22	18,356.28	18,356.07	18,163.17	18,136.87	-37.67
Total CH_4 emissions with CH_4 from LULUCF	22,538.17	22,090.43	21,553.42	21,264.63	20,741.11	20,267.01	19,844.77	19,433.00	19,290.01	18,847.20	18,564.79	18,570.81	18,394.90	18,457.47	-37.21
Memo items:															
International bunkers	11	11.31	12.02	12.35	12.3	11.4	11.13	11.54	10.76	10.07	9.95	9.77	10	10.1	23.77
Aviation	0.79	0.82	0.84	0.87	0.88	0.8	0.81	0.84	0.81	0.81	0.85	0.86	0.87	0.86	-13.67
Navigation	10.21	10.5	11.18	11.49	11.42	10.6	10.31	10.7	9.95	9.26	9.1	8.91	9.13	9.23	29
Multilateral operations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100
CO_2 emissions from biomass															
CO_2 captured															
Long-term storage of C in waste disposal sites															
Indirect N_2O															
Indirect CO_2 (3)															

Table 1 - Emission data (N_2O)

	Base year[a] (kt)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Change from base to latest reported year (%)
1. Energy	99.99	99.99	99.37	98.84	99.46	101.13	105.78	109.99	111.7	113.05	109.58	104.71	103.78	101.34	103.41	103.59	102.75	102.73	102.85	102.22	96.76	98.75	96.81	96.97	95.73	93.76	96.4	96.33	97.84	-2.15
A. Fuel combustion (sectoral approach)	99.51	99.51	98.72	98.16	98.83	100.48	105.18	109.35	110.96	112.42	108.63	103.99	103.03	100.67	102.75	102.87	102.1	102.11	102.18	101.69	96.28	98.26	96.41	96.62	95.38	93.41	96.03	95.95	97.45	-2.06
1. Energy industries	28.17	28.17	27.64	26.91	25.84	25.81	25.65	25.95	25.15	25.17	24.4	25.22	26.28	26.89	28.02	28.6	28.57	29.26	29.6	29.23	28.05	28.41	28.59	28.83	27.58	26.32	26.55	25.34	25.47	-9.56
2. Manufacturing industries and construction	17.54	17.54	16.79	16.02	15.09	14.62	15.27	15.01	15.01	15.33	14.85	14.73	14.94	15.24	15.6	15.77	15.62	15.57	15.62	15.13	12.77	13.39	13.41	12.83	12.26	12.46	12.95	12.76	13.13	-25.17
3. Transport	26.45	26.45	26.65	28.07	29.79	33.26	37.28	40.57	43	45.14	42.84	37.53	35.42	33.36	32.62	32.52	30.77	30.6	30.17	29.34	27.74	28.28	28.51	28.62	28.85	29.58	30.56	31.69	32.53	22.99
4. Other sectors	26.57	26.57	26.89	26.47	27.43	26.15	26.39	27.28	27.25	26.3	26.11	26.1	26.08	24.86	26.09	25.41	26.54	26.12	26.23	27.49	27.21	27.79	25.56	26.02	26.34	24.76	25.7	25.89	26.06	-1.91
5. Other	0.78	0.78	0.75	0.69	0.68	0.65	0.59	0.54	0.56	0.49	0.44	0.42	0.31	0.32	0.42	0.57	0.6	0.55	0.55	0.5	0.51	0.4	0.36	0.32	0.35	0.29	0.27	0.27	0.26	-66.31
B. Fugitive emissions from fuels	0.48	0.48	0.65	0.68	0.64	0.64	0.6	0.64	0.74	0.62	0.95	0.72	0.75	0.68	0.66	0.72	0.65	0.62	0.67	0.53	0.47	0.49	0.4	0.36	0.35	0.35	0.37	0.38	0.38	-20.05
1. Solid fuels	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-77.67
2. Oil and natural gas and other emissions from energy production	0.48	0.48	0.65	0.68	0.64	0.64	0.6	0.64	0.74	0.62	0.95	0.72	0.75	0.68	0.66	0.72	0.65	0.62	0.67	0.53	0.47	0.49	0.4	0.36	0.35	0.35	0.37	0.38	0.38	-20.01
C. CO_2 transport and storage																														
2. Industrial processes	395.69	395.69	380.32	370.61	353.64	368.36	367.24	377.74	361.89	290.53	224.46	231.04	228.59	204.47	203.4	208.8	200.12	170.62	170.49	135.27	105.05	69.73	53.39	47.49	39.84	39.13	38.31	35.7	37.14	-90.61
A. Mineral industry																														
B. Chemical industry	376.06	376.06	360.89	351.12	334.22	349.18	348.09	358.36	342.83	271.45	205.92	212.93	211.02	187.66	187.6	193.38	184.51	154.67	154.85	119.93	90.59	55.56	39.28	33.99	27.14	26.63	26.27	23.31	24.78	-93.41
C. Metal industry	0.15	0.15	0.14	0.14	0.13	0.14	0.12	0.11	0.12	0.11	0.11	0.12	0.1	0.09	0.11	0.12	0.11	0.11	0.11	0.1	0.07	0.08	0.08	0.07	0.08	0.09	0.08	0.07	0.07	-50.91
D. Non-energy products from fuels and solvent use	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	-3.45
E. Electronic industry																														
F. Product uses as ODS substitutes																														
G. Other product manufacture and use	19.25	19.25	19.05	19.1	19.03	18.79	18.78	19.02	18.67	18.7	18.17	17.71	17.19	16.43	15.38	15	15.2	15.55	15.24	14.95	14.12	13.81	13.75	13.13	12.33	12.12	11.66	12.03	11.99	-37.73
H. Other	0.21	0.21	0.23	0.23	0.23	0.23	0.23	0.23	0.25	0.24	0.24	0.27	0.27	0.27	0.28	0.28	0.28	0.28	0.28	0.27	0.26	0.27	0.26	0.27	0.27	0.28	0.28	0.28	0.28	31.98
3. Agriculture	751.59	751.59	706.14	668.69	652.72	644.44	650.8	654.73	657.91	652.78	654.26	647.93	639.23	628.39	616.26	627.75	612.57	606.46	608.02	609.86	593.47	592.62	597.87	594.36	604.35	618.16	614.83	614.47	627.64	-16.49
A. Enteric fermentation																														
B. Manure management	100.6	100.6	96.76	92.86	89.56	87.34	86.82	86.61	85.92	85.68	84.46	82.58	82.42	81.37	80.99	80.5	80.23	79.24	79.6	78.19	76.99	76.02	75.06	74.2	73.93	74.26	74.67	74.93	74.82	-25.62
C. Rice cultivation																														
D. Agricultural soils	649.33	649.33	607.78	573.73	561.42	555.57	562.5	566.39	570.65	565.51	568.43	563.6	555.67	545.74	533.89	546.21	531.14	525.91	526.44	530.22	514.87	515.04	521.13	518.22	528.74	542.27	538.42	537.91	551.29	-15.1
E. Prescribed burning of savannas	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	0
F. Field burning of agricultural residues	1.66	1.66	1.6	2.11	1.73	1.52	1.48	1.72	1.33	1.57	1.35	1.71	1.08	1.2	1.28	0.92	0.88	0.88	1.43	0.85	0.91	0.75	0.75	1.16	0.79	0.76	0.84	0.75	0.63	-62.38
G. Liming																														
H. Urea application																														
I. Other carbon containing fertlizers																														
J. Other	0	0	0	0	0	0	0.01	0.01	0.01	0.02	0.03	0.04	0.06	0.08	0.1	0.12	0.33	0.43	0.55	0.59	0.7	0.81	0.92	0.78	0.88	0.88	0.89	0.88	0.89	217,867.94
4. Land use, land-use change and forestry	64.53	64.53	63.83	63.42	65.11	65.6	50.83	50.51	50.36	64.83	63.98	65.51	50.75	50.61	51.86	50.71	65.31	64.58	65.44	65.77	64.82	64.4	64.62	65.55	63.78	64.86	51.62	70.05	61.25	-5.09
A. Forest land	18.84	18.84	18.82	18.43	18.25	19.51	18.48	18.75	18.27	18.54	18.14	19.25	18.15	18.24	18.83	18.05	18.59	18.17	18.01	17.36	17.53	17.35	17.42	17.82	18.74	18.79	17.26	17.28	17.78	-5.67
B. Cropland	14.45	14.45	13.18	13.14	13.1	13.11	13.06	13.01	12.94	12.89	12.87	12.69	12.46	12.25	12.08	11.88	11.96	11.59	11.5	12.86	11.34	11.29	11.24	11.22	11.12	11.03	10.97	10.92	18.67	29.22
C. Grassland	2.51	2.51	2.28	2.15	2.58	2.44	1.99	1.98	2.26	2.49	1.94	2.23	1.97	1.89	2.19	1.85	1.75	1.68	2.51	1.73	1.88	1.79	2.09	2.39	1.6	1.71	1.62	1.61	1.82	-27.61
D. Wetlands	14.21	14.21	14.19	14.18	14.21	14.23	0.67	0.69	0.66	14.25	14.3	14.31	0.77	0.69	0.87	0.88	14.44	14.4	14.38	14.39	14.44	14.56	14.46	14.4	14.45	14.45	0.84	14.39	1.03	-92.72
E. Settlements	8.29	8.29	8.96	9.04	10.31	9.44	9.6	8.97	9.05	9.21	9.32	9.46	9.72	9.81	9.93	10.19	10.49	10.69	10.93	11.16	11.22	10.93	10.97	11.22	11.39	12.56	12.6	17.44	13.38	61.35
F. Other land	2.18	2.18	2.39	2.49	2.65	2.85	3.02	3.13	3.22	3.46	3.48	3.7	3.81	3.91	4.11	4.14	4.32	4.32	4.35	4.44	4.55	4.61	4.61	4.67	4.72	4.62	4.63	4.7	4.79	119.34
G. Harvested wood products																														
H. Other	0.18	0.18	0.18	0.18	0.18	0.18	0.19	0.19	0.19	0.19	0.19	0.19	0.2	0.21	0.22	0.23	0.24	0.24	0.25	0.26	0.26	0.27	0.28	0.29	0.3	0.3	0.31	0.32	0.33	87.89
5. Waste	31.14	31.14	30.67	30.29	29.98	30.08	30.11	30.19	30.04	30.63	30.9	31.46	31.61	32.34	32.6	32.1	32.85	33.02	33.32	33.4	33.66	34.65	34.53	34.34	34.5	34.7	34.78	35.15	35.15	12.86
A. Solid waste disposal																														
B. Biological treatment of solid waste	1.15	1.15	1.28	1.39	1.57	1.94	2.18	2.38	2.72	3.06	3.65	4.22	4.66	5.41	5.87	5.64	6.31	6.78	7.22	7.36	7.73	8.51	8.79	8.9	9.08	9.31	9.54	9.94	9.86	760.62
C. Incineration and open burning of waste	0.99	0.99	1	0.99	0.98	0.97	0.95	0.95	0.91	1.03	1.01	1.04	1.05	1.05	1.11	1.06	1.06	1.06	1.02	0.99	0.94	1.02	0.99	1.02	0.99	0.99	1.01	0.98	1.01	2.07
D. Waste water treatment and discharge	29.01	29.01	28.39	27.91	27.44	27.18	26.94	26.75	26.35	26.34	26.03	25.91	25.59	25.5	25.25	25.05	25.04	24.96	24.85	24.81	24.75	24.88	24.48	24.17	24.18	24.15	23.99	23.99	24.05	-17.1
E. Other	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO	NA, NE, NO	0.04	0.11	0.07	0.19	0.21	0.29	0.32	0.38	0.37	0.34	0.44	0.22	0.22	0.23	0.24	0.25	0.26	0.25	0.25	0.25	0.24	0.24	0.23	100
6. Other (as specified in the summary table in CRF)	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	0
Total direct N_2O emissions without N_2O from LULUCF	1,278.41	1,278.41	1,216.51	1,168.44	1,135.81	1,144.01	1,153.93	1,172.66	1,161.54	1,086.98	1,019.20	1,015.14	1,003.21	966.55	955.67	972.24	948.28	912.83	914.68	880.74	828.94	795.75	782.59	773.16	774.41	785.75	784.32	781.65	797.76	-37.6
Total direct N_2O emissions with N_2O from LULUCF	1,342.94	1,342.94	1,280.34	1,231.86	1,200.92	1,209.61	1,204.76	1,223.17	1,211.90	1,151.82	1,083.18	1,080.65	1,053.96	1,017.16	1,007.52	1,022.95	1,013.59	977.42	980.11	946.51	893.76	860.16	847.21	838.7	838.19	850.62	835.94	851.7	859.01	-36.04
Memo items:																														
International bunkers	5.93	5.93	5.7	6.07	6.33	6.55	6.84	6.97	7.4	7.75	7.76	8.13	8.17	8.1	8.23	8.74	9.02	9.47	9.81	9.89	9.08	8.99	9.1	8.66	8.47	8.43	8.54	8.98	9.28	56.63
Aviation	2.05	2.05	2	2.18	2.31	2.41	2.55	2.68	2.81	3.02	3.28	3.46	3.41	3.32	3.43	3.66	3.89	4.04	4.18	4.2	3.9	3.91	4.01	3.96	4	4.06	4.17	4.35	4.64	126.15
Navigation	3.87	3.87	3.71	3.9	4.02	4.14	4.29	4.29	4.29	4.73	4.48	4.68	4.77	4.78	4.8	5.08	5.12	5.43	5.63	5.7	5.18	5.08	5.09	4.69	4.47	4.37	4.37	4.63	4.64	19.83
Multilateral operations	C, IE, NA, NE, NO	C, IE, NA, NE, NO	C, IE, NA, NE, NO	C, IE, NA, NE, NO	C, IE, NA, NE, NO	C, IE, NA, NE, NO	C, IE, NA, NE, NO	C, IE, NA, NE, NO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100
CO_2 emissions from biomass																														
CO_2 captured																														
Long-term storage of C in waste disposal sites																														
Indirect N_2O	47.5	47.5	43.37	41.05	39.53	37.48	35.8	34.47	32.84	31.21	29.63	28.28	28.41	27.51	27.54	28.15	27.56	26.56	25.68	24.49	22.58	22.37	21.57	20.89	20.99	20.63	20.47	20.03	15.75	-66.85
Indirect CO_2 (3)																														

Table 1 - Emission data (HFCs, PFCs and SF_6)

	Base year[a] (kt)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Change from base to latest reported year (%)
Emissions of HFCs and PFCs - (kt CO_2 equivalent)	60,917.43	60,917.43	58,122.24	56,221.31	58,274.31	62,636.24	67,375.09	72,826.49	79,598.76	80,484.30	71,685.94	69,361.40	67,472.91	73,036.55	77,457.00	80,114.77	85,758.32	91,009.35	97,778.05	102,664.74	102,577.03	108,445.37	110,392.89	113,224.19	116,012.26	117,917.35	113,875.70	112,308.37	109,745.08	80.15
Emissions of HFCs - (kt CO_2 equivalent)	29,140.94	29,140.94	29,198.13	31,636.54	34,630.89	39,378.51	44,149.80	51,721.30	59,806.85	61,634.07	53,409.06	54,925.49	54,681.80	58,439.07	65,929.36	70,331.25	77,246.47	83,528.03	90,781.81	96,383.70	97,856.51	103,844.77	105,503.77	108,554.34	110,845.71	113,298.68	109,201.20	107,067.32	104,900.12	259.98
HFC-23	1.81	1.81	1.8	1.95	2.05	2.26	2.41	2.6	2.78	2.54	1.69	1.34	0.83	0.63	0.62	0.41	0.36	0.2	0.16	0.16	0.13	0.18	0.11	0.1	0.1	0.08	0.08	0.08	0.08	-95.74
HFC-32	0.01	0.01	0.01	0.01	0.01	0.02	0.03	0.04	0.06	0.11	0.18	0.27	0.4	0.52	0.7	0.95	1.18	1.51	1.79	2.1	2.27	2.56	2.84	3.16	3.52	3.75	3.94	4.32	4.8	43,409.27
HFC-41	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	NO, NE, NA	0	0	0	0	0	0	0	0	0	0	100
HFC-43-10mee	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	0	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.01	0.01	0.01	0.01	100
HFC-125	0.02	0.02	0.03	0.03	0.05	0.11	0.24	0.42	0.67	0.98	1.37	1.85	2.41	2.98	3.59	4.27	4.92	5.94	6.81	7.42	7.74	8.48	8.86	9.39	9.83	10.19	9.76	9.74	9.8	46,398.88
HFC-134	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	0
HFC-134a	0.01	0.01	0.03	0.6	2.69	3.47	4.53	6.49	8.46	10.57	11.52	13.35	15.56	17.23	19.26	20.92	23.11	24.82	26.1	27.18	26.81	27.37	27.9	28.15	28.28	28.72	28.43	28.39	27.6	268,040.44
HFC-143	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	0
HFC-143a	0.51	0.51	0.53	0.41	0.04	0.09	0.18	0.37	0.57	0.87	1.21	1.73	2.18	2.62	3.12	3.56	4.03	4.53	5.03	5.4	5.68	6.02	6.02	6.18	6.25	6.39	5.84	5.32	4.95	870.64
HFC-152	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	0
HFC-152a	0	0	0	0.01	0.14	0.16	0.91	1.03	1.15	1.17	1.3	1.88	2.98	4	4.26	3.93	3.33	3.65	3.86	3.67	3.81	3.95	3.88	3.74	3.48	3.49	3.26	3.1	3.18	2,349,576.62
HFC-161	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	0
HFC-227ea	NO, NE, IE, NA	NO, NE, IE, NA	NO, NE, IE, NA	0	0	0	0.01	0.02	0.03	0.06	0.09	0.13	0.18	0.24	0.3	0.34	0.38	0.43	0.48	0.5	0.55	0.6	0.65	0.69	0.72	0.75	0.78	0.8	0.81	100
HFC-236cb	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	0
HFC-236ea	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	0
HFC-236fa	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NO, IE, NA	NO, IE, NA	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	100
HFC-245ca	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	0
HFC-245fa	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	0	0	0	0	0.01	0.01	0.03	0.14	0.18	0.49	0.43	0.46	0.47	0.46	0.43	0.45	0.47	0.48	0.5	0.54	0.61	0.66	0.71	100
HFC-365mfc	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, IE, NA	NO, NE, IE, NA	NO, NE, IE, NA	NO, NE, IE, NA	0	0.01	0.02	0.05	0.09	0.17	0.51	0.51	0.52	0.6	0.52	0.45	0.47	0.47	0.44	0.41	0.49	0.57	0.59	0.61	100
Unspecified mix of HFCs(4) - (kt CO_2 equivalent)	2.45	2.45	3.9	5.63	36.56	153.23	248.32	605.11	1,422.06	1,284.15	1,100.82	889.75	605.7	441.34	370.53	353.75	324.26	328.11	491.66	552.44	463.03	393.18	589.97	598.52	517.8	421.03	366.24	284.08	296.71	12,020.73
Emissions of PFCs - (kt CO_2 equivalent)	25,707.04	25,707.04	23,321.49	18,997.63	18,063.12	17,412.93	17,024.78	16,326.93	15,083.56	14,247.08	13,799.51	11,766.58	10,516.75	12,237.08	9,942.92	8,404.12	7,043.80	6,245.80	5,860.62	5,035.21	3,218.65	3,736.66	4,087.83	3,548.64	3,812.09	3,360.67	3,443.76	3,958.21	3,178.87	-87.63
CF_4	2.43	2.43	2.18	1.7	1.57	1.47	1.48	1.42	1.35	1.32	1.29	1.04	0.94	1.13	0.92	0.76	0.63	0.54	0.5	0.43	0.25	0.31	0.34	0.27	0.29	0.27	0.29	0.32	0.26	-89.22
C_2F_6	0.51	0.51	0.46	0.39	0.4	0.38	0.31	0.31	0.28	0.26	0.25	0.23	0.2	0.24	0.17	0.12	0.09	0.08	0.07	0.05	0.04	0.04	0.04	0.03	0.03	0.02	0.02	0.03	0.03	-94.87
C_3F_8	0.02	0.02	0.02	0.03	0.03	0.03	0.04	0.04	0.04	0.03	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.01	0.01	0.02	0.01	0.02	0.01	0.02	0.02	0.02	-21.67
C_4F_{10}	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.04	0.02	0.01	0	0	0	0	0.01	0.01	0.01	0.01	0.01	0.01	0	0	0.02	0.02	0.03	0.02	0.02	0.03	0.01	-82.41
c-C_4F_8	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-77.93
C_5F_{12}	0.04	0.04	0.04	0.05	0.04	0.06	0.06	0.06	0.02	0.03	0.02	0.03	0.01	0.01	0	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	-100
C_6F_{14}	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.03	0.02	0.02	0.01	0.02	0.02	0.01	0.01	0.01	0.02	0.01	0.01	0	0.01	0.02	0.01	0.01	0.01	0	-92.07
C10F18	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	0
c-C3F6	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	0
Unspecified mix of PFCs(4) - (kt CO_2 equivalent)	314.15	314.15	328.33	343.13	405.79	397.82	556.15	480.99	440.04	405.25	471.65	509.83	532.07	479.93	600.68	660.87	744.23	743.6	840.03	781.81	634.36	707.55	733.72	755.45	679.9	597.93	554.92	652.82	668.48	112.79
Unspecified mix of HFCs and PFCs - (kt CO_2 equivalent)	6,069.46	6,069.46	5,602.62	5,587.13	5,580.29	5,844.79	6,200.52	4,778.27	4,708.35	4,603.14	4,477.37	2,669.33	2,274.36	2,360.40	1,584.71	1,379.40	1,468.05	1,235.52	1,135.62	1,245.83	1,501.87	863.93	801.29	1,121.22	1,354.47	1,258.00	1,230.74	1,282.84	1,666.09	-72.55
Emissions of SF_6 - (kt CO_2 equivalent)	11,074.14	11,074.14	11,530.20	12,356.55	13,044.11	14,220.67	15,226.99	15,098.79	13,614.68	12,877.38	10,575.34	10,614.01	9,757.73	8,613.45	8,106.30	8,130.40	7,871.27	7,462.36	7,009.21	6,681.49	6,324.76	6,351.80	6,113.77	6,222.37	6,081.95	5,892.95	6,227.80	6,476.72	6,725.32	-39.27
SF_6	0.49	0.49	0.51	0.54	0.57	0.62	0.67	0.66	0.6	0.56	0.46	0.47	0.43	0.38	0.36	0.36	0.35	0.33	0.31	0.29	0.28	0.28	0.27	0.27	0.27	0.26	0.27	0.28	0.29	-39.27
Emissions of NF3 - (kt CO_2 equivalent)	16.9	16.9	18.61	20.49	22.57	25.61	94.48	86.84	94.01	69.88	68.59	94.53	74.55	121.73	127.44	109.61	121.48	115.08	154.97	140.37	72.37	111.82	118.21	82.47	56.24	55.33	52.77	50.47	48.32	185.98
NF3	0	0	0	0	0	0	0.01	0.01	0.01	0	0	0.01	0	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0	0.01	0.01	0	0	0	0	0	0	185.98

CTF Table 2: Description of quantified economy-wide emission reduction

Emission reduction target: base year and target		
		Comments
Base year/ base period	1990	Legally binding target trajectories for the period 2013-2020 are enshrined in both the EU ETS Directive (Directive 2003/87/EC and respective amendments) and the Effort Sharing Decision (Decision No 406/2009/EC). These legally binding trajectories not only result in a 20 % GHG reduction in 2020 compared to 1990 but also define the EU's annual target pathway to reduce EU GHG emissions from 2013 to 2020. The Effort Sharing Decision sets annual national emission targets for all Member States for the period 2013-2020 for those sectors not covered by the EU emissions trading system (ETS), expressed as percentage changes from 2005 levels. In March 2013, the Commission formally adopted the national annual limits throughout the period for each Member State. By 2020, the national targets will collectively deliver a reduction of around 10 % in total EU emissions from the sectors covered compared with 2005 levels. The emission reduction to be achieved from the sectors covered by the EU ETS will be 21 % below 2005 emission levels.
Emission reductions target (% of 1990)	20 %	
Period for reaching target	**BY-2020**	

Gases and sectors covered. GWP values.				
Gases covered	**Covered**	**Base Year**	**GWP reference source**	**Comments**
CO_2	Yes	1990	IPCC AR4	As adopted in UNFCCC reporting guidelines for national GHG inventories of Annex I Parties and as adopted under the EU Monitoring Mechanism Regulation
CH_4	Yes	1990	IPCC AR4	As adopted in UNFCCC reporting guidelines for national GHG inventories of Annex I Parties and as adopted under the EU Monitoring Mechanism Regulation
N_2O	Yes	1990	IPCC AR4	As adopted in UNFCCC reporting guidelines for national GHG inventories of Annex I Parties and as adopted under the EU Monitoring Mechanism Regulation
HFCs	Yes	1990	IPCC AR4	As adopted in UNFCCC reporting guidelines for national GHG inventories of Annex I Parties and as adopted under the EU Monitoring Mechanism Regulation

Gases and sectors covered. GWP values.				
Gases covered	**Covered**	**Base Year**	**GWP reference source**	**Comments**
PFCs	Yes	1990	IPCC AR4	As adopted in UNFCCC reporting guidelines for national GHG inventories of Annex I Parties and as adopted under the EU Monitoring Mechanism Regulation
SF_6	Yes	1990	IPCC AR4	As adopted in UNFCCC reporting guidelines for national GHG inventories of Annex I Parties and as adopted under the EU Monitoring Mechanism Regulation
NF_3	NO		IPCC AR4	

Sectors covered	Covered	Comment:
Energy	Yes	
Transport	Yes	
Industrial processes	Yes	
Agriculture	Yes	
LULUCF	No	
Waste	Yes	
Other sectors (specify)		
Aviation -out-going flights		In principle, the EU ETS should cover CO_2 emissions of all flights arriving at, and departing from, airports in all EU Member States, Norway, Iceland and Liechtenstein and closely related territories. However, since 2012, flights to and from aerodromes from other countries have not been included in the EU ETS. This exclusion was taken in order to facilitate negotiation of a global agreement to address aviation emissions in the forum of the International Civil Aviation Organisation (ICAO). The EU has decided on a reduced scope in the 2013–2016 period (Regulation (EU) No 421/2014 of the European Parliament and of the Council of 16 April 2014) In light of the adoption of a Resolution by the 2016 ICAO Assembly on the global measure, the EU has decided to maintain the geographic scope of the EU ETS limited to intra-EEA flights from 2017 onwards (Regulation (EU) 2017/2392 of the European Parliament and of the Council of 13 December 2017). In the absence of an amendment, the EU ETS will revert to its original full scope from 2024.

Role of LULUCF sector		
LULUCF in base year level and target	excluded	
Contribution of LULUCF is calculated using		

Possible scale of contributions of market-based mechanisms: Sectors covered	Comments
Possible scale of contributions of market-based mechanisms under the convention	The 2020 Climate and Energy Package 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. In addition, the legislation foresees the possible recognition of units from new market mechanisms. Under the EU ETS, the limit does not exceed 50 % of the required reduction below 2005 levels. In the sectors not covered by the ETS, annual use shall not exceed to 3 % of each Member States' non-ETS greenhouse gas emissions in 2005. A limited number of Member States may use an additional 1 %, from projects in LDCs or SIDS subject to conditions.
CERs	The use of these units under the ETS Directive and the Effort Sharing Decision is subject to the limits specified above which do not separate between CERs and ERUs, but include additional criteria for the use of CERs.
ERUs	The use of these units under the ETS Directive and the Effort Sharing Decision is subject to the limits specified above which do not separate between CERs and ERUs, but include additional criteria for the use of CERs.
AAUs	AAUs for the period 2013-2020 have not yet been determined. The EU expects to achieve its 20 % target for the period 2013-2020 with the implementation of the ETS Directive and the ESD Decision in the non-ETS sectors, which do not allow the use of AAUs from non-EU Parties.
Carry-over units	The time-period of the Convention target is from 1990-2020, no carry-over units will be used to achieve the 2020 target.
Other mechanism units under the Convention (specify)	There are general provisions in place in the EU legislation that allow for the use of such units provided that the necessary legal arrangements for the creation of such units have been put in place in the EU which is not the case at the point in time of the provision of this report.
Any other information:	In December 2009, the European Council reiterated the conditional offer of the EU to move to a 30 % reduction by 2020 compared to 1990 levels as part of a global and comprehensive agreement for the period beyond 2012, provided that other developed countries commit themselves to comparable emission reductions and that developing countries contribute adequately according to their responsibilities and respective capabilities.
Possible scale of contributions of other market-based mechanisms	None

CTF Table 3: Progress in achievement of the quantified economy-wide emission reduction target: information on mitigation actions and their effects

Name of mitigation action	Included in with measures GHG projection scenario[1]	Sectors affected	GHGs affected	Objective and/or activity affected	Type of instrument	Status of implementation	Brief description	Start year of implementation	Implementing entity or entities	Estimate of mitigation impact (kt/CO2eq)					4BR Comment
										2010	2015	2020	2025	2030	
Directive 2003/87/EC as amended by Directive 2009/29/EC and Directive 2008/101/EC, 2003/87/EC and Directive (EU) 2018/410. EU Emission Trading System	Yes	Cross-cutting	CO2, N2O, PFCs	Cost-efficient reduction of emissions	Regulatory	Implemented	Putting a market price to carbon and giving a financial value to each tonne of emissions saved	2005	CION/MS	NE	NE	NE	NE	NE	For 2020 the mitigation impact is estimated at 21% compared to 2005 levels. To enable the EU ETS to facilitate a 43% reduction of GHG emissions by its sectors by 2030 (compared to 2005 levels), in line with the EU's 2030 climate objectives and its commitments under the Paris Agreement, the system has been reformed for its fourth trading period (2021-2030). The revised EU ETS Directive (2018/410) entered into force on 8 April 2018 and this revision is therefore not included in the GHG projection scenario.
Decision No 406/2009/EC Effort Sharing Decision	Yes	Cross-cutting	CO2, CH4, N2O, HFCs, PFCs, SF6	GHG emissions reduction in sectors not included in the EU ETS.	Regulatory	Implemented	Binding GHG emissions targets for MS for the years 2013-2020 for sectors not included in the EU ETS	2013	MS need to implement national measures and policies to limit emissions from sectors covered here	NA	NE	NE	NE	NE	For 2020 the mitigation impact is estimated at 10 % compared to 2005 levels.
Regulation (EU) 2018/842 on binding annual greenhouse gas emission reductions by Member States from 2021 to 2030 contributing to climate action to meet commitments under the Paris Agreement and amending Regulation (EU) No 525/2013	No	Cross-cutting	CO2, CH4, N2O, HFCs, PFCs, SF6	GHG emissions reduction in sectors not included in the EU ETS.	Regulatory	Adopted	Binding GHG emissions targets for MS for the years 2021-2030 for sectors not included in the EU ETS	2018	MS need to implement national measures and policies to limit emissions from sectors covered here	NA	NA	NA	NA	NA	See section 4.2.2 of the EU's 3rd Biennial Report. See SWD (2016) 0247 final for details on impacts. Sectors of the economy not covered by the EU ETS must reduce emissions by 30% by 2030 compared to 2005 as their contribution to the overall target.
CCS Directive	No	Cross-cutting	CO2	Geological storage of CO2	Regulatory	Implemented	Establishes a legal framework for the environmentally safe geological storage of CO2	2009	MS	NE	NE	NE	NE	NE	Further information on the CCS Directive can be found in the EU's 1st Biennial Report section 4.2.4
Taxation of Energy Products and Electricity	No	Cross-cutting	CO2, CH4, N2O	Sets minimum levels of taxation of energy products used as motor fuel or as heating fuel and for electricity	Regulatory	Implemented	The Directive covers electricity and all energy products consumed as motor fuel, heating fuel, and provides for common taxation rules and common minimum EU levels of taxation	2003	MS	NE	NE	NE	NE	NE	The current status of the revision to the Taxation of Energy Products Electricity Directive is explained in section 3.2 of the EU's 2nd biennial report. For further background information on the original directive see EU's 1st Biennial report, section 4.2.5
Horizon 2020	No	Cross-cutting	Other (not directly affected)	EU research and development programme (Horizon 2020) for 2014-2020. Contains objective of reaching 35% climate related expenditures.	Research	Implemented	Horizon 2020 is the largest ever EU Research and Innovation programme, with nearly €80 billion of funding available over seven years (2014 to 2020)..	2014	CION/EP, MS and others	NA	NE	NE	NE	NE	The Horizon 2020 programme is explained in more detail in Section 4.2.3.5 of the 4BR and in previous BRs. For more information on other PaMs targeting research and observation, see the EU's 1st Biennial report, section 4.2.6 Estimates for emissions reductions exist for the energy efficiency part of H2020 and these can be found in the text in Section 4.3.1.3

European Structural and Investment Funds (ESIF). Regulation (EU) No 1305/2013 for EAFRD, 1301/2013 for ERDF, 1300/2013 for CF and 1304/2013 for ESF	No	Cross-cutting	CO2, CH4, N2O	The five ESI Funds represent the biggest EU budget (of more than €450 billion) for the implementation of the Europe 2020 strategy for smart, sustainable and inclusive growth for the 2014-2020 period.	Fiscal	Implemented	ESI Funds includes five funds: European regional development fund, European social fund, Cohesion fund, European agricultural fund for rural development, and European maritime and fisheries fund. They provide investments in, for example, climate, lowcarbon economy, environmental protection and sustainable management of natural resources, and innovation.	2014	CION/MS	NA	NE	NE	NE	NE	The European Structural and Investment Funds are explained in more detail in Section 4.2.3.1 of the EU's 4BR
National Emissions Ceilings Directive (2016/2284)	Yes	Cross-cutting	Other (Atmospheric pollutants: Nox; SO2; NMVOC; NH3; PM2.5), CH4	To reduce adverse health impacts of air pollution, including reducing the cases of premature deaths per year due to air pollution by more than half.	Regulatory	Implemented	National emission reduction commitments for each Member State for 2030 (with interim targets also set for 2025) for six specific pollutants	2001	CION/MS	NE	NE	NE	NE	NE	The revised National Emissions Ceiling Directive is explained in section 3.2 of the EU's 2nd biennial report. For further information on the original directive see the EU's 1st Biennial report, section 4.2.8
Directive 2009/28/EC on the promotion of the use of energy from renewable sources, as ammended by Directive (EU) 2018/2001 which entered into force on 11 December 2018	Yes	Energy, transport	CO2	To promote energy from renewable sources, including by requiring Member States to collectively ensure that the share of energy from renewable sources in the Union's gross final consumption of energy in 2030 is at least 32 %.	Regulatory	Implemented	Establishes a common framework for the promotion of energy from renewable sources. It sets a binding Union target for the overall share of energy from renewable sources in the Union's gross final consumption of energy in 2030. It also lays down rules on financial support for electricity from renewable sources, on self-consumption of such electricity, on the use of energy from renewable sources in the heating and cooling sector and in the transport sector, on regional cooperation between Member States, and between Member States and third countries, on guarantees of origin, on administrative procedures and on information and training. It also establishes sustainability and greenhouse gas emissions saving criteria for biofuels, bioliquids	2010	MS	NE	NE	750,000	NE	NE	For Directive 2009/28/EC, the estimated impact range: 600-900 Mt (2020), Source: Citizens' Summary of 23 January 2008. For Directive 2018/2001 the impacts of the policy have only been assessed in combination with the other policies energy and climate policies, further details can be found in SWD(2014) 15 final. See section 4.3.1.2 of the 4BR. The ammendment is not included in the GHG projection scenario, only the earlier directive.

							and biomass fuels.								
2020 Climate & Energy Package (COM(2008) 30 final)	Yes	Cross-cutting	CO2, CH4, N2O, HFCs, PFCs, SF6	20 % cut in greenhouse gas emissions, 20 % share of renewable energy, 20 % increase in energy efficiency	Regulatory	Implemented	The 2020 climate & energy package is a set of binding legislation to ensure that the EU meets its climate and energy targets for the year 2020.	2009	CION/MS	NA	NE	NE	NE	NE	The 2020 Climate and Energy package provides the emission reduction target. The mitigation impact results from a wide range of measures. See section 3.3 of the EU's 2nd biennial report .
2030 Framework for Climate and Energy (COM(2014) 15 final)	No	Cross-cutting	CO2, CH4, N2O, HFCs, PFCs, SF6, NF3	At least 40 % cut in greenhouse gas emissions, at least 27 % share of renewable energy, at least 27 % increase in energy efficiency	Information	Adopted	It provides the framework and defines the targets to help the EU achieve a more competitive, secure and sustainable energy system and to meet its long-term 2050 greenhouse gas reductions target.	2014	CION/MS	NA	NE	NE	NE	NE	The 2030 Framework for Climate and Energy provides the emission reduction target. The mitigation impact results from a wide range of measures. As part of the Clean Energy for All Package, the Commission has proposed to set a binding EU-level energy efficiency target of 30 % by 2030. See section 3.3 of the EU's 2nd biennial report. For information about how the EU ETS would be aligned with the 2030 Climate and Energy Framework, see section 4.2.1. of the EU's 3BR.
Energy Union Strategy (COM(2015) 80 final)	No	Energy	CO2, CH4, N2O	Ensure that Europe has secure, affordable and climate-friendly energy	Information	Adopted	It provides the framework for supply security, a fully-integrated internal energy market, energy efficiency and greenhouse gas emission reductions in the EU energy sector.	2015	CION/MS	NA	NE	NE	NE	NE	The strategy is in line with the 2030 Framework for Climate and Energy (COM(2014)15 final). The mitigation impact is given in the CTF table under that policy. See section 4.3.1.1 of the EU's 4BR.
Bioeconomy strategy	No	Energy	CO2, CH4, N2O	To accelerate the deployment of a sustainable European bioeconomy so as to maximise its contribution towards the 2030 Agenda and its Sustainable Development Goals (SDGs), as well as the Paris Agreement.	Information	Adopted	Sets out Community actions to: Strengthen and scale up the bio-based sectors, unlock investments and markets; Deploy local bioeconomies rapidly across the whole of Europe; Understand the ecological boundaries of the bioeconomy	2012	CION/MS	NE	NE	NE	NE	NE	The original 2012 strategy was updated in 2018. See section 4.2.3.6 of the 4BR
Directive 2010/31/EU on the energy performance of buildings as amended by Directive 2018/844/EU which entered into force in July 2018.	Yes	Energy	CO2, CH4, N2O	Improve the energy performance of new buildings and of existing buildings	Regulatory	Implemented	The Directive obliges Member States to set cost-optimal minimum standards for the energy performance of new buildings and existing buildings that are subject to major renovation work. All new buildings must be nearly zero-energy buildings from 2021.	2012	MS	NE	NE	185,000	NE	NE	Estimated impact range: 160000-210000kt (2020), Source: SEC(2008) 2864. A revision was adopted, aiming to accelerate the decarbonisation of buildings by significantly increasing renovation rates and promote the modernisation of buildings. According to the Impact Assessment of the proposal to revise the EPBD, the Directive could reduce GHG emissions by 38 MtCO2 and could improve the GHG emission in buildings by 1,32 kgCO2/m². See section 4.3.1.3 of the EU's 4BR and previous BRs. The revision is not included in the GHG projection

							Energy performance certificates must be issued upon a sale or rental of a building.								scenario, only the earlier directive.
Directive 2012/27/EU on energy efficiency as amended by Directive (EU) 2018/2002 which entered into force in December 2018.	Yes	Energy, Industry/industrial processes	CO2, CH4, N2O	Reduction of barriers in the energy market and avoiding market failure, increase of energy efficiency at all stages of the energy chain.	Regulatory	Implemented	The Directive establishes a common framework of measures for the promotion of energy efficiency and supports the Energy Efficiency Plan 2011.	2014	MS	NE	NE	NE	NE	NE	(impact not estimated) See section 3.3.2 of the EU's 2nd biennial report. A revision is adopted to make the policy consistent a 32,5% improvement in energy efficiency by 2030. See section 4.3.1.3 of the EU's 4BR. The revision is not included in the GHG projection scenario, only the earlier directive.
Directive 2009/125/EC establishing a framework for the setting of eco-design requirements for energy- related products	Yes	Energy	CO2, CH4, N2O	Reduce energy consumption	Regulatory	Implemented	This is the framework Directive for eco-design requirements and one of the major cornerstones of the Community Strategy on Integrated Product Policy, together with the Energy Labelling Directive.	2009	CION/MS	NE	NE	NE	NE	NE	Impact estimated separately for each product category (see related eco-design regulations below). See section 3.3.3 of the EU's 2nd biennial report .
Eco-design requirements for glandless standalone circulators and glandless circulators integrated in products (COM REG (EC) 641/2009)	Yes	Energy	CO2, CH4, N2O	Reduce energy consumption	Regulatory	Implemented	The Regulation sets minimum standards for glandless standalone circulators and circulator integrated products, including the requirement for Energy labelling (see Reg. (EC) 622/2012)	2009	CION/MS/ industry	NE	NE	11,000	NE	NE	SEC(2009) 1016 final. For more information on ecodesign requirements see 4.3.1.3 of the EU's 3BR and section 3.3.3 of 2BR.
Eco-design requirements for fluorescent lamps without integrated ballast, for high intensity discharge lamps, and for ballasts and luminaires able to operate such lamps (COM REG (EC) 245/2009 amended by COM REG (EU) 347/2010)	Yes	Energy	CO2, CH4, N2O	Reduce energy consumption	Regulatory	Implemented	The Regulation sets minimum standards for fluorescent lamps, high discharge lamps, ballasts and luminaires able to operate such lamps, including the requirement for Energy labelling. (see Reg. (EU) 874/2012)	2009	CION/MS/industry	NE	15,300	NE	NE	100,000 (based on the revised regulation covering also 245/2009 and 1194/2012 and the energy labelling regulation	SEC(2009) 324. For more information on ecodesign requirements see 4.3.1.3 of the EU's 3BR and section 3.3.3 of 2BR.
Eco-design requirements for non-directional household lamps, amendment is replacing functionality requirements for lamps excluding compact fluorescent lamps and LED lamps (COM REG No 245/2009 amended by COM REG (EC) 2015/1428)	Yes	Energy	CO2, CH4, N2O	Reduce energy consumption	Regulatory	Implemented	The Regulation sets minimum standards for non-directional household lamps, including the requirement for Energy labelling (see Reg. (EU) 874/2012).	2009	CION/MS/industry	NE	NE	15,400	NE	100,000	SEC(2009) 327. For more information on ecodesign requirements see 4.3.1.3 of the EU's 3BR and section 3.3.3 of 2BR.

Eco-design requirements for household refrigerating appliances (COM REG (EC) 643/2009)	Yes	Energy	CO2, CH4, N2O	Reduce energy consumption	Regulatory	Implemented	The Regulation sets minimum standards for household refrigerating appliances, including the requirement for Energy labelling (see Reg. (EU) 1060/2010).	2009	CION/MS/industry	NE	NE	2,000	6,000	17,000 (based on the revised ecodesign and energy labelling regulation)	SEC(2009) 1020 final. For more information on ecodesign requirements see 4.3.1.3 of the EU's 3BR and section 3.3.3 of 2BR.
Eco-design requirements for no-load condition electric power consumption and average active efficiency of external power supplies (COM REG (EC) 278/2009). Repealed by (EU) 2019/1782	Yes	Energy	CO2, CH4, N2O	Reduce energy consumption	Regulatory	Adopted	The Regulation sets minimum standards for no-load condition electric power consumption and average active efficiency of external power supplies; Energy labelling has not been introduced.	2020	CION/MS/industry	NE	NE	NE	NE	1,500	Impact assessment shows annual savings of 1.45 Mt CO2eq./year 2030, Source: SWD/2019/0340
Eco-design requirements for simple set-top boxes (COM REG (EC) 107/2009)	Yes	Energy	CO2, CH4, N2O	Reduce energy consumption	Regulatory	Implemented	The Regulation sets minimum standards for simple set-top boxes; Energy labelling has not been introduced.	2009	CION/MS/industry	NE	NE	260	NE	NE	SEC(2009) 114 final. For more information on ecodesign requirements see 4.3.1.3 of the EU's 3BR and section 3.3.3 of 2BR.
Eco-design requirements for standby and off mode electric power consumption of electrical and electronic household and office equipment (COM REG (EC) 1275/2008), amended by (EU) No 801/2013	Yes	Energy	CO2, CH4, N2O	Reduce energy consumption	Regulatory	Implemented	The Regulation sets minimum standards for standby and off mode electric power consumption of electrical and electronic household and office equipment; Energy labelling has not been introduced.	2009	CION/MS/industry	NE	NE	12,400	NE	16,500 (based on the revised ecodesign regulation)	For more information on ecodesign requirements see 4.3.1.3 of the EU's 3BR and section 3.3.3 of 2BR.
Eco-design requirements for household tumble driers (COM REG (EU) 932/2012)	Yes	Energy	CO2, CH4, N2O	Reduce energy consumption	Regulatory	Implemented	The Regulation sets minimum standards for household tumble driers, including the requirement for Energy labelling (see Reg. (EU) 392/2012)	2012	CION/MS/industry	NE	400	1,500	2,900	3 800	SWD(2012) 289. For more information on ecodesign requirements see 4.3.1.3 of the EU's 3BR and section 3.3.3 of 2BR.
Eco-design requirements for water pumps (COM REG (EU) 547/2012)	Yes	Energy	CO2, CH4, N2O	Reduce energy consumption	Regulatory	Implemented	The Regulation sets minimum standards for water pumps; Energy labelling has not been introduced.	2012	CION/MS/industry	NE	NE	1,250	NE	NE	Impact assessment shows ranges between 1200 and 2100 kt in 2020, Source: SWD(2012) 178 final. For more information on ecodesign requirements see 4.3.1.3 of the EU's 3BR and section 3.3.3 of 2BR.
Eco-design requirements for air conditioners and comfort fans (COM REG (EU) 206/2012)	Yes	Energy	CO2, CH4, N2O	Reduce energy consumption	Regulatory	Implemented	The Regulation sets minimum standards for air conditioners and comfort fans, including the requirement for Energy labelling (see Reg. (EU) 626/2011)	2012	CION/MS/industry	0	1,000	3,000	5,000	5 000	SWD(2012) 35 final. For more information on ecodesign requirements see 4.3.1.3 of the EU's 3BR and section 3.3.3 of 2BR.

Eco-design requirements for industrial fans (COM REG (EU) 327/2011)	Yes	Energy	CO2, CH4, N2O	Reduce energy consumption	Regulatory	Implemented	The Regulation sets minimum standards for industrial fans; Energy labelling has not been introduced.	2011	CION/MS/industry	NE	9,600	24,800	41,600	NE	SEC(2011) 384 final. For more information on ecodesign requirements see 4.3.1.3 of the EU's 3BR and section 3.3.3 of 2BR.
Eco-design requirements for household dishwashers (COM REG (EU) 1016/2010)	Yes	Energy	CO2, CH4, N2O	Reduce energy consumption	Regulatory	Implemented	The Regulation sets minimum standards for household dishwashers, including the requirement for Energy labelling (see Reg. (EU) 1059/2010)	2010	CION/MS/industry	NE	NE	500	1,800	NE	SEC(2010) 1356 final. For more information on ecodesign requirements see 4.3.1.3 of the EU's 3BR and section 3.3.3 of 2BR.
Eco-design requirements for household washing machines (COM REG (EU) 1015/2010)	Yes	Energy	CO2, CH4, N2O	Reduce energy consumption	Regulatory	Implemented	The Regulation sets minimum standards for household washing machines, including the requirement for Energy labelling (see Reg. (EU) 1061/2010)	2010	CION/MS/industry	NE	NE	800	NE	NE	SEC(2010) 1354. For more information on ecodesign requirements see 4.3.1.3 of the EU's 3BR and section 3.3.3 of 2BR.
Eco-design requirements for directional lamps, light emitting diode lamps and related equipment (COM REG No 1194/2012 amended by COM REG (EC) 2015/1428)	Yes	Energy	CO2, CH4, N2O	Reduce energy consumption	Regulatory	Implemented	The Regulation sets minimum standards for directional lamps, light emitting diode lamps and related equipment, including the requirement for Energy labelling (see Reg. (EU) 874/2012)	2013	CION/MS/industry	NE	NE	9,500	10,300	100 000	SWD(2012) 0419. For more information on ecodesign requirements see 4.3.1.3 of the EU's 3BR and section 3.3.3 of 2BR.
Eco-design requirements for space heaters and combination heaters (COM REG (EU) 813/2013). Regulation (EU) 811/2013 for labelling.	Yes	Energy	CO2, CH4, N2O	Reduce energy consumption	Regulatory	Implemented	The Regulation aims to set minimum standards for space heaters and combination heaters, separate regulation for Energy labelling.	2013	CION/MS/industry	0	57,000	114,000	161,000	199,000	SWD(2013) 296. For more information on ecodesign requirements see 4.3.1.3 of the EU's 3BR and section 3.3.3 of 2BR.
Eco-design requirements for computers and computer servers (COM REG (EU) 617/2013)	Yes	Energy	CO2, CH4, N2O	Reduce energy consumption	Regulatory	Implemented	The Regulation sets minimum standards for computers and servers.	2013	CION/MS/industry	NE	NE	4,200	NE	NE	SWD(2013) 219. For more information on ecodesign requirements see 4.3.1.3 of the EU's 3BR and section 3.3.3 of 2BR.
Eco-design requirements for vacuum cleaners (COM REG (EU) 666/2013)	Yes	Energy	CO2, CH4, N2O	Reduce energy consumption	Regulatory	Implemented	The Regulation sets minimum standards for vacuum cleaners including the requirement for energy labelling.	2013	CION/MS/industry	NE	NE	6,000	NE	NE	SWD(2013) 240. For more information on ecodesign requirements see 4.3.1.3 of the EU's 3BR and section 3.3.3 of 2BR.
Eco-design requirements for domestic ovens, hobs and range hoods (COM REG (EU) 66/2014)	Yes	Energy	CO2, CH4, N2O	Reduce energy consumption	Regulatory	Implemented	The Regulation sets minimum standards for domestic ovens, hobs and range hoods including the requirement for	2014	CION/MS/industry	NE	NE	1,200	NE	2 600	SWD(2014) 4. For more information on ecodesign requirements see 4.3.1.3 of the EU's 3BR and section 3.3.3 of 2BR.

							energy labelling.								
Eco-design requirements for small, medium and large power transformers (COM REG (EU) 548/2014)	Yes	Energy	CO2, CH4, N2O	Reduce energy consumption	Regulatory	Implemented	The Regulation sets minimum standards for power transformers.	2014	CION/MS/industry	NE	NE	NE	4,000	NE	SWD(2014) 161. For more information on ecodesign requirements see 4.3.1.3 of the EU's 3BR and section 3.3.3 of 2BR.
Eco-design requirements for ventilator units (COM REG (EU) 1253/2014)	Yes	Energy	CO2, CH4, N2O	Reduce energy consumption	Regulatory	Implemented	The Regulation sets minimum standards for ventilators including the requirement for energy labelling.	2014	CION/MS/industry	NE	NE	NE	NE	80 000	SWD(2014) 223. For more information on ecodesign requirements see 4.3.1.3 of the EU's 3BR and section 3.3.3 of 2BR.
Eco-design requirements for television and networked standby losses (COM REG (EU) 801/2013)	Yes	Energy	CO2, CH4, N2O	Reduce energy consumption	Regulatory	Implemented	The Regulation sets minimum standards for television, including the requirement for energy labelling.	2013	CION/MS/industry	NE	NE	36,000	NE	33,000	Revised figure according to impact assessment for the revised regulation. For more information on ecodesign requirements see 4.3.1.3 of the EU's 3BR and section 3.3.3 of 2BR.
Eco-design requirements for water heaters and hot water storage tanks (COM REG (EU) 814/2013)	Yes	Energy	CO2, CH4, N2O	Reduce energy consumption	Regulatory	Implemented	The Regulation sets minimum standards for water heaters and hot water storage tanks, including the requirement for energy labelling.	2013	CION/MS/industry	0	13,000	29,000	42,000	45,000	SWD (2013) 294. For more information on ecodesign requirements see 4.3.1.3 of the EU's 3BR and section 3.3.3 of 2BR.
Eco-design requirements for electric motors (COM REG (EU) 4/2014; amendment of COM REG (EC) 640/2009)	Yes	Energy	CO2, CH4, N2O	Reduce energy consumption	Regulatory	Implemented	The Regulation sets minimum standards for electric motors, including the requirement for energy labelling	2013	CION/MS/industry	NE	NE	21,660	NE	38 000	For more information on ecodesign requirements see 4.3.1.3 of the EU's 3BR and section 3.3.3 of 2BR.
Ecodesign requirements for air heating products, cooling products, high temperature process chillers and fan coil units (COM REG No 1194/2012 amended by COM REG (EC) 2015/1428)	Yes	Energy	CO2, CH4, N2O	Reduce energy consumption	Regulatory	Implemented	The Regulation sets minimum standards for air heating products, cooling products and high temperature process chillers (see Reg. (EU) 2015/1428)	2016	CION/MS/industry	NE	NE	NE	NE	8,000	Impact assessment shows ranges between 5 and 11 Mt CO2e per year in 2030, Source: SWD(2016)422
Eco-design requirements for welding equipment. Commission Regulation (EU) 2019/1784	No	Energy	CO2, CH4, N2O	Reduce energy consumption	Regulatory	Adopted	The Regulation sets minimum standards for welding equipment (see Reg. (EU) 2019/1784)	2021	CION/MS/industry	NE	NE	NE	NE	270	Impact assessment shows annual savings of 0.27 M CO2e 2030, Source: SWD/2019/0340
Voluntary eco-design scheme for complex set-top boxes	No	Energy	CO2, CH4, N2O	Reduce energy consumption	Voluntary Agreement	Implemented	Voluntary agreement on energy consumption targets for set-top boxes without Energy labelling.	2010	CION/MS/industry	NE	NE	1,600	NE	NE	Cumulative impact 2020: 21000kt, SWD(2012) 391 final. For more information on ecodesign requirements see 4.3.1.3 of the EU's 3BR and section 3.3.3 of 2BR. I in the excel files accompanying the IA the value for 2020 is 1 600. No values for 2030

Voluntary eco- design scheme for imaging equipment	No	Energy	CO2, CH4, N2O	Reduce energy consumption	Voluntary Agreement	Implemented	Voluntary agreement on energy consumption targets for imaging equipment without Energy labelling.	2011	CION/MS/industry	NE	NE	3,800	NE	3,400	SWD(2013) 15 final. For more information on ecodesign requirements see 4.3.1.3 of the EU's 3BR and section 3.3.3 of 2BR.
Regulation (EU) 2017/1369 of the European Parliament and of the Council of 4 July 2017 setting a framework for energy labelling and repealing Directive 2010/30/EU	Yes	Energy	CO2, CH4, N2O	Help consumers to identify energy-saving products.	Regulatory	Implemented	This Regulation lays down a framework on the indication by labelling and standard product information of the consumption of energy and other resources by energy-related products during use and supplementary information concerning energy-related products in order to allow customers to choose more efficient products	2017	CION/MS	NE	NE	NE	NE	NE	(impact not estimated) See section 3.3.3 of the EU's 2nd biennial report and section 4.3.1.3 of the 4BR
Regulation (EU) No 518/2014 of 5 March 2014 with regard to labelling of energy-related products on the internet	No	Energy	CO2, CH4, N2O	Help consumers to identify energy-saving products.	Regulatory	Implemented	The Regulation obligates suppliers to provide dealers with sufficient labelling information so they can display it on their website	2014	CION/MS/industry	NE	NE	NE	NE	NE	For more information on ecodesign requirements see 4.3.1.3 of the EU's 3BR and section 3.3.3 of 2BR.
Green Public Procurement	No	Energy	CO2, CH4, N2O	Increase the share of efficient and environmentally friendly technologies, products, services in the public sector	Voluntary Agreement	Implemented	Increase the share of efficient and environmentally friendly technologies, products, services in the public sector	2004	MS	35,000	NE	NE	NE	NE	Estimated impact range: 25000-45000kt (2010) Source: Second ECCP Progress Report (EU 15 only). See section 3.3.3 of the EU's 2nd biennial report .
Energy Star Programme	No	Energy	CO2, CH4, N2O	Promotion of less energy consuming office appliances	Voluntary Agreement	Implemented	The label shall help consumers to identify low energy consumption products.	2006	MS	NE	NE	NE	NE	NE	(impact not estimated) See section 3.3.3 of the EU's 2nd biennial report .
EU Project Development Assistance (PDA) Facilities	No	Energy	CO2, CH4, N2O	Support of energy efficiency investment projects	Economic	Implemented	It provides the grant support for project promoters to develop and launch their energy efficiency investment projects and programmes.	2014	CION/industry	NE	NE	NE	NE	NE	(impact not estimated) See section 3.3.4 of the EU's 2nd biennial report .
European Energy Efficiency Fund (EEEF)	No	Energy	CO2, CH4, N2O	Support private public partnership investments in energy efficiency, renewable energy and GHG emission reductions.	Economic	Implemented	It is stocked with 265 million EUR for supporting private public partnerships investing in energy efficiency, renewable energy and GHG emission reductions.	2014	CION/industry	NE	NE	NE	NE	NE	(impact not estimated) See section 3.3.4 of the EU's 2nd biennial report .

Motor Challenge Programme	No	Energy	CO2, CH4, N2O	Improve the energy efficiency of their electric Motor Driven Systems	Voluntary Agreement	Implemented	Companies receive aid, advice and technical assistance to undertake specific measures to reduce energy consumption.	2003	Industry	NE	NE	NE	NE	NE	(impact not estimated) See section 3.3.4 of the EU's 2nd biennial report .
Strategic Energy Technology Plan COM(2009) 519 final	No	Energy	CO2, CH4, N2O	Support introduction of low carbon technologies	Information	Implemented	The plan comprises measures relating to planning, implementation, resources and international cooperation in the field of energy technology	2009	CION	NE	NE	NE	NE	NE	(impact not estimated) See section 3.3.4 of the EU's 2nd biennial report .
New integrated Covenant of Mayors for climate and energy	No	Energy	CO2, CH4, N2O	Support local authorities to deploy sustainable energy policies and cut GHG emissions.	Voluntary Agreement	Implemented	In order to translate their political commitment into specific measures and projects, Covenant signatories undertake to prepare and submit a Sustainable Energy Action Plan (SEAP). In 2015, the covenant was extended to the 2030 horizon and adaptation and the international dimension were included.	2008	Local governments	NE	NE	190,000	NE	NE	Impact compared to base year 1990. Source: "The Covenant of Mayors in Figures - 6 year Assessment" by JRC (2014). See section 4.2.3.7 of the EU's 4BR.
Accelerating Clean Energy Innovation (COM 2016) 63)	No	Energy	CO2, CH4, N2O	Research and Innovation part of the Clean Energy for All European package. It recognizes the central role played by innovation in the energy transition and the importance of a regulatory framework that is conducive to it..	Information	Adopted	This Communication details a set of 20 different actions to boost research and innovation in clean energy solutions and to bring results to the market quickly and successfully.	2016	CION	NE	NE	NE	NE	NE	The communication is part of the enabling framework for the 2030 Climate and Energy targets (COM(2014) 15 final). It is in line with EU's domestic and international climate and energy objectives.
CO2 from cars (Regulation 443/2009) (and Regulation (EU) 397/2013 of 30 April 2013 amending it. Also amended by Regulation (EU) 333/2014 on modalities for reaching the 2021 target for cars and Regulation (EU) 2019/631	Yes	Transport	CO2	130 grams of CO2 per kilometre (g/km) by 2015 and 95g/km by 2020.	Regulatory	Implemented	The Regulation is setting emission performance standards for new passenger cars as part of the Community's integrated approach to reduce CO2 emissions from light- duty vehicles	2009	MS	NE	NE	NE	NE	NE	The targets agreed under the new regulation (2019/631) will contribute to a 24% reduction of greenhouse gas emissions from road transport in 2030 compared to 2005. See section 4.3.2 of the EU's 4BR. The 2019 ammendment is not included in the GHG projection scenario, only the earlier regulation.
CO2 from vans (Regulation 510/2011) as amended by Regulation 253/2014 and Regulation (EU) 2019/631	Yes	Transport	CO2	175 grams of CO2 per kilometre (g/km) by 2017 and 147g/km by 2020.	Regulatory	Implemented	The Regulation is similar to the one for new cars and sets CO2 emission targets for new vans sold on the EU market.	2011	MS	NE	NE	NE	NE	NE	The targets agreed under the new regulation (2019/631) will contribute to a 24% reduction of greenhouse gas emissions from road transport in 2030 compared to 2005. See section 4.3.2 of the EU's 4BR. The 2019 ammendment is not included in the GHG projection scenario, only the earlier regulation.

Regulation (EU) 2019/1242 of the European Parliament and of the Council of 20 June 2019 setting CO2 emission performance standards for new heavy-duty vehicles and amending Regulations (EC) No 595/2009 and (EU) 2018/956 of the European Parliament and of the Council and Council Directive 96/53/EC	No	Transport	CO2	Curb Heavy Duty Vehicles' CO2 emissions in a cost-efficient and proportionate way	Regulatory	Adopted	This Regulation, together with Regulation (EU) 2019/631 of the European Parliament and of the Council, provides a clear pathway for CO2 emissions reductions from the road transport sector and contributes to the binding target of at least a 40 % domestic reduction in economy-wide greenhouse gas emissions by 2030 compared to 1990	2021	MS	NE	NE	NE	NE	NE	The targets agreed under the new regulation (2019/1242) will contribute to a 24% reduction of greenhouse gas emissions from road transport in 2030 compared to 2005. See section 4.3.2.3 of the EU's 4BR
Directive 1999/94/EC on Car Labelling	No	Transport	CO2	Raise consumer awareness on fuel use and CO2 emissions of new passenger cars	Regulatory	Implemented	The Directive requires that information relating to the fuel economy and CO2 emissions of new passenger cars is consistently made available to consumers.	2000	MS, industry	NE	NE	NE	NE	NE	(impact not estimated). See section 4.3.2.2 of the EU's 3rd biennial report .
Directive 2009/28/EC on the promotion of the use of energy from renewable sources (Transport sector)	Yes	Transport	CO2	By 2020, the share of renewable energy shall amount to 10 % of fuels consumed in the transport sector	Regulatory	Implemented	The Directive sets a number of sustainability criteria that must be met for biofuels and bioliquids to count towards the target, including a minimum threshold of GHG savings for biofuels	2010	MS	NE	NE	NE	NE	NE	(impact not estimated for transport sector). See section 3.4.2 of the EU's 2nd biennial report and section 4.3.2 of the 3BR. A revision has been proposed to ensure that the target of at least 27% renewables in the final energy consumption in the EU by 2030 is met .
Directive 2009/30/EC on the specification of petrol, diesel and gas-oil and introducing a mechanism to monitor and reduce greenhouse gas emissions, including amendment on indirect land use changes	Yes	Transport	CO2	Reduce the greenhouse gas intensity of fuels used in road transport by 6% in 2020 and reduce GHG emissions from indirect land-use change	Regulatory	Implemented	The reduction shall be obtained through the use of biofuels, alternative fuels or reductions in flaring and venting. The Directive applies to all petrol, diesel and biofuels used in road transport, as well as to gas oil used in non-road-mobile machinery. The EU agreed in April 2015 to amend both the Fuel Quality Directive and the transport-related section of the Renewable Energy Directive in order to limit negative effects of indirect land use changes (ILUC)	2009	MS	NE	NE	48,000	NE	NE	SWD(2012) 343 final. This figure only includes emission reductions in the transport sector. See section 3.4.2 of the EU's 2nd biennial report and section 4.3.2.3 of the 3BR.

General Safety Regulation (EC) 661/2009 and Tyre Labelling and Minimum Rolling Resistance (EC) 1222/2009	No	Transport	CO2	Enhance safety of motor vehicles, increase fuel efficiency of motor vehicles and tyres, reduce noise emissions of tyres.	Regulatory	Implemented	The regulation integrates environmental and safety requirements for type approval of vehicles and tyres. It applies to vehicles of passenger transport (category M), transportation of goods (category N) and trailers (category O).	2009	Industry	NE	NE	2,750	NE	NE	Estimated impact range: 1500-5000 kt, Source: SEC(2008)2860. On 17th May 2018 the EC put forward a proposal (COM(2018) 296 final) to repeal and replaces Regulation (EC) No 1222/2009 on the labelling of tyres with respect to fuel efficiency and other essential parameters (the Tyre Labelling Regulation, TLR), and incorporates amendments previously agreed on wet grip and measurement of rolling resistance. The proposals, if adopted are estimate todelivery 10 Mt annual CO2-eq savings by 2030. See section 4.3.2.3 of the EU's 4BR.
Infrastructure charging for heavy goods vehicles (1999/62//EC, amended by 2006/38/EC and 2011/76/EU)	No	Transport	CO2	Better functioning of the internal market and reduction of congestion, noise and air pollution	Regulatory	Implemented	The Directive stipulates rules how and to what extent the cost of constructing, operating and developing infrastructure can be borne (through tolls and vignettes) by road users.	1999	MS	NE	NE	NE	NE	NE	Estimated impact according to the evaluation study: a decrease of 1.7% in CO2 emissions from the road sector in the EU relative to the baseline. Source: SWD(2016) 244. See section 3.4.3 of the EU's 2nd biennial report . A new regulation has been proposed to simplify the terms of the existing legislation, include other vehicle types and ensure the road charges reflect CO2 emissions also. Source: COM(2017)0275 final
Directive 2014/94/EU on Deployment of Alternative Fuels Infrastructure	No	Transport	CO2	Reduce CO2 emissions through shift of fuel type	Regulatory	Implemented	The Directive requires Member States to adopt national policy frameworks for the market development of alternative fuels and their infrastructure, and sets binding targets for the build-up of alternative fuel infrastructure.	2014	MS	NE	NE	2,850	NE	78,500	Estimated range 2020: 2500 to 3200 relative to baseline 2030: 76000 to 81000 relative to baseline SWD (2013) 5 final. An action plan adopted as part of the Clean Mobility package. See section 4.3.2.1 of the EU's 4BR.
Directive (EU) 2019/1161 of the European Parliament and of the Council of 20 June 2019 amending Directive 2009/33/EC on the promotion of clean and energy-efficient road transport vehicles	No	Transport	CO2	Reduce CO2 emissions through procurement of green vehicles	Regulatory	implemented	The Directive requires that energy and environmental impacts linked to the operation of vehicles over their whole lifetime, including CO2 emissions, are taken into account in public procurement decisions.	2010	MS	NE	NE	NE	NE	NE	See section 3.4.4 of the EU's 2nd biennial report. Estimated impact: 54 to 676 thousand tonnes of CO2 avoided annually. Source: Ricardo Energy and Environment. 2015. Ex-post Evaluation of Directive 2009/33/EC on the promotion of clean and energy efficient road transport vehicles. Study contract no. MOVE/A3/119-2013 Lot No 5. An update of the Clean Vehicles Directive was included in the Clean Mobility Package. An impact assessment of the revised directive when it was proposed found CO2 emissions reductions in 2030 of the preferred option presented to be 15% (around 1,800kt CO2-eq). See Section 4.3.2.6 of the EU's 4BR and previous BRs.
White Paper: Roadmap to a Single European Transport Area COM(2011) 144 final	No	Transport	CO2	Create a competitive and efficient internal EU transport system, cut transport emissions by 60% by 2050.	Information	Adopted	The 2011 White Paper, which forms an integral part of the "Resource Efficiency" initiative of the Commission, defines a long-term strategy to achieve a competitive and resource efficient transport system.	2011	CION	NE	NE	84,215	NE	175,320	SEC(2011) 358 final. See section 3.4 of the EU's 2nd biennial report and section 4.3.6 of the 3BR. Estimated impact range - 2020: 60725 to 1077,05 kt CO2-eq relative to the baseline 2030: 118200 to 232440 kt CO2-eq relative to the baseline

Integrating maritime transport emissions in the EU's greenhouse gas reduction policies (COM(2013) 479 final and Regulation (EU) 2015/757)	No	Transport	CO2	Include GHG emissions from maritime transport in the EU's emission reduction policy.	Regulatory	Adopted	The Strategy for maritime transport proposes an MRV system, reduction targets and further measures, including market-based instruments. The Regulation establishes an EU-wide MRV system for large ships.	2013	CION	NE	NE	NE	NE	4,400	SWD(2013) 237 final/2. See section 3.4.4 of the EU's 2nd Biennial Report.
F-Gas Regulation (EU) No 517/2014	Yes	Industry/industrial processes	HFCs, PFCs, SF6	Reduce consumption and use of F- gases	Regulatory	Implemented	The Regulation prescribes a cap and subsequent reduction of HFCs that can be placed on the EU market ("phase-down"). It also includes a number of bans.	2015	CION, MS	NE	NE	NE	NE	72,000	SWD(2012) 363. See section 4.3.3 of EU's 4BR
European Directive on mobile air-conditioning systems (MACs) (2006/40/EC)	Yes	Industry/industrial Processes	HFCs	Reduce use and consumption of F-gases	Regulatory	Implemented	The Directive lays down the requirements for the EC type approval or national type-approval of vehicles as regards emissions from, and the safe functioning of, air-conditioning systems.	2006	CION, MS, industry	NE	3,000	13,000	NE	NE	COM (2011) 581 final. See section 4.3.3 of the EU's 4BR and previous BRs.
Industrial Emissions Directive (2010/75/EU)	Yes	Industry/industrial processes	CO2, CH4, N2O, HFCs, PFCs, SF6, NF3	Reduction of harmful industrial emissions across the EU	Regulatory	Implemented	The Directive is a recast of existing legislation aiming at achieving benefits to the environment and human health by reducing polluting emissions as well as waste from industrial and agricultural installations in particular through Best Available Techniques (BAT).	2011	CION, MS	NE	NE	NE	NE	NE	(impact not estimated). See section 4.3.3 of the EU's 4BR and previous BRs.
Regulation (EU) No 1305/2013 on support for rural development by the European Agricultural Fund for Rural Development	No	Agriculture	CO2, CH4, N2O	Ensure sustainable agriculture	Regulatory, Economic, Information	Implemented	The Regulation foresees that Member States draw up and co-finance multiannual rural development programmes. These programmes have to meet the three strategic objectives for 2014 – 2020, including sustainability and climate action.	2014	CION/MS	NE	NE	NE	NE	NE	(impact not estimated). See section 3.6.1 of the EU's 2nd Biennial Report.
Cross Compliance Regulation (Regulation (EU) No 1306/2013)	No	Agriculture	CO2, CH4, N2O	This regulation lays down the financing, managing and monitoring rules for the EU agricultural policy,	Regulatory	Implemented	This regulation lays down the financing, managing and monitoring rules for the EU agricultural policy,	2013	CION/MS	NE	NE	NE	NE	NE	

Direct Payments Regulation (Regulation (EU) No 1307/2013)	No	Agriculture	CO2, CH4, N2O	It sets out the rules for direct payments made to support farmers under the EU's common agricultural policy (CAP).	Regulatory	Implemented	It sets out the rules for direct payments made to support farmers under the EU's common agricultural policy (CAP). These payments are made on the condition that farmers meet strict rules on the health and welfare of people and animals, plant health and the environment — known as cross-compliance.	2013	CION/MS	NE	NE	NE	NE	NE	
Action Plan for the future of Organic Production (COM(2014) 179 final), Regulation (EU) 2018/848 on Organic Production and labelling of organic products (COM(2014) 180 final)	No	Agriculture	CO2, CH4, N2O	Support growth in the organic production sector	Regulatory	Adopted	The Action Plan defines the strategy for organic production, controls and trade for the forthcoming period, by laying down 18 concrete actions, considering EU instruments, consumer awareness, research, monitoring, certification and trade with third countries. The proposal for a Regulation lays down principles for organic production and rules for production, labelling, certification and trading.	2015	CION/MS	NE	NE	NE	NE	NE	(impact not estimated). See section 3.6.2 of the EU's 2nd Biennial Report. Start year of implementation is 2018 for the regulation.
Soil Thematic Strategy (COM(2006) 231)	No	Agriculture, Forestry/LULUCF	CO2	Protect soil as carbon pool	Information, Education, Research, Regulatory	Adopted	The Strategy tackles the full range of threats associated with soil degradation and creates a common framework for the protection of soil	2006	CION/MS	NE	NE	NE	NE	NE	(impact not estimated). See section 3.6.2 of the EU's 2nd Biennial Report.
Nitrates Directive (1991/676/EEC)	Yes	Agriculture	N2O	Prevent water pollution	Regulatory	Implemented	The Directive contains actions and measures to be elaborated by the Member States, such as monitoring of waters, identification of nitrates vulnerable zones (NZV), establishment of Codes of Good Agricultural Practices (CGAP) and implementation of actions plans.	1991	CION/MS	NE	NE	NE	NE	NE	(impact not estimated). See section 3.6.2 of the EU's 2nd Biennial Report.

LULUCF accounting (LULUCF Decision 529/2013/EU)	No	Forestry/LULUCF	CO2	Robust accounting of LULUCF activities across Europe	Regulatory	Implemented	Provides the basis for a formal inclusion of the LULUCF sector and ensures a harmonized legal framework allowing the collection of reliable data by robust accounting and reporting in a standardised way.	2013	CION	NE	NE	NE	NE	NE	(impact not estimated). See section 3.7.1 of the EU's 2nd Biennial Report.
Waste Framework Directive (2008/98/EC) as amended by Directive (EU) 2018/851 which was adopted in May 2018	No	Waste management/waste , Energy, Industry/industrial Processes	CH4, CO2	Promote prevention and recycling of waste	Regulatory	Implemented	The Directive is a legal framework for the management of waste to cope with the challenge of decoupling economic growth from waste generation and promoting strict hierarchy of intervention for waste prevention and management. It has been amended in 2006 and 2008.	2008	CION/MS	NE	NE	NE	NE	NE	Assessment of the impacts of the revised waste package (incl. Directive (EU) 2018/851) found that compared to 2004 emissions, it has been estimated that between 146 and 244 Million tons of GHG emissions could be avoided by 2020 through reinforced application of the waste hierarchy representing between 19 and 31% of the 2020 EU target. See section 4.3.6 of the EU's 4BR.
Landfill Directive (1999/31/EC) as amended by Directive (EU) 2018/850 which was adopted in May 2018	Yes	Waste management/waste , Energy	CH4	Prevent or reduce as far as possible negative effects on the environment resulting from landfilling	Regulatory	Implemented	The Landfill Directive defines the different categories of waste (municipal waste, hazardous waste, non-hazardous waste and inert waste) and applies to all landfills, defined as waste disposal sites for the deposit of waste onto or into land.	1999	CION/MS	48,000	NE	44,000	NE	NE	2010 impact compared to 1995 levels, 2020 impact compared to 2008 levels (if all MS fully meet the targets: 62000kt in 2020), Source: EEA report. Assessment of the impacts of the revised waste package (incl Directive (EU) 2018/850) found that compared to 2004 emissions, it has been estimated that between 146 and 244 Million tons of GHG emissions could be avoided by 2020 through reinforced application of the waste hierarchy representing between 19 and 31% of the 2020 EU target. See section 4.3.6.3 of the EU's 4BR.
EU policies targeting waste streams	No	Waste management/waste , energy	CO2, CH4	Conservation of resources	Regulatory	Implemented	These policy group targets different waste streams to promote recycling, re-use and waste recovery.	1994	CION/MS	NE	NE	NE	NE	NE	(impact not estimated). See section 4.3.6.4 of the EU's 4BR
Management of biodegradable waste (COM/2008/0811 final) as amended by Directive (EU) 2018/851 which was adopted in May 2018	No	Waste management/waste , Energy	CO2, CH4	Make us of bio-waste as energy or material source	Regulatory	Adopted	The CION published a Green Paper on the Management of biodegradable waste to use the potential of bio-waste. Currently the MS follow different strategies to manage their bio-waste. A binding target is under discussion .	2008	CION/MS	NE	NE	NE	NE	NE	Reduction potential ranges between 1500 and 6000 kt CO2eq in 2020, depending on the target. Source: Feasibility assessment. See section 4.3.6.3 on revised Waste Framework Directive.
Urban Waste Water Treatment Directive (91/271/EEC)	No	Waste management/waste	N2O, CH4	Protect the environment from the adverse effects of urban & industrial waste water discharges	Regulatory	Implemented	The Directive concerns the collection, treatment and discharge of urban waste water and the treatment and discharge of waste water from certain	1991	CION/MS	NE	NE	NE	NE	NE	(impact not estimated). See section 3.8.5 of the EU's 2nd Biennial Report.

							industrial sectors.								
Commission Regulation (EU) 2016/2281 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for air heating products, cooling products and high temperature process chillers	Yes	Energy	CO2, CH4, N2O	Increase security of energy supply and abate emissions of greenhouse gases.	Regulatory	Implemented	The Regulation sets minimum standards for air heating products, cooling products and high temperature process chillers, with no requirement for Energy labelling	2016	CION/MS/ industry	0	100	2,700	6,200	8,700	See section 4.3.1.3 of the EU's 3rd Biennial Report. Impacts taken from SWD(2016) 422 The average of the 3 sub-options has been used to calculate the mitigation impact.
Commission Regulation (EU) 2015/1189 of 28 April 2015 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for solid fuel boilers	Yes	Energy	CO2, CH4, N2O	Reduce energy consumption	Regulatory	Implemented	The Regulation sets minimum standards for solid fuel boliers, including the requirement for Energy labelling (see Reg. (EU) 2015/1187)	2015	CION/MS/ industry	0	0	100	100	200	See section 4.3.1.3 of the EU's 3rd Biennial Report. Impacts taken from SWD(2015) 92 final. The average of these 4 sub-options has been used to calculate the mitigation impact
Commission Regulation (EU) 2015/1188 of 28 April 2015 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for local space heaters	Yes	Energy	CO2, CH4, N2O	Reduce energy consumption	Regulatory	Implemented	The Regulation sets minimum standards for local space heaters, including the requirement for Energy labelling (see Reg. (EU) 2015/1186)	2015	CION/MS/ industry	0	900	4,500	6,300	5,800	See section 4.3.1.3 of the EU's 3rd Biennial Report. Impacts taken from SWD(2015) 90 final. The average of these 5 sub options has been used to calculate the mitigation impact
Commission Regulation (EU) 2015/1095 of 5 May 2015 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for professional refrigerated storage cabinets, blast cabinets, condensing units and process chillers	Yes	Energy	CO2, CH4, N2O	Reduce energy consumption	Regulatory	Implemented	The Regulation sets minimum standards for professional refrigerated storage cabinets, blast cabinets, condensing units and process chillers including the requirement for Energy labelling (see Reg. (EU) 2015/1094)	2015	CION/MS/ industry	NE	NE	NE	NE	NE	See section 4.3.1.3 of the EU's 3rd Biennial Report. See SWD(2015) 97 final for details of impact. Impact is expressed as Total Equivalent Warming Impact, with a saving of 3,900 kt The estimate is based on the prefered sub-option (Option G)
Voluntary Industry Agreement to improve the energy consumption of games consoles within the EU (version 1.0)	No	Energy	CO2, CH4, N2O	Reduce energy consumption	Voluntary Agreement	Implemented	Voluntary agreement on energy consumption targets for games consoles with no requirement for energy labelling.	2015	CION/MS/ industry	NE	NE	408	449	NE	See section 4.3.1.3 of the EU's 3rd Biennial Report. Impacts taken from SWD(2015) 88. Estimate is based on the prefered sub-option (Option 2)
Regulation (EU) 2018/841 of the European Parliament and of the Council of 30 May 2018 on the inclusion of greenhouse gas emissions and removals from land use, land use change and forestry in the 2030 climate and energy framework, and amending Regulation (EU) No 525/2013 and Decision No 529/2013/EU	No	Forestry/LULUCF	CO2	Ensure that greenhouse gas emissions from land use, land use change or forestry are offset by at least an equivalent removal of CO_2 from the atmosphere in the period 2021 to 2030.	Regulatory	Adopted	The Regulation sets a binding commitment for each Member State to ensure that accounted emissions from land use are entirely compensated by an equivalent removal of CO_2 from the atmosphere through action in the sector. This is	2021	MS need to ensure that accounted emissions from land use are entirely compensated by an equivalent removal of CO_2 from the atmosphere through action in the sector	NE	NE	NE	NE	NE	See OJEU (19.6.2018) for details on the regulation. Further details are also provided in Section 4.3.5 of the EU's 4BR.

							known as the "no debit" rule.								
Directive (EU) 2019/944 of the European Parliament and of the Council on common rules for the internal market in electricity (recast) Regulation (EU) 2019/943 of the European Parliament and of the Council on the electricity market (recast) Regulation (EU) 2019/942 of the European Parliament and of the Council establishing a European Union Agency for the Cooperation of Energy Regulators (recast) Regulation (EU) 2019/941 of the European Parliament and of the Council on risk preparedness in the electricity sector	No	Energy	CO2, CH4, N2O	Develop secure and competitive energy supplies and building on the EU's 2030 climate commitments reconfirmed in Paris last year	Regulatory	Adopted	Regarding the need to adapt the market design to the increasing share of variable decentralised generation and technological developments. The proposal explores various options for increasing the uptake of demand response on the basis of smart meter roll-out and uptake of dynamic price contracts		CION/MS/ industry	NA	NA	NE	NE	NE	See SWD(2016) 410 final for details. (impact not estimated). See section 4.3.1.3 of the EU's 3rd Biennial Report.
EU heating and cooling strategy	No	Energy	CO2, CH4, N2O, HFCs	Reduce energy consumption in buildings and industry	Information	Adopted	A strategy working to decarbonise buildings, and improve energy efficiency in industry. The strategy groups a series of existing policies and measures.	2016	CION/EU/MS	NA	NA	NE	NE	NE	(impact not estimated) SWD(2016) 24 final. See section 4.3.1.2 of the EU's 4th Biennial Report.
European Strategy for Low-Emission Mobility	No	Transport	CO2, CH4, N2O	Reduce GHG emissions associated with transport	Information	Adopted	A strategy to deliver low emission mobility, based on an action plan for low emission mobility based around the following themes: Optimising the transport system and improving its efficiency; Scaling up the use of low-emission alternative energy sources; Moving towards zero-emission vehicles; Horizontal enablers to support low emissions mobility	2016	CION	NA	NA	NE	NE	82,600	(impact not estimated) SWD(2016) 244 final. Estimated range for 2030: 59100 to 106100 kt CO2 relative to the baseline. See section 4.3.2 of EU's 4BR
EU action plan for the Circular Economy	No	Energy, Waste management/waste	CO2, N2O, CH4	Reduce GHG intensity of production of goods	Information	Adopted	Establishes a concrete and ambitious programme of action, with measures covering the whole cycle: from production and consumption to waste management and the market for secondary raw materials.	2015	CION/EU/MS	NA	NA	NE	NE	NE	See section 4.3.6.1 of the EU's 4BR for more information.

Communication on waste-to-energy processes and their role in the circular economy	No	Energy, Waste management/waste	CO2, N2O, CH4	Decarbonise electricity production	Information	Adopted	The main aim of this communication is to ensure that the recovery of energy from waste in the EU supports the objectives of the circular economy action plan and is firmly guided by the EU waste hierarchy. The communication also examines how the role of waste-to-energy processes can be optimised to play a part in meeting the objectives set out in the Energy Union Strategy and in the Paris Agreement.	2017	CION/EU/MS	NA	NA	NA	NA	NA	(impact not estimated) Source: COM(2017) 34 final. See section 4.3.6.1 of the EU's 3rd Biennial Report.
Regulation (2018/1999) on the Governance of the Energy Union and Climate Action, amending Regulations (EC) No 663/2009 and (EC) No 715/2009 of the European Parliament and of the Council, Directives 94/22/EC, 98/70/EC, 2009/31/EC, 2009/73/EC, 2010/31/EU, 2012/27/EU and 2013/30/EU of the European Parliament and of the Council, Council Directives 2009/119/EC and (EU) 2015/652 and repealing Regulation (EU) No 525/2013 of the European Parliament and of the Council	No	Energy	CO2, CH4, N2O	This Regulation sets out the necessary legislative foundation for reliable, inclusive, cost-efficient, transparent and predictable governance of the Energy Union and Climate Action (governance mechanism), which ensures the achievement of the 2030 and long-term objectives and targets of the Energy Union in line with the 2015 Paris Agreement	Regulatory	Adopted	The Energy Union should cover five dimensions: energy security; the internal energy market; energy efficiency; decarbonisation; and research, innovation and competitiveness.	2018	CION/EU/MS	NE	NE	NE	NE	NE	See section 4.3.1.1 of the 4BR
European Local Energy assistance (ELENA)	No	Energy	CO2	Supporting investments in energy efficiency and sustainable transport	Economic	Implemented	ELENA provides grants for technical assistance focused on the implementation of energy efficiency, distributed renewable energy and urban transport programmes.	2009	CION	NE	NE	NE	NE	NE	See section 4.3.2.1 of the 4BR
Regulation (EU) 2018/956 of the European Parliament and of the Council of 28 June 2018 on the monitoring and reporting of CO2 emissions from and fuel consumption of new heavy-duty vehicles	No	Transport	CO2	Information on a heavy-duty vehicle's performance in terms of CO2 emissions and fuel consumption should be made publicly available to enable all vehicle operators to take well-informed purchasing decisions and to ensure a high level of transparency.	Regulatory	Implemented	In order to acquire complete knowledge on the configuration of the heavy-duty vehicle fleet in the Union, its development over time and potential impact on CO2 emissions, it is appropriate that the competent authorities of the Member States monitor and report to the Commission data on the registration of all new heavy-duty vehicles and all new trailers,	2018	MS/Industry	NE	NE	NE	NE	NE	See section 4.3.2.3 of the 4BR

							including data on powertrains as well as the relevant bodywork.								
Commission Regulation (EU) 2017/1151 of 1 June 2017 supplementing Regulation (EC) No 715/2007 of the European Parliament and of the Council on type-approval of motor vehicles with respect to emissions from light passenger and commercial vehicles (Euro 5 and Euro 6) and on access to vehicle repair and maintenance information, amending Directive 2007/46/EC of the European Parliament and of the Council, Commission Regulation (EC) No 692/2008 and Commission Regulation (EU) No 1230/2012 and repealing Commission Regulation (EC) No 692/2008	Yes	Transport	CO2	Provide for a new regulatory test procedure by implementing the Worldwide harmonised Light-duty vehicles Test Procedures (WLTP) into Union legislation.	Regulatory	Implemented	The WLTP provides a full description of a vehicle test cycle for CO2 and regulated pollutant emissions under standardised ambient conditions. In order to adapt it to the EU type-approval system, it is necessary to complement it by further improving the transparency requirements for technical parameters that will allow independent parties to reproduce the type approval test results and by reducing testing flexibilities.	2017	CION/ Industry	NE	NE	NE	NE	NE	See section 4.3.2.3 of the 4BR
Directive (EU) 2015/2193 of the European Parliament and of the Council of 25 November 2015 on the limitation of emissions of certain pollutants into the air from medium combustion plants	Yes	Industry/industrial Processes	CO2, CH4, N2O, HFCs, PFCs, SF6, NF3	This Directive fills the regulatory gap at EU level between large combustion plants (> 50 MWth), covered by the Industrial Emissions Directive (IED) and smaller appliances (heaters and boilers <1 MWth) covered by the Ecodesign Directive.	Regulatory	Implemented	Directive (EU) 2015/2193 on the limitation of emissions of certain pollutants into the air from MCPs known as the Medium Combustion Plant Directive (MCPD)regulates pollutant emissions from the combustion of fuels in plants with a rated thermal input equal to or greater than 1 Megawatt thermal (MWth) and less than 50 MWth.	2015	CION, MS	NE	NE	NE	NE	NE	
Communication on A Clean Planet for All. A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy	No	Cross-cutting	CO2, CH4, N2O	To confirm Europe's commitment to lead in global climate action and to present a vision that can lead to achieving net-zero greenhouse gas emissions by 2050 through a socially-fair transition in a cost-efficient manner.	Information	Adopted	The Strategy therefore outlines a vision of the economic and societal transformations required, engaging all sectors of the economy and society, to achieve the transition to net-zero greenhouse gas emissions by 2050. It seeks to ensure that this transition is socially fair – not leaving any EU citizens or regions behind – and enhances the competitiveness of EU economy and industry on global markets, securing	2018	CION, MS	NE	NE	NE	NE	NE	See COM(2018) 773 final for more details. Also described in section 4.2.3.5 of the 4BR.

							high quality jobs and sustainable growth in Europe, while providing synergies with other environmental challenges, such as air quality or biodiversity loss. To do so, the Strategy looks into the portfolio of options available for Member States, business and citizens, as well as into how these can contribute to the modernisation of our economy and improve the quality of life of Europeans, protect the environment, and provide for jobs and growth.								
LIFE Programme. Regulation (EU) No 1293/2013.	Yes	Cross-cutting	CO2, CH4, N2O	The Climate Action sub-programme supports projects in the development of innovative ways to respond to the challenges of climate change in Europe	Regulatory	Adopted	The LIFE programme acts as a catalyst for changes in policy development and implementation by providing and disseminating solutions and best practices to achieve environmental and climate goals, and by promoting innovative environmental and climate change technologies.	2013	CION, MS	NE	NE	NE	NE	NE	See OJEU (20.12.2013) for details on the regulation. The programme is also described in section 4.2.3.4 of the 4BR.
Commission Recommendation (EU) 2017/948 of 31 May 2017 on the use of fuel consumption and CO2 emission values type-approved and measured in accordance with the World Harmonised Light Vehicles Test Procedure when making information available for consumers pursuant to Directive 1999/94/EC of the European Parliament and of the Council (notified under document C(2017) 3525)	Yes	Transport	CO2	Recommendation that CO2 emission values are type-approved and measured in accordance with the World Harmonised Light Vehicles Test Procedure	Regulatory	Adopted	Member States should ensure that the New European Test Cycle values recorded in the certificates of conformity of new registered cars are used for the purpose of communicating the official fuel consumption and official specific emissions of CO2 to consumers until 31 December 2018, after which date all new vehicles placed on the Union market are to be tested and type-approved in accordance with World Harmonised Light Vehicles Test Procedure (WLTP)	2017	CION, MS	NE	NE	NE	NE	NE	See OJEU (2.6.2017) for details on the recommendation. See also section 4.3.2.3 of the 4BR.

1. The responses provided in this column are mainly based on the European Commission's guidance of 15 June 2018 to Member States for reporting on GHG projections in 2019 under the Monitoring Mechanism Regulation which provided guidance on the coverage of key EU measures in the GHG

projections 2019. This guidance included a suggested cut-off date for EU measures of 31 December 2017 for “with measures” projections. For other EU measures, their inclusion depends on the Member States’ approach to projections; the inclusion of these EU measures in the "with (existing) measures" scenario or the "with additional measures" scenario is based on the implementation status of the corresponding national measures, which may in particular for Directives vary between Member States.

CTF Table 4: Report on progress

	Unit	Base Year	2011	2012	2013	2014	2015	2016	2017	Comment
Total (without LULUCF)[227]	kt CO_2 eq	5,718,654	4,915,228	4,761,679	4,696,506	4,603,595	4,434,461	4,468,478	4,451,350	Total GHG including domestic and international aviation, indirect CO_2, excluding LULUCF and NF_3
Contribution from LULUCF	kt CO_2 eq	NA	NA	NA	NA	NA	NA	NA	NA	Not applicable: Numbers for LULUCF are not reported because this sector is not included under the Convention target
Market-based mechanisms under the Convention [228][229]	Number of units / t CO_2 eq	NA	137,000,000	254,000,000	504,000,000	133,000,000	257,000,000	23,000,000	12,234,000	
Other market-based mechanisms	number of units / kt CO_2 eq	NA	NA	NA	NA	NA	NA	NA	NA	Not applicable: No "other" market-based mechanisms are in use.

1. This includes total GHG emissions for CO_2, CH_4, N_2O, HFCs, PFCs and SF_6, with the exception of NF_3, including domestic and international aviation, but excluding LULUCF.
2. Numbers for LULUCF are not included as this sector is not included under the Convention target of the EU
3. No "other" market-based mechanisms are in use

227 https://unfccc.int/documents/194921

228 Values for 2010 – 2015: European Environment Agency. Trends and projections in the EU ETS in 2016: The EU Emissions Trading System in numbers. 2016. http://www.eea.europa.eu/publications/trends-and-projections-EU-ETS-2016

229 Values for 2016 – 2017: European Environment Agency. Trends and projections in the EU ETS in 2018: The EU Emissions Trading System in numbers. 2018. https://www.eea.europa.eu/publications/trends-and-projections-in-the

CTF Table 5: Summary of key variables and assumptions used in the projections analysis

Key underlying assumptions	Unit	Historical						Projected			
		1990	1995	2000	2005	2010	2015	2020	2025	2030	2035
GDP growth rate[230][231]	%	NA	NA	NA	NA	NA	NA	1.21	1.55	1.61	1.38
Population	Thousands	NA	NA	NA	NA	NA	NA	510461.32	511500.26	517607.31	520141.15
International oil price[232]	USD/boe	NA	NA	NA	NA	NA	NA	70.58	83.76	93.06	95.36
International coal price	USD/boe	NA	NA	NA	NA	NA	NA	50.27	47.95	52.56	54.59
International gas price	USD/boe	NA	NA	NA	NA	NA	NA	16.88	19.79	23.21	23.85

EU-28 key parameters have been derived as weighted averages or sums of the values of projection key parameters as reported by Members States under the Monitoring Mechanism Regulation in 2015

230 GDP growth rate value for 2020 taken from the EU Reference Scenario 2016.

231 GDP growth rate value for 2025-2035 taken from parameters provided by MS.

232 Oil, coal and gas prices were reported by MS in EUR/GJ and have been converted to USD/BOE using historical exchange rates provided by the European Central Bank for EUR/USD and a standardised conversion factor between GJ and BOE. Historical exchange rates available here: http://sdw.ecb.europa.eu/quickview.do;jsessionid=66B448E9DCC8639C1A9F9D545C1C567D?SERIES_KEY=120.EXR.A.USD.EUR.SP00.A

CTF Table 6 (a): Information on updated greenhouse gas projections under a 'with measures' scenario

		GHG emissions and removals								With measures	
GHG emissions projections	Unit	Base Year	1990	1995	2000	2005	2010	2015	2017	2020	2030
Sector											
Energy	kt CO_2 eq	3,555,464.85	3,555,464.85	3,242,859.11	3,093,690.98	3,143,742.95	2,860,513.89	2,460,334.68	2,421,952.82	2,261,571.54	2,049,399.51
Transport	kt CO_2 eq	793,200.42	793,200.42	847,269.77	926,942.35	978,838.46	937,607.44	913,263.60	945,871.55	940,259.94	908,052.25
Industry/industrial processes	kt CO_2 eq	517,171.02	517,171.02	498,321.22	455,473.95	465,711.90	394,195.77	376,679.80	377,430.11	366,674.98	325,297.43
Agriculture	kt CO_2 eq	543,254.95	543,254.95	472,567.23	461,255.34	438,004.47	423,381.31	433,822.11	438,994.20	426,572.84	425,629.60
Forestry/LULUCF	kt CO_2 eq	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Waste management/waste	kt CO_2 eq	240,421.21	240,421.21	247,432.19	231,454.75	202,009.36	167,817.55	143,160.24	138,866.16	124,939.74	105,873.27
Other Sectors		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gases											
CO_2 emissions including net CO_2 from LULUCF	kt CO_2 eq	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CO_2 emissions excluding net CO_2 from LULUCF	kt CO_2 eq	4,537,611.61	4,537,611.61	4,301,378.60	4,295,228.76	4,436,416.83	4,071,751.85	3,654,479.87	3,672,354.65	3,529,113.23	3,314,281.01
CH_4 emissions including CH_4 from LULUCF	kt CO_2 eq	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CH_4 emissions excluding CH_4 from LULUCF	kt CO_2 eq	727,473.63	727,473.63	665,599.11	605,512.63	545,565.89	490,379.54	458,923.15	453,443.45	433,431.76	409,102.13
N_2O emissions including N_2O from LULUCF	kt CO_2 eq	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N_2O emissions excluding N_2O from LULUCF	kt CO_2 eq	381,576.82	381,576.82	344,629.62	303,542.71	283,748.02	238,299.63	234,971.85	239,114.64	231,511.49	230,896.73
HFCs	kt CO_2 eq	35,210.40	35,210.40	50,350.32	57,594.81	78,714.51	104,708.71	110,431.94	106,566.20	93,454.73	52,468.53
PFCs	kt CO_2 eq	25,707.04	25,707.04	17,024.78	11,766.58	7,043.80	3,736.66	3,443.76	3,178.87	3,480.04	3,329.05
SF_6	kt CO_2 eq	11,074.14	11,074.14	15,226.99	10,614.01	7,871.27	6,351.80	6,227.80	6,725.32	7,130.17	3,560.30
NF_3	kt CO_2 eq	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other gases		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total with LULUCF [f]	kt CO_2 eq	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total without LULUCF[233234]	kt CO_2 eq	5,718,653.64	5,718,653.64	5,394,209.42	5,284,259.51	5,359,360.33	4,915,228.19	4,468,478.36	4,481,383.13	4,275,313.17	3,988,798.62

Note: The EU's greenhouse gas projection is the result of an aggregation of Member States individual GHG projections.

233 Total GHG emissions (excl. LULUCF and indirect CO2 ; incl. international aviation)

234 Historical GHG emissions presented in this table do not include indirect CO_2. This is done for reasons of time series consistency with projected GHG emissions. The MMR does not require the reporting of indirect CO2 for EU Member State projections and the projections presented in this report do therefore not include indirect CO_2.

CTF Table 6 (c): Information on updated greenhouse gas projections under a 'with additional measures' scenario

		GHG emissions and removals								With additional measures	
GHG emissions projections	Unit	Base Year	1990	1995	2000	2005	2010	2015	2017	2020	2030
Sector											
Energy	kt CO_2 eq	3,555,464.85	3,555,464.85	3,242,859.11	3,093,690.98	3,143,742.95	2,860,513.89	2,460,334.68	2,421,952.82	2,233,920.67	1,862,446.91
Transport	kt CO_2 eq	793,200.42	793,200.42	847,269.77	926,942.35	978,838.46	937,607.44	913,263.60	945,871.55	918,389.47	805,343.36
Industry/industrial processes	kt CO_2 eq	517,171.02	517,171.02	498,321.22	455,473.95	465,711.90	394,195.77	376,679.80	377,430.11	364,666.74	317,666.72
Agriculture	kt CO_2 eq	543,254.95	543,254.95	472,567.23	461,255.34	438,004.47	423,381.31	433,822.11	438,994.20	423,215.01	408,261.14
Forestry/LULUCF	kt CO_2 eq	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Waste management/waste	kt CO_2 eq	240,421.21	240,421.21	247,432.19	231,454.75	202,009.36	167,817.55	143,160.24	138,866.16	123,405.82	97,555.44
Other Sectors											
Gases											
CO_2 emissions including net CO_2 from LULUCF	kt CO_2 eq	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CO_2 emissions excluding net CO_2 from LULUCF	kt CO_2 eq	4,537,611.61	4,537,611.61	4,301,378.60	4,295,228.76	4,436,416.83	4,071,751.85	3,654,479.87	3,672,354.65	3,479,210.39	3,019,439.43
CH_4 emissions including CH_4 from LULUCF	kt CO_2 eq	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CH_4 emissions excluding CH_4 from LULUCF	kt CO_2 eq	727,473.63	727,473.63	665,599.11	605,512.63	545,565.89	490,379.54	458,923.15	453,443.45	428,548.22	388,739.79
N_2O emissions including N_2O from LULUCF	kt CO_2 eq	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N_2O emissions excluding N_2O from LULUCF	kt CO_2 eq	381,576.82	381,576.82	344,629.62	303,542.71	283,748.02	238,299.63	234,971.85	239,114.64	230,657.27	222,249.57
HFCs	kt CO_2 eq	35,210.40	35,210.40	50,350.32	57,594.81	78,714.51	104,708.71	110,431.94	106,566.20	68,313.60	34,633.26
PFCs	kt CO_2 eq	25,707.04	25,707.04	17,024.78	11,766.58	7,043.80	3,736.66	3,443.76	3,178.87	2,951.63	2,793.83
SF_6	kt CO_2 eq	11,074.14	11,074.14	15,226.99	10,614.01	7,871.27	6,351.80	6,227.80	6,725.32	2,034.70	2,054.68
NF_3	kt CO_2 eq	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other gases											
Total with LULUCF [f]	kt CO_2 eq	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total without LULUCF[235][236]	kt CO_2 eq	5,718,653.64	5,718,653.64	5,394,209.42	5,284,259.51	5,359,360.33	4,915,228.19	4,468,478.36	4,481,383.13	4,218,000.31	3,662,238.74

Note: The EU's greenhouse gas projection is the result of an aggregation of Member States individual GHG projections.

235 Total GHG emissions (excl. LULUCF and indirect CO2 ; incl. international aviation)

236 Historical GHG emissions presented in this table do not include indirect CO_2. This is done for reasons of time series consistency with projected GHG emissions. The MMR does not require the reporting of indirect CO2 for EU Member State projections and the projections presented in this report do therefore not include indirect CO_2.

CTF Table 7: Provision of public financial support: summary information in 2017 and 2018

Allocation channels	*Year*									
	European euro - EUR					*USD*[b]				
	Core/ general[c, 1]	*Climate-specific*[d, 2]				*Core/ general*[c, 1]	*Climate-specific*[d, 2]			
		Mitigation	*Adaptation*	*Cross-cutting*[e]	*Other*[f]		*Mitigation*	*Adaptation*	*Cross-cutting*[e]	*Other*[f]
2017										
Total contributions through multilateral channels:					2,640,362,319.40					2,976,733,167.31
Multilateral climate change funds[g]										
Other multilateral climate change funds[h]										
Multilateral financial institutions, including regional development banks					2,640,362,319.40					2,976,733,167.31
Specialized United Nations bodies										
Total contributions through bilateral, regional and other channels		708,132,466.00	1,238,096,762.00	876,481,026.00			798,345,508.46	1,395,824,985.34	988,140,953.78	
Total		708,132,466.00	1,238,096,762.00	876,481,026.00	2,640,362,319.40		798,345,508.46	1,395,824,985.34	988,140,953.78	2,976,733,167.31
2018										
Total contributions through multilateral channels:					2,972,437,896.90					3,509,371,779.11
Multilateral climate change funds[g]										
Other multilateral climate change funds[h]										
Multilateral financial institutions, including regional development banks					2,972,437,896.90					3,509,371,779.11
Specialized United Nations bodies										
Total contributions through bilateral, regional and other channels		556,855,868.00	1,001,829,052.00	1,093,807,670.00			657,444,944.51	1,182,796,991.74	1,291,390,401.42	
Total		556,855,868.00	1,001,829,052.00	1,093,807,670.00	2,972,437,896.90		657,444,944.51	1,182,796,991.74	1,291,390,401.42	3,509,371,779.11

Note: Explanation of numerical footnotes is provided in the documentation

box after tables 7, 7(a) and 7(b).
Abbreviation: USD = United States dollars.

CTF Table 7(a): Provision of public financial support: contribution through multilateral channels in 2017 and 2018

	Total Amount							
	Core/general		Climate-specific					
Donor funding	Domestic Currency	USD	Domestic Currency	USD	Status	Funding source	Financial instrument	Type suppo
2017								
Total contributions through multilateral channels								
Multilateral climate change funds								
1. Global Environment Facility								
2. Least Developed Countries Fund								
3. Special Climate Change Fund								
4. Adaptation Fund								
5. Green Climate Fund								
6. UNFCCC Trust Fund for Supplementary Activities								
7. Other multilateral climate change funds								
Multilateral financial institutions, including regional development banks								
1. World Bank								
2. International Finance Corporation								
3. African Development Bank								
4. Asian Development Bank								
5. European Bank for Reconstruction and Development								
6. Inter-American Development Bank								
7. Other								
EIB			2,640,362,319.40	2,976,733,167.31	Committed	Other	Other	Other
Specialized United Nations bodies								
1. United Nations Development Programme								
2. United Nations Environment Programme								
3. Other								

Donor funding	Total Amount				Status	Funding source	Financial instrument	Type suppo
	Core/general		Climate-specific					
	Domestic Currency	USD	Domestic Currency	USD				
2018								
Total contributions through multilateral channels								
Multilateral climate change funds								
1. Global Environment Facility								
2. Least Developed Countries Fund								
3. Special Climate Change Fund								
4. Adaptation Fund								
5. Green Climate Fund								
6. UNFCCC Trust Fund for Supplementary Activities								
7. Other multilateral climate change funds								
Multilateral financial institutions, including regional development banks								
1. World Bank								
2. International Finance Corporation								
3. African Development Bank								
4. Asian Development Bank								
5. European Bank for Reconstruction and Development								
6. Inter-American Development Bank								
7. Other								
EIB			2,972,437,896.90	3,509,371,779.11	Committed	Other	Other	Other
Specialized United Nations bodies								
1. United Nations Development Programme								
2. United Nations Environment Programme								
3. Other								

CTF Table 7(b): Provision of public financial support: contribution through bilateral, regional and other channels in 2017 and 18

	Total Amount								
	Climate-specific								
Project/programme/activity	Domestic Currency	USD	Status	Funding source	Financial instrument	Type of support	Sector	Recipient country or region	Additional Information
2017									
Total contributions through bilateral, regional and other channels									
Addressing Climate Change in Afghanistan through sustainable energy and ecosystem management MA Part 1	32,000,000.00	36,076,662.91	Committed	ODA	Grant	Cross-cutting	Cross-cutting	Afghanistan / Asia (South & Central Asia)	Addressing Climate Change in Afghanistan through sustainable energy and ecosystem management MA Part 1
Strengthening continental interconnectivity through blending	28,000,000.00	31,567,080.05	Committed	ODA	Grant	Cross-cutting	Energy	Africa, regional / Africa	Strengthening continental interconnectivity through blending
Covenant of mayors in Sub-Saharan Africa. Phase III	25,000,000.00	28,184,892.90	Committed	ODA	Grant	Mitigation	Energy	Africa, regional / Africa	Covenant of mayors in Sub-Saharan Africa. Phase III
Delivering access to modern, affordable and sustainable energy (3)	10,000,000.00	11,273,957.16	Committed	ODA	Grant	Mitigation	Energy	Africa, regional / Africa	Delivering access to modern, affordable and sustainable energy (3)
PAGIRN - Appui à la mise en oeuvre du livre blanc CEEAC/CEMAC et du DSPER	1,400,000.00	1,578,354.00	Committed	ODA	Grant	Mitigation	Energy	Africa, regional / Africa	PAGIRN - Appui à la mise en oeuvre du livre blanc CEEAC/CEMAC et du DSPER
PAGIRN-Appui à la gestion intégrée des ressources en eau du bassin du lac Kivu et de la Ruzizi	800,000.00	901,916.57	Committed	ODA	Grant	Mitigation	Energy	Africa, regional / Africa	PAGIRN-Appui à la gestion intégrée des ressources en eau du bassin du lac Kivu et de la Ruzizi
Rural development programme	5,600,000.00	6,313,416.01	Committed	ODA	Grant	Cross-cutting	Agriculture	Albania / Europe	Rural development programme
Civil Society Facility and Media Albania-Action 2	2,000,000.00	2,254,791.43	Committed	ODA	Grant	Mitigation	Other	Albania / Europe	Civil Society Facility and Media Albania-Action 2
Programme d'appui au secteur de l'agriculture, y compris dans la gestion de l'eau, l'agro-industrie et la pollution agricole (PASA)	6,000,000.00	6,764,374.30	Committed	ODA	Grant	Adaptation	Agriculture	Algeria / Africa (North of Sahara)	Programme d'appui au secteur de l'agriculture, y compris dans la gestion de l'eau, l'agro-industrie et la pollution agricole (PASA)
Regional Environment / Climate Change programme in Latin America	40,000,000.00	45,095,828.64	Committed	ODA	Grant	Cross-cutting	Cross-cutting	America, regional / America	Regional Environment / Climate Change programme in Latin America
FRESAN - Fortalecimento da Resiliência e da Segurança Alimentar e Nutricional em Angola	65,000,000.00	73,280,721.53	Committed	ODA	Grant	Adaptation	Cross-cutting	Angola / Africa (South of Sahara)	FRESAN - Fortalecimento da Resiliência e da Segurança Alimentar e Nutricional em Angola

Asian Investment Facility (AIF) 2017	39,000,000.00	43,968,432.92	Committed	ODA	Grant	Mitigation	Cross-cutting	Asia, regional / Asia	Asian Investment Facility (AIF) 2017
Asian Investment Facility - MA part 2	20,000,000.00	22,547,914.32	Committed	ODA	Grant	Mitigation	Cross-cutting	Asia, regional / Asia	Asian Investment Facility - MA part 2
European Union for the Lenkaran Region of Azerbaijan (EU4Lenkaran)	5,400,000.00	6,087,936.87	Committed	ODA	Grant	Cross-cutting	Agriculture	Azerbaijan / Asia (South & Central Asia)	European Union for the Lenkaran Region of Azerbaijan (EU4Lenkaran)
Bangladesh Resilient Livelihoods Programme - MA part 2	671,264.00	756,780.16	Committed	ODA	Grant	Adaptation	Other	Bangladesh / Asia (South & Central Asia)	Bangladesh Resilient Livelihoods Programme - MA part 2
Supply of equipment for green energy and integrated waste management to support regional development in Belarus, Lot 1	500,670.00	564,453.21	Committed	ODA	Grant	Mitigation	Water and Sanitation	Belarus / Europe	Supply of equipment for green energy and integrated waste management to support regional development in Belarus, Lot 1
11th EDF Belize (CSP focal sector Health)	4,224,000.00	4,762,119.50	Committed	ODA	Grant	Adaptation	Other	Belize / America (North & Central America)	11th EDF Belize (CSP focal sector Health)
Programme d'Appui au Développement Durable du Secteur Agricole (PADDSA)	70,000,000.00	78,917,700.11	Committed	ODA	Grant	Adaptation	Agriculture	Benin / Africa (South of Sahara)	Programme d'Appui au Développement Durable du Secteur Agricole (PADDSA)
Promouvoir l'Economie verte au Bénin : investir pour l'énergie propre et durable (PREVER)	30,000,000.00	33,821,871.48	Committed	ODA	Grant	Mitigation	Energy	Benin / Africa (South of Sahara)	Promouvoir l'Economie verte au Bénin : investir pour l'énergie propre et durable (PREVER)
Integrated water and natural resource management	51,000,000.00	57,497,181.51	Committed	ODA	Grant	Adaptation	Water and Sanitation	Bolivia / America (South America)	Integrated water and natural resource management
Civil Society Facility and Media Bosnia and Herzegovina - Action 3	1,800,000.00	2,029,312.29	Committed	ODA	Grant	Cross-cutting	Other	Bosnia and Herzegovina / Europe	Civil Society Facility and Media Bosnia and Herzegovina - Action 3
EU support for transport sector development	8,000,000.00	9,019,165.73	Committed	ODA	Grant	Cross-cutting	Transport	Bosnia and Herzegovina / Europe	EU support for transport sector development
Projet de développement de la valeur ajoutée des filières agricoles (VAFA)	9,200,000.00	10,372,040.59	Committed	ODA	Grant	Adaptation	Industry	Burkina Faso / Africa (South of Sahara)	Projet de développement de la valeur ajoutée des filières agricoles (VAFA)
Appui à la résilience des populations burundaises	38,000,000.00	42,841,037.20	Committed	ODA	Grant	Mitigation	Other	Burundi / Africa (South of Sahara)	Appui à la résilience des populations burundaises
Contrat de réforme sectorielle – Développement Rural	38,400,000.00	43,291,995.49	Committed	ODA	Grant	Adaptation	Agriculture	Cameroon / Africa (South of Sahara)	Contrat de réforme sectorielle – Développement Rural
Programme de développement économique et social des villes secondaires exposées à des facteurs d'instabilité (PRODESV)	8,000,000.00	9,019,165.73	Committed	ODA	Grant	Adaptation	Cross-cutting	Cameroon / Africa (South of Sahara)	Programme de développement économique et social des villes secondaires exposées à des facteurs d'instabilité (PRODESV)
Programme d'appui à la Gouvernance des Infrastructures régionales et nationales en Afrique centrale (PAGIRN) - Cameroun	2,320,000.00	2,615,558.06	Committed	ODA	Grant	Mitigation	Transport	Cameroon / Africa (South of Sahara)	Programme d'appui à la Gouvernance des Infrastructures régionales et nationales en Afrique centrale (PAGIRN) - Cameroun
Programme dappui à la gouvernance des infrastructures régionales et nationales en Afrique centrale	680,000.00	766,629.09	Committed	ODA	Grant	Mitigation	Transport	Chad / Africa (South of Sahara)	Programme dappui à la gouvernance des infrastructures régionales et nationales en Afrique centrale

Support to Cuba's Energy Policy	18,000,000.00	20,293,122.89	Committed	ODA	Grant	Mitigation	Energy	Cuba / America (North & Central America)	Support to Cuba's Energy Policy
Programme d'appui à la gouvernance des infrastructures régionales et nationales en Afrique centrale. Volet République démocratique du Congo	2,000,000.00	2,254,791.43	Committed	ODA	Grant	Mitigation	Transport	Democratic Republic of the Congo / Africa (South of Sahara)	Programme d'appui à la gouvernance des infrastructures régionales et nationales en Afrique centrale. Volet République démocratique du Congo
Integrated pest management strategy to counter the threat of invasive fall armyworm to food security in eastern Africa (FAW-IPM)	5,800,000.00	6,538,895.15	Committed	ODA	Grant	Cross-cutting	Agriculture	Developing countries, unspecified / Unspecified	Integrated pest management strategy to counter the threat of invasive fall armyworm to food security in eastern Africa (FAW-IPM)
"Work Programme 2017-2019 of the ACP-EU Technical Centre for Agricultural and Rural Cooperation (CTA)"	2,800,000.00	3,156,708.00	Committed	ODA	Grant	Cross-cutting	Agriculture	Developing countries, unspecified / Unspecified	"Work Programme 2017-2019 of the ACP-EU Technical Centre for Agricultural and Rural Cooperation (CTA)"
Inclusive and sustainable value chains and food fortification	1,600,000.00	1,803,833.15	Committed	ODA	Grant	Cross-cutting	Agriculture	Developing countries, unspecified / Unspecified	Inclusive and sustainable value chains and food fortification
Replication and upscaling of GCCA climate actions, via Ecosystem-based Adaptation (EbA), at local level	5,244,000.00	5,912,063.13	Committed	ODA	Grant	Adaptation	Cross-cutting	Developing countries, unspecified / Unspecified	Replication and upscaling of GCCA climate actions, via Ecosystem-based Adaptation (EbA), at local level
Climate Change and Security	4,000,000.00	4,509,582.86	Committed	ODA	Grant	Adaptation	Cross-cutting	Developing countries, unspecified / Unspecified	Climate Change and Security
Environment and climate change mainstreaming for sustainable development	6,200,000.00	6,989,853.44	Committed	ODA	Grant	Cross-cutting	Cross-cutting	Developing countries, unspecified / Unspecified	Environment and climate change mainstreaming for sustainable development
Component I: "Poverty-Environment Action for Sustainable Development Goals"	3,520,000.00	3,968,432.92	Committed	ODA	Grant	Cross-cutting	Cross-cutting	Developing countries, unspecified / Unspecified	Component I: "Poverty-Environment Action for Sustainable Development Goals"
Support to the participation of developing countries in the UNFCCC process	3,450,000.00	3,889,515.22	Committed	ODA	Grant	Cross-cutting	Cross-cutting	Developing countries, unspecified / Unspecified	Support to the participation of developing countries in the UNFCCC process
Support to developing countries' alliances and dialogues on climate change	1,200,000.00	1,352,874.86	Committed	ODA	Grant	Cross-cutting	Cross-cutting	Developing countries, unspecified / Unspecified	Support to developing countries' alliances and dialogues on climate change
Clima South: Support for Climate Change Mitigation and Adaptation in the ENP South region	700,000.00	789,177.00	Committed	ODA	Grant	Cross-cutting	Cross-cutting	Developing countries, unspecified / Unspecified	Clima South: Support for Climate Change Mitigation and Adaptation in the ENP South region
Support Measures under GPGC environment and climate change 2017	334,532.00	377,149.94	Committed	ODA	Grant	Cross-cutting	Cross-cutting	Developing countries, unspecified / Unspecified	Support Measures under GPGC environment and climate change 2017
AAP 2017 contribution to the NIF SOUTH	100,520,000.00	113,325,817.36	Committed	ODA	Grant	Cross-cutting	Cross-cutting	Developing countries, unspecified / Unspecified	AAP 2017 contribution to the NIF SOUTH
2017 Contribution to the NIF (Neighbourhood Investment Facility)	52,800,000.00	59,526,493.80	Committed	ODA	Grant	Cross-cutting	Cross-cutting	Developing countries, unspecified /	2017 Contribution to the NIF (Neighbourhood Investment

for the EAST								Unspecified	Facility) for the EAST
Wild meat	18,000,000.00	20,293,122.89	Committed	ODA	Grant	Mitigation	Cross-cutting	Developing countries, unspecified / Unspecified	Wild meat
Law enforcement and fight against forest and wildlife crime	17,400,000.00	19,616,685.46	Committed	ODA	Grant	Mitigation	Cross-cutting	Developing countries, unspecified / Unspecified	Law enforcement and fight against forest and wildlife crime
Support to Nationally Determined Contributions (NDC) implementation	16,910,000.00	19,064,261.56	Committed	ODA	Grant	Mitigation	Cross-cutting	Developing countries, unspecified / Unspecified	Support to Nationally Determined Contributions (NDC) implementation
GLOBAL COMMITMENT - UNEP + IISD + OECD	3,232,000.00	3,643,742.95	Committed	ODA	Grant	Mitigation	Cross-cutting	Developing countries, unspecified / Unspecified	GLOBAL COMMITMENT - UNEP + IISD + OECD
Support to Montreal Protocol Trust Fund	134,790.00	151,961.67	Committed	ODA	Grant	Mitigation	Cross-cutting	Developing countries, unspecified / Unspecified	Support to Montreal Protocol Trust Fund
Annual fee for the International Transaction Log - UNFCCC	71,840.00	80,992.11	Committed	ODA	Grant	Mitigation	Cross-cutting	Developing countries, unspecified / Unspecified	Annual fee for the International Transaction Log - UNFCCC
Support to Vienna Convention	14,130.00	15,930.10	Committed	ODA	Grant	Mitigation	Cross-cutting	Developing countries, unspecified / Unspecified	Support to Vienna Convention
Urban Mobility Support Programme	3,000,000.00	3,382,187.15	Committed	ODA	Grant	Mitigation	Cross-cutting	Developing countries, unspecified / Unspecified	Urban Mobility Support Programme
Cleaner and Energy Saving Mediterranean Cities	867,000.00	977,452.09	Committed	ODA	Grant	Mitigation	Cross-cutting	Developing countries, unspecified / Unspecified	Cleaner and Energy Saving Mediterranean Cities
Energy security and Climate Action in the Southern Neighbourhood 2017-2018	5,320,000.00	5,997,745.21	Committed	ODA	Grant	Cross-cutting	Energy	Developing countries, unspecified / Unspecified	Energy security and Climate Action in the Southern Neighbourhood 2017-2018
Technical Assistance and Monitoring of Implementation of the Covenant of Mayors for Climate and Energy	900,000.00	1,014,656.14	Committed	ODA	Grant	Cross-cutting	Energy	Developing countries, unspecified / Unspecified	Technical Assistance and Monitoring of Implementation of the Covenant of Mayors for Climate and Energy
Support services for the Covenant of Mayors for Climate and Energy - Operation of the Covenant of Mayors Office (COMO) including the Global Covenant o	750,410.00	846,009.02	Committed	ODA	Grant	Cross-cutting	Energy	Developing countries, unspecified / Unspecified	Support services for the Covenant of Mayors for Climate and Energy - Operation of the Covenant of Mayors Office (COMO) including the Global Covenant o
Delivering access to modern, affordable and sustainable energy	43,000,000.00	48,478,015.78	Committed	ODA	Grant	Mitigation	Energy	Developing countries, unspecified / Unspecified	Delivering access to modern, affordable and sustainable energy
Sustainable Energy Support Measures	209,296.00	235,959.41	Committed	ODA	Grant	Mitigation	Energy	Developing countries, unspecified / Unspecified	Sustainable Energy Support Measures
Increased Access to Finance for Enterprises, in particular SMEs - AAP 2017	76,000,000.00	85,682,074.41	Committed	ODA	Grant	Cross-cutting	Industry	Developing countries, unspecified / Unspecified	Increased Access to Finance for Enterprises, in particular SMEs - AAP 2017

Pro-Resilience Action 2017 (PROACT)	137,500,000.00	155,016,910.94	Committed	ODA	Grant	Adaptation	Other	Developing countries, unspecified / Unspecified	Pro-Resilience Action 2017 (PROACT)
PRO-Resilience action 2017	2,500,000.00	2,818,489.29	Committed	ODA	Grant	Adaptation	Other	Developing countries, unspecified / Unspecified	PRO-Resilience action 2017
Up-Scaling Community Resilience through Ecosystem-based Disaster Risk Reduction (Eco-DRR)	11,590,000.00	13,066,516.35	Committed	ODA	Grant	Adaptation	Other	Developing countries, unspecified / Unspecified	Up-Scaling Community Resilience through Ecosystem-based Disaster Risk Reduction (Eco-DRR)
Mitigating CBRN Risks	28,087,190.00	31,665,377.68	Committed	ODA	Grant	Adaptation	Other	Developing countries, unspecified / Unspecified	Mitigating CBRN Risks
Countering Terrorism	18,000,000.00	20,293,122.89	Committed	ODA	Grant	Adaptation	Other	Developing countries, unspecified / Unspecified	Countering Terrorism
Fighting Organised Crime	10,250,000.00	11,555,806.09	Committed	ODA	Grant	Adaptation	Other	Developing countries, unspecified / Unspecified	Fighting Organised Crime
Protecting Critical Infrastructure	8,500,000.00	9,582,863.59	Committed	ODA	Grant	Adaptation	Other	Developing countries, unspecified / Unspecified	Protecting Critical Infrastructure
Annual Action Programme 2017 Instrument contributing to Stability and Peace - art 5	4,150,000.00	4,678,692.22	Committed	ODA	Grant	Adaptation	Other	Developing countries, unspecified / Unspecified	Annual Action Programme 2017 Instrument contributing to Stability and Peace - art 5
Support to business friendly and inclusive national and regional policies and strenghten productive capacities and value chains	13,880,000.00	15,648,252.54	Committed	ODA	Grant	Mitigation	Other	Developing countries, unspecified / Unspecified	Support to business friendly and inclusive national and regional policies and strenghten productive capacities and value chains
Promoting scalable and sustainable solutions to enhance Financial Inclusion in ACP Countries	10,000,000.00	11,273,957.16	Committed	ODA	Grant	Mitigation	Other	Developing countries, unspecified / Unspecified	Promoting scalable and sustainable solutions to enhance Financial Inclusion in ACP Countries
Support to the Regional Transport Action Plan (Maritime and Rail)	1,200,000.00	1,352,874.86	Committed	ODA	Grant	Cross-cutting	Transport	Developing countries, unspecified / Unspecified	Support to the Regional Transport Action Plan (Maritime and Rail)
Appui à la résilience des population rurales	27,000,000.00	30,439,684.33	Committed	ODA	Grant	Adaptation	Cross-cutting	Djibouti / Africa (South of Sahara)	Appui à la résilience des population rurales
Programme n° 2 d'investissements pour l'assainissement liquide et la gestion des déchets solides de la ville de Djibouti	23,000,000.00	25,930,101.47	Committed	ODA	Grant	Adaptation	Water and Sanitation	Djibouti / Africa (South of Sahara)	Programme n° 2 d'investissements pour l'assainissement liquide et la gestion des déchets solides de la ville de Djibouti
Production Eau Potable par dessalement et Énergie Renouvelable (PEPER) - composante	10,000,000.00	11,273,957.16	Committed	ODA	Grant	Adaptation	Water and Sanitation	Djibouti / Africa (South of Sahara)	Production Eau Potable par dessalement et Énergie Renouvelable (PEPER) - composante
Binational Cooperation in favour of Dominican-Haitian relations: Components "Dialogue" and "Environment, Climate Change and	10,300,000.00	11,612,175.87	Committed	ODA	Grant	Adaptation	Cross-cutting	Dominican Republic / America (North & Central America)	Binational Cooperation in favour of Dominican-Haitian relations: Components "Dialogue" and "Environment, Climate Change

Disaster Risk Reduction”									and Disaster Risk Reduction”
2 million top-up to Fostering Reforms in the Egyptian renewable Energy and Water Sectors through Cpacity Building	2,000,000.00	2,254,791.43	Committed	ODA	Grant	Mitigation	Energy	Egypt / Africa (North of Sahara)	2 million top-up to Fostering Reforms in the Egyptian renewable Energy and Water Sectors through Cpacity Building
Rural Energy Access for Communities and Households – REACH & Rehabilitation of Hirghigo Power Plant	29,560,000.00	33,325,817.36	Committed	ODA	Grant	Cross-cutting	Energy	Eritrea / Africa (South of Sahara)	Rural Energy Access for Communities and Households – REACH & Rehabilitation of Hirghigo Power Plant
HEARD (Health of Ethiopian Animals for Rural Development)	6,000,000.00	6,764,374.30	Committed	ODA	Grant	Cross-cutting	Agriculture	Ethiopia / Africa (South of Sahara)	HEARD (Health of Ethiopian Animals for Rural Development)
EU-Coffee Action for Ethiopia (EU-CAfE)	6,000,000.00	6,764,374.30	Committed	ODA	Grant	Mitigation	Agriculture	Ethiopia / Africa (South of Sahara)	EU-Coffee Action for Ethiopia (EU-CAfE)
Global Climate Change Alliance Plus: Mainstreaming Climate Smart Planning and Implementation Approaches into the Productive Safety Net Programme IV (P	9,000,000.00	10,146,561.44	Committed	ODA	Grant	Adaptation	Cross-cutting	Ethiopia / Africa (South of Sahara)	Global Climate Change Alliance Plus: Mainstreaming Climate Smart Planning and Implementation Approaches into the Productive Safety Net Programme IV (P
Climate Action regional programme - 2017 budget share	5,000,000.00	5,636,978.58	Committed	ODA	Grant	Cross-cutting	Cross-cutting	Europe, regional / Europe	Climate Action regional programme - 2017 budget share
EU4Environment regional programme - 2017 budget share	1,200,000.00	1,352,874.86	Committed	ODA	Grant	Cross-cutting	Cross-cutting	Europe, regional / Europe	EU4Environment regional programme - 2017 budget share
Multi-country Action Programme for 2017 - part CLIMA	2,000,000.00	2,254,791.43	Committed	ODA	Grant	Cross-cutting	Cross-cutting	Europe, regional / Europe	Multi-country Action Programme for 2017 - part CLIMA
DUMMY - Top-up of Covenant of Mayors Sustainable Urban Demonstration Projects - Support Mechanism. Phase II	2,000,000.00	2,254,791.43	Committed	ODA	Grant	Cross-cutting	Cross-cutting	Europe, regional / Europe	DUMMY - Top-up of Covenant of Mayors Sustainable Urban Demonstration Projects - Support Mechanism. Phase II
Multi-country Action Programme for 2017 - part ENV	1,000,000.00	1,127,395.72	Committed	ODA	Grant	Cross-cutting	Cross-cutting	Europe, regional / Europe	Multi-country Action Programme for 2017 - part ENV
Programme to combat deforestation in the context of climate change mitigation	6,000,000.00	6,764,374.30	Committed	ODA	Grant	Mitigation	Forestry	Europe, regional / Europe	Programme to combat deforestation in the context of climate change mitigation
EU-World Bank/GFDRR Western Balkans Disaster Risk Management Program	3,000,000.00	3,382,187.15	Committed	ODA	Grant	Adaptation	Other	Europe, regional / Europe	EU-World Bank/GFDRR Western Balkans Disaster Risk Management Program
IPA II Cross-Border Co-operation Action Programme Montenegro-Albania for the years 2015 - 2017 (2017 allocation)	476,000.00	536,640.36	Committed	ODA	Grant	Adaptation	Other	Europe, regional / Europe	IPA II Cross-Border Co-operation Action Programme Montenegro-Albania for the years 2015 - 2017 (2017 allocation)
Civil Society Facility and Media Multi-country-Action 1	8,400,000.00	9,470,124.01	Committed	ODA	Grant	Cross-cutting	Other	Europe, regional / Europe	Civil Society Facility and Media Multi-country-Action 1
IPA II Cross-Border Co-operation Action Programme biH-Montenegro for the years 2015 - 2017 (2017 allocation)	336,000.00	378,804.96	Committed	ODA	Grant	Cross-cutting	Other	Europe, regional / Europe	IPA II Cross-Border Co-operation Action Programme biH-Montenegro for the years 2015 - 2017 (2017 allocation)
Multi-country Action Programme for 2017 - part MOVE	400,000.00	450,958.29	Committed	ODA	Grant	Cross-cutting	Transport	Europe, regional / Europe	Multi-country Action Programme for 2017 - part MOVE

Integrated Programme in Enhancing the Capacity of AHA Centre and ASEAN Emergency Response Mechanisms (EU Support to AHA Centre)	4,000,000.00	4,509,582.86	Committed	ODA	Grant	Adaptation	Other	Far East Asia, regional / Asia (Far East Asia)	Integrated Programme in Enhancing the Capacity of AHA Centre and ASEAN Emergency Response Mechanisms (EU Support to AHA Centre)
Support to enhanced Cooperation in stustainable Transboundry water management in the lower Mekong Region	2,000,000.00	2,254,791.43	Committed	ODA	Grant	Adaptation	Water and Sanitation	Far East Asia, regional / Asia (Far East Asia)	Support to enhanced Cooperation in stustainable Transboundry water management in the lower Mekong Region
Rural development programme	2,400,000.00	2,705,749.72	Committed	ODA	Grant	Cross-cutting	Agriculture	Former Yugoslav Republic of Macedonia / Europe	Rural development programme
Support to participation in Union Programmes (UP)	7,293,780.00	8,222,976.32	Committed	ODA	Grant	Cross-cutting	Cross-cutting	Former Yugoslav Republic of Macedonia / Europe	Support to participation in Union Programmes (UP)
Rail Transport Infrastructure	1,515,840.00	1,708,951.52	Committed	ODA	Grant	Mitigation	Transport	Former Yugoslav Republic of Macedonia / Europe	Rail Transport Infrastructure
The Gambia - Agriculture for economic growth and food security/nutrition to mitigate migration programme	8,221,300.00	9,268,658.40	Committed	ODA	Grant	Adaptation	Agriculture	Gambia / Africa (South of Sahara)	The Gambia - Agriculture for economic growth and food security/nutrition to mitigate migration programme
GCCA+ Climate Resilient Coastal and Marine Zone Project for The Gambia	5,300,000.00	5,975,197.29	Committed	ODA	Grant	Adaptation	Cross-cutting	Gambia / Africa (South of Sahara)	GCCA+ Climate Resilient Coastal and Marine Zone Project for The Gambia
Contribution to the African Investment Facility in support of the Energy and Transport Infrastructures in The Gambia	8,800,000.00	9,921,082.30	Committed	ODA	Grant	Mitigation	Energy	Gambia / Africa (South of Sahara)	Contribution to the African Investment Facility in support of the Energy and Transport Infrastructures in The Gambia
Inclusive sustainable growth and job creation programme in The Gambia	9,200,000.00	10,372,040.59	Committed	ODA	Grant	Cross-cutting	Other	Gambia / Africa (South of Sahara)	Inclusive sustainable growth and job creation programme in The Gambia
Resilience against Climate Change (REACH)	20,000,000.00	22,547,914.32	Committed	ODA	Grant	Adaptation	Agriculture	Ghana / Africa (South of Sahara)	Resilience against Climate Change (REACH)
Productive investments for sustainable agriculture development in Northern savannah ecological zone of Ghana	102,000,000.00	114,994,363.02	Committed	ODA	Grant	Cross-cutting	Agriculture	Ghana / Africa (South of Sahara)	Productive investments for sustainable agriculture development in Northern savannah ecological zone of Ghana
Scaling up of solar and biogas mitigation actions under the Ghana Nationally Determined Contribution (NDC)	5,000,000.00	5,636,978.58	Committed	ODA	Grant	Mitigation	Energy	Ghana / Africa (South of Sahara)	Scaling up of solar and biogas mitigation actions under the Ghana Nationally Determined Contribution (NDC)
Programme d'Appui à la Réforme du Secteur de Sécurité en Guinée (PARSS 3)	6,800,000.00	7,666,290.87	Committed	ODA	Grant	Cross-cutting	Other	Guinea / Africa (South of Sahara)	Programme d'Appui à la Réforme du Secteur de Sécurité en Guinée (PARSS 3)
Programme de Developpement Urbain et Assainissement en Guinée (SANITA)	16,800,000.00	18,940,248.03	Committed	ODA	Grant	Mitigation	Water and Sanitation	Guinea / Africa (South of Sahara)	Programme de Developpement Urbain et Assainissement en Guinée (SANITA)
PRO-Resilience Haiti	10,000,000.00	11,273,957.16	Committed	ODA	Grant	Adaptation	Cross-cutting	Haiti / America (North & Central America)	PRO-Resilience Haiti

URBAYITI Governance et résilience urbaines	14,600,000.00	16,459,977.45	Committed	ODA	Grant	Cross-cutting	Cross-cutting	Haiti / America (North & Central America)	URBAYITI Governance et résilience urbaines
Programme d'action annuel 2017 en faveur de la région Caraïbes sur le 11ème FED	9,200,000.00	10,372,040.59	Committed	ODA	Grant	Adaptation	Industry	Haiti / America (North & Central America)	Programme d'action annuel 2017 en faveur de la région Caraïbes sur le 11ème FED
ECHO/-CR/EDF/2017/01000 - Responding to Hurricane Matthew	16,000,000.00	18,038,331.45	Committed	ODA	Grant	Adaptation	Other	Haiti / America (North & Central America)	ECHO/-CR/EDF/2017/01000 - Responding to Hurricane Matthew
Appui à la gouvernance du secteur des infrastructures et des services de transports en de surface à Haïti	7,200,000.00	8,117,249.15	Committed	ODA	Grant	Cross-cutting	Transport	Haiti / America (North & Central America)	Appui à la gouvernance du secteur des infrastructures et des services de transports en de surface à Haïti
EUROSAN	1,800,000.00	2,029,312.29	Committed	ODA	Grant	Adaptation	Agriculture	Honduras / America (North & Central America)	EUROSAN
EUROSAN BUDGET	1,400,000.00	1,578,354.00	Committed	ODA	Grant	Adaptation	Agriculture	Honduras / America (North & Central America)	EUROSAN BUDGET
Addressing Environmental and Climate Change challenges through Improved Forest Management in Jamaica	16,550,000.00	18,658,399.10	Committed	ODA	Grant	Adaptation	Forestry	Jamaica / America (North & Central America)	Addressing Environmental and Climate Change challenges through Improved Forest Management in Jamaica
Support to the implementation of the National Solid Waste Management Strategy	12,000,000.00	13,528,748.59	Committed	ODA	Grant	Mitigation	Water and Sanitation	Jordan / Asia (Middle East Asia)	Support to the implementation of the National Solid Waste Management Strategy
Ending Drought Emergencies: Support to Resilient Livelihoods and Drought Risk Management (AAP 2017)	30,500,000.00	34,385,569.33	Committed	ODA	Grant	Adaptation	Other	Kenya / Africa (South of Sahara)	Ending Drought Emergencies: Support to Resilient Livelihoods and Drought Risk Management (AAP 2017)
Ending Drought Emergency: Support to climate proofed rural roads in Arid and Semi Arid areas in Kenya	12,000,000.00	13,528,748.59	Committed	ODA	Grant	Adaptation	Transport	Kenya / Africa (South of Sahara)	Ending Drought Emergency: Support to climate proofed rural roads in Arid and Semi Arid areas in Kenya
11th EDF Technical Cooperation Facility - Kiribati	880,000.00	992,108.23	Committed	ODA	Grant	Adaptation	Other	Kiribati / Oceania	11th EDF Technical Cooperation Facility - Kiribati
Mashta Hammoud sewage pipe network and waste water treatment plant	760.00	856.82	Committed	ODA	Grant	Adaptation	Water and Sanitation	Lebanon / Asia (Middle East Asia)	Mashta Hammoud sewage pipe network and waste water treatment plant
Improving access to safe drinking water for Lebanese and Syrian refugees communities in Northern Lebanon	248.00	279.59	Committed	ODA	Grant	Adaptation	Water and Sanitation	Lebanon / Asia (Middle East Asia)	Improving access to safe drinking water for Lebanese and Syrian refugees communities in Northern Lebanon
Towards a Decentralised Waste management Integrated Response (TaDWIR)	8,400,000.00	9,470,124.01	Committed	ODA	Grant	Mitigation	Water and Sanitation	Lebanon / Asia (Middle East Asia)	Towards a Decentralised Waste management Integrated Response (TaDWIR)
Programme d'Appui au Financement Agricole et aux Filières Inclusives dans le Sud de Madagascar (AFAFI-Sud)	30,000,000.00	33,821,871.48	Committed	ODA	Grant	Adaptation	Agriculture	Madagascar / Africa (South of Sahara)	Programme d'Appui au Financement Agricole et aux Filières Inclusives dans le Sud de Madagascar (AFAFI-Sud)
Programme de Renforcement INstitutionnel vers le Développement de la Résilience Agricole (RINDRA)	16,000,000.00	18,038,331.45	Committed	ODA	Grant	Adaptation	Agriculture	Madagascar / Africa (South of Sahara)	Programme de Renforcement INstitutionnel vers le Développement de la Résilience

									Agricole (RINDRA)
Programme d'Appuis au Financement Agricole et aux Filières Inclusives dans le Nord de Madagascar (AFAFI-Nord)	20,000,000.00	22,547,914.32	Committed	ODA	Grant	Cross-cutting	Agriculture	Madagascar / Africa (South of Sahara)	Programme d'Appuis au Financement Agricole et aux Filières Inclusives dans le Nord de Madagascar (AFAFI-Nord)
KULIMA - Kutukula Ulimi m'Malawi (promoting farming in Malawi)	40,000,000.00	45,095,828.64	Committed	ODA	Grant	Adaptation	Agriculture	Malawi / Africa (South of Sahara)	KULIMA - Kutukula Ulimi m'Malawi (promoting farming in Malawi)
Increasing Resilience through Support to the Malawi National Social Support Programme	50,000,000.00	56,369,785.79	Committed	ODA	Grant	Adaptation	Other	Malawi / Africa (South of Sahara)	Increasing Resilience through Support to the Malawi National Social Support Programme
Global Climate Change Alliance + (GCCA+) Mauritania	7,500,000.00	8,455,467.87	Committed	ODA	Grant	Adaptation	Cross-cutting	Mauritania / Africa (South of Sahara)	Global Climate Change Alliance + (GCCA+) Mauritania
RIMDIR - Renforcement des Investissements en Mauritanie pour le Développement des Infrastructures et Services Ruraux	35,000,000.00	39,458,850.06	Committed	ODA	Grant	Adaptation	Cross-cutting	Mauritania / Africa (South of Sahara)	RIMDIR - Renforcement des Investissements en Mauritanie pour le Développement des Infrastructures et Services Ruraux
Water Supply and Sanitation and Solid Waste Management Investments in the Region of Cahul	4,400,000.00	4,960,541.15	Committed	ODA	Grant	Mitigation	Water and Sanitation	Moldova / Europe	Water Supply and Sanitation and Solid Waste Management Investments in the Region of Cahul
Rural development programme	2,400,000.00	2,705,749.72	Committed	ODA	Grant	Cross-cutting	Agriculture	Montenegro / Europe	Rural development programme
EU Support to Transport Development	3,856,900.00	4,348,252.54	Committed	ODA	Grant	Mitigation	Transport	Montenegro / Europe	EU Support to Transport Development
Programme additionnel au PAPFM	12,500,000.00	14,092,446.45	Committed	ODA	Grant	Cross-cutting	Forestry	Morocco / Africa (North of Sahara)	Programme additionnel au PAPFM
GCCA+ Building Local Climate Resilience in Mozambique	5,000,000.00	5,636,978.58	Committed	ODA	Grant	Adaptation	Cross-cutting	Mozambique / Africa (South of Sahara)	GCCA+ Building Local Climate Resilience in Mozambique
Mozambique Energy Project Preparation Facility	10,500,000.00	11,837,655.02	Committed	ODA	Grant	Mitigation	Energy	Mozambique / Africa (South of Sahara)	Mozambique Energy Project Preparation Facility
Support Programme to Non State Actors in Mozambique: participation for inclusive growth" (PAANE II)	8,800,000.00	9,921,082.30	Committed	ODA	Grant	Adaptation	Other	Mozambique / Africa (South of Sahara)	Support Programme to Non State Actors in Mozambique: participation for inclusive growth" (PAANE II)
EU Contribution to Agriculture and Rural Development (CARD) in Nepal.	16,000,000.00	18,038,331.45	Committed	ODA	Grant	Adaptation	Agriculture	Nepal / Asia (South & Central Asia)	EU Contribution to Agriculture and Rural Development (CARD) in Nepal.
Alianzas Estratégicas Locales para la Adaptación al Cambio Climático en la Cuenca Alta del Río Coco (ALLACC)	20,000,000.00	22,547,914.32	Committed	ODA	Grant	Adaptation	Water and Sanitation	Nicaragua / America (North & Central America)	Alianzas Estratégicas Locales para la Adaptación al Cambio Climático en la Cuenca Alta del Río Coco (ALLACC)
Contrat de réforme sectorielle Sécurité alimentaire et nutritionnelle et développement agricole durable » au Niger	16,000,000.00	18,038,331.45	Committed	ODA	Grant	Adaptation	Agriculture	Niger / Africa (South of Sahara)	Contrat de réforme sectorielle Sécurité alimentaire et nutritionnelle et développement agricole durable » au Niger
Contribution to the AfIF in support of the Energy Sector in Nigeria (2)	65,000,000.00	73,280,721.53	Committed	ODA	Grant	Mitigation	Energy	Nigeria / Africa (South of Sahara)	Contribution to the AfIF in support of the Energy Sector in Nigeria (2)

Contribution to the AfIF in support of the Energy Sector in Nigeria	33,000,000.00	37,204,058.62	Committed	ODA	Grant	Mitigation	Energy	Nigeria / Africa (South of Sahara)	Contribution to the AfIF in support of the Energy Sector in Nigeria
EU Support to Response, Recovery and Resilience in Borno State (3RBS)	49,200,000.00	55,467,869.22	Committed	ODA	Grant	Cross-cutting	Other	Nigeria / Africa (South of Sahara)	EU Support to Response, Recovery and Resilience in Borno State (3RBS)
Pacific-European Union Marine Partnership Programme (PEUMP)	35,000,000.00	39,458,850.06	Committed	ODA	Grant	Adaptation	Agriculture	Oceania, regional / Oceania	Pacific-European Union Marine Partnership Programme (PEUMP)
Global Climate Change Alliance Plus – Scaling-up Pacific Adaptation (GCCA+ SUPA)	15,000,000.00	16,910,935.74	Committed	ODA	Grant	Adaptation	Cross-cutting	Oceania, regional / Oceania	Global Climate Change Alliance Plus – Scaling-up Pacific Adaptation (GCCA+ SUPA)
Investment Facility for the Pacific	20,000,000.00	22,547,914.32	Committed	ODA	Grant	Adaptation	Other	Oceania, regional / Oceania	Investment Facility for the Pacific
11th EDF Pacific Technical Cooperation Facility/Strengthening of Regional Organizations	2,800,000.00	3,156,708.00	Committed	ODA	Grant	Cross-cutting	Other	Oceania, regional / Oceania	11th EDF Pacific Technical Cooperation Facility/Strengthening of Regional Organizations
Growth for Rural Advancement and Sustainable Progress (GRASP) in Pakistan	20,000,000.00	22,547,914.32	Committed	ODA	Grant	Cross-cutting	Cross-cutting	Pakistan / Asia (South & Central Asia)	Growth for Rural Advancement and Sustainable Progress (GRASP) in Pakistan
Programme for Improved Nutrition in Sindh (PINS)	24,000,000.00	27,057,497.18	Committed	ODA	Grant	Adaptation	Other	Pakistan / Asia (South & Central Asia)	Programme for Improved Nutrition in Sindh (PINS)
Sustainable economic development and SME promotion at subnational level	4,000,000.00	4,509,582.86	Committed	ODA	Grant	Cross-cutting	Cross-cutting	Peru / America (South America)	Sustainable economic development and SME promotion at subnational level
Road Management and Rural Road Improvement Programme	2,392,000.00	2,696,730.55	Committed	ODA	Grant	Adaptation	Transport	Saint Vincent and the Grenadines / America (North & Central America)	Road Management and Rural Road Improvement Programme
Contrat de réforme sectorielle en appui au secteur de l'Eau et de l'Assainissement au Sénégal	40,000,000.00	45,095,828.64	Committed	ODA	Grant	Adaptation	Water and Sanitation	Senegal / Africa (South of Sahara)	Contrat de réforme sectorielle en appui au secteur de l'Eau et de l'Assainissement au Sénégal
Rural development programme	10,000,000.00	11,273,957.16	Committed	ODA	Grant	Cross-cutting	Agriculture	Serbia / Europe	Rural development programme
Civil Society Facility and Media Serbia-Action 7	1,400,000.00	1,578,354.00	Committed	ODA	Grant	Mitigation	Other	Serbia / Europe	Civil Society Facility and Media Serbia-Action 7
EU Support to the Environment Sector	11,440,000.00	12,897,406.99	Committed	ODA	Grant	Mitigation	Water and Sanitation	Serbia / Europe	EU Support to the Environment Sector
OUTREACH - " Partnerships for Inclusive Economic Growth"	5,200,000.00	5,862,457.72	Committed	ODA	Grant	Adaptation	Agriculture	Somalia / Africa (South of Sahara)	OUTREACH - " Partnerships for Inclusive Economic Growth"
Strategy 2017-20 for a special support measure for Somalia	80,000,000.00	90,191,657.27	Committed	ODA	Grant	Adaptation	Other	Somalia / Africa (South of Sahara)	Strategy 2017-20 for a special support measure for Somalia
Support Programme to the National System of Innovation	6,000,000.00	6,764,374.30	Committed	ODA	Grant	Mitigation	Other	South Africa / Africa (South of Sahara)	Support Programme to the National System of Innovation
Piloting participatory rangeland management for improved pastoral livelihoods, food security, and good land and natural resource governance	1,500,000.00	1,691,093.57	Committed	ODA	Grant	Adaptation	Agriculture	South of Sahara, regional / Africa (South of Sahara)	Piloting participatory rangeland management for improved pastoral livelihoods, food security, and good land and natural resource governance
Programme de soutien à la Pêche, à sa Surveillance et à son Contrôle en	6,000,000.00	6,764,374.30	Committed	ODA	Grant	Adaptation	Agriculture	South of Sahara, regional / Africa	Programme de soutien à la Pêche, à sa Surveillance et à son

Afrique de l'Ouest (PESCAO)								(South of Sahara)	Contrôle en Afrique de l'Ouest (PESCAO)
PREDIP, Programme régional de dialogue et d'investissement pour le pastoralisme et la transhumance au Sahel et dans les pays côtiers d'Afrique de l'Ou	10,000,000.00	11,273,957.16	Committed	ODA	Grant	Cross-cutting	Agriculture	South of Sahara, regional / Africa (South of Sahara)	PREDIP, Programme régional de dialogue et d'investissement pour le pastoralisme et la transhumance au Sahel et dans les pays côtiers d'Afrique de l'Ou
Putting Research into Use for Nutrition, Sustainability and Resilience (PRUNSAR) ADDENDUM	4,000,000.00	4,509,582.86	Committed	ODA	Grant	Cross-cutting	Agriculture	South of Sahara, regional / Africa (South of Sahara)	Putting Research into Use for Nutrition, Sustainability and Resilience (PRUNSAR) ADDENDUM
Third phase of the Participatory Slum Upgrading Programme – PSUP 3	4,000,000.00	4,509,582.86	Committed	ODA	Grant	Adaptation	Cross-cutting	South of Sahara, regional / Africa (South of Sahara)	Third phase of the Participatory Slum Upgrading Programme – PSUP 3
BIOPAMA II	24,000,000.00	27,057,497.18	Committed	ODA	Grant	Cross-cutting	Cross-cutting	South of Sahara, regional / Africa (South of Sahara)	BIOPAMA II
Programme relatif à la biodiversité et au changement climatique en Afrique de l'Ouest	18,000,000.00	20,293,122.89	Committed	ODA	Grant	Cross-cutting	Cross-cutting	South of Sahara, regional / Africa (South of Sahara)	Programme relatif à la biodiversité et au changement climatique en Afrique de l'Ouest
Appui pour la préservation de la biodiversité et les écosystèmes fragiles (ECOFAC 6)	4,000,000.00	4,509,582.86	Committed	ODA	Grant	Cross-cutting	Cross-cutting	South of Sahara, regional / Africa (South of Sahara)	Appui pour la préservation de la biodiversité et les écosystèmes fragiles (ECOFAC 6)
Contribution phase 2_AfIF Africa Investment Facility for the realisation of regional infrastructures	46,000,000.00	51,860,202.93	Committed	ODA	Grant	Mitigation	Cross-cutting	South of Sahara, regional / Africa (South of Sahara)	Contribution phase 2_AfIF Africa Investment Facility for the realisation of regional infrastructures
Contribution (phase 2) to the Africa Investment Facility in support of regional economic integration in West Africa.	12,000,000.00	13,528,748.59	Committed	ODA	Grant	Mitigation	Cross-cutting	South of Sahara, regional / Africa (South of Sahara)	Contribution (phase 2) to the Africa Investment Facility in support of regional economic integration in West Africa.
PIR 11e FED gouvernance énergie en Afrique de l'Ouest	32,000,000.00	36,076,662.91	Committed	ODA	Grant	Mitigation	Energy	South of Sahara, regional / Africa (South of Sahara)	PIR 11e FED gouvernance énergie en Afrique de l'Ouest
Projet d'amélioration de la Gouvernance de la Résilience et de la Sécurité Alimentaire et Nutritionnelle et agricluture durable en Afrique de l'Ouest	8,200,000.00	9,244,644.87	Committed	ODA	Grant	Adaptation	Other	South of Sahara, regional / Africa (South of Sahara)	Projet d'amélioration de la Gouvernance de la Résilience et de la Sécurité Alimentaire et Nutritionnelle et agricluture durable en Afrique de l'Ouest
Programme d'Appui à la Gouvernance des Infrastructures Régionales et Nationales en Afrique centrale	800,000.00	901,916.57	Committed	ODA	Grant	Mitigation	Transport	South of Sahara, regional / Africa (South of Sahara)	Programme d'Appui à la Gouvernance des Infrastructures Régionales et Nationales en Afrique centrale
Programme for Transboundary Water Management in the Nile River Basin	10,000,000.00	11,273,957.16	Committed	ODA	Grant	Adaptation	Water and Sanitation	South of Sahara, regional / Africa (South of Sahara)	Programme for Transboundary Water Management in the Nile River Basin
INTEGRATED WATER RESOURCES MANAGEMENT PROGRAMME FOR THE LAKE VICTORIA BASIN WITH HIGH PRIORITY INVESTMENTS	4,000,000.00	4,509,582.86	Committed	ODA	Grant	Adaptation	Water and Sanitation	South of Sahara, regional / Africa (South of Sahara)	INTEGRATED WATER RESOURCES MANAGEMENT PROGRAMME FOR THE LAKE VICTORIA BASIN WITH HIGH PRIORITY INVESTMENTS

Support to the modernisation of the agricultural sector in Sri Lanka.	12,000,000.00	13,528,748.59	Committed	ODA	Grant	Adaptation	Agriculture	Sri Lanka / Asia (South & Central Asia)	Support to the modernisation of the agricultural sector in Sri Lanka.
Cross-Border Cooperation Programme Serbia-Bosnia and Herzegovina	560,000.00	631,341.60	Committed	ODA	Grant	Adaptation	Other	States Ex-Yugoslavia unspecified / Europe	Cross-Border Cooperation Programme Serbia-Bosnia and Herzegovina
Cross-Border Cooperation Programme Serbia-Montenegro	336,000.00	378,804.96	Committed	ODA	Grant	Cross-cutting	Other	States Ex-Yugoslavia unspecified / Europe	Cross-Border Cooperation Programme Serbia-Montenegro
Implementation of the Energy Efficiency Action Plan for Tanzania	8,000,000.00	9,019,165.73	Committed	ODA	Grant	Mitigation	Energy	Tanzania / Africa (South of Sahara)	Implementation of the Energy Efficiency Action Plan for Tanzania
Objectif Transition Energétique	20,000,000.00	22,547,914.32	Committed	ODA	Grant	Cross-cutting	Energy	Tunisia / Africa (North of Sahara)	Objectif Transition Energétique
Rural development programme	59,200,000.00	66,741,826.38	Committed	ODA	Grant	Cross-cutting	Agriculture	Turkey / Europe	Rural development programme
Sustainable and safe transport	800,000.00	901,916.57	Committed	ODA	Grant	Mitigation	Transport	Turkey / Europe	Sustainable and safe transport
Sustainable Waste Programme in Tuvalu	2,720,000.00	3,066,516.35	Committed	ODA	Grant	Cross-cutting	Cross-cutting	Tuvalu / Oceania	Sustainable Waste Programme in Tuvalu
Global Climate Change Alliance (GCCA): Scaling up Agriculture Adaptation to Climate Change in Uganda	8,000,000.00	9,019,165.73	Committed	ODA	Grant	Adaptation	Agriculture	Uganda / Africa (South of Sahara)	Global Climate Change Alliance (GCCA): Scaling up Agriculture Adaptation to Climate Change in Uganda
GCCA Plus - Support Uganda in the sectoral implementation of its Nationally Determined Contribution through Climate Smart Agriculture	5,000,000.00	5,636,978.58	Committed	ODA	Grant	Cross-cutting	Agriculture	Uganda / Africa (South of Sahara)	GCCA Plus - Support Uganda in the sectoral implementation of its Nationally Determined Contribution through Climate Smart Agriculture
Energy Efficiency Support Programme for Ukraine	50,000,000.00	56,369,785.79	Committed	ODA	Grant	Mitigation	Energy	Ukraine / Europe	Energy Efficiency Support Programme for Ukraine
"Ferghana Valley Water Resources Management Project "	15,000,000.00	16,910,935.74	Committed	ODA	Grant	Adaptation	Agriculture	Uzbekistan / Asia (South & Central Asia)	"Ferghana Valley Water Resources Management Project "
Towards a democratic and accountable Palestinian State	11,040,000.00	12,446,448.70	Committed	ODA	Grant	Cross-cutting	Cross-cutting	West Bank and Gaza Strip / Asia (Middle East Asia)	Towards a democratic and accountable Palestinian State
Improving the capacities of local authorities to develop and implement sustainable energy efficiency practices and renewable demonstration actions	304.00	342.73	Committed	ODA	Grant	Cross-cutting	Energy	West Bank and Gaza Strip / Asia (Middle East Asia)	Improving the capacities of local authorities to develop and implement sustainable energy efficiency practices and renewable demonstration actions
Support to the Caribbean Investment Facility 2017 allocation	8,000,000.00	9,019,165.73	Committed	ODA	Grant	Cross-cutting	Energy	West Indies, regional / America (North & Central America)	Support to the Caribbean Investment Facility 2017 allocation
Contribution to the African Investment Facility: ElectriFi – Zambia window	40,000,000.00	45,095,828.64	Committed	ODA	Grant	Mitigation	Energy	Zambia / Africa (South of Sahara)	Contribution to the African Investment Facility: ElectriFi – Zambia window

2018									
Total contributions through bilateral, regional and other channels									
Addressing Climate Change in Afghanistan through sustainable energy and ecosystem management - MA Part 2	4,000,000.00	4,722,550.18	Committed	ODA	Standard grant	Cross-cutting	Cross-cutting	Afghanistan	Support to Climate Chage Measures in the sector of Natural Resources Management and Sustainable Energy in North Eastern Afghanistan - MA Part 2
Contribution to the European Union Emergency Trust Fund Africa	11,800,000.00	13,931,523.02	Committed	ODA	Standard grant	Cross-cutting	Other (Other)	Africa	Individual measure for a contribution to the European Union Emergency Trust Fund Africa - EUR 20 500 000 will be allocated to the Sahel and Lake Chad window, and EUR 9 000 000 will be allocated to the Horn of Africa window of this Trust Fund.
Capacity building for CO2 mitigation from international aviation (Phase II)	6,500,000.00	7,674,144.04	Committed	ODA	Standard grant	Mitigation	Cross-cutting	Africa	The objective is to mitigate greenhouse gas emissions from civil aviation. It will be achieved through: a) implementing State Action Plans to reduce emissions b) applying the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)
AAP 2018 (Intra-ACP) - Intra-ACP TA Facility Improving the Business and Investment Climate through Structured Dialogue	4,000,000.00	4,722,550.18	Committed	ODA	Standard grant	Mitigation	Other (Other)	Africa	Intra-ACP TA Facility Improving the Business and Investment Climate through Structured Dialogue
EU for a cleaner environment	9,640,000.00	11,381,345.93	Committed	ODA	Standard grant	Cross-cutting	Water and Sanitation	Albania	The programme will support Albania in promoting competitiveness and economic growth
Rural development programme	4,800,000.00	5,667,060.21	Committed	ODA	Standard grant	Cross-cutting	Agriculture	Albania	Programme designed to contribute to the sustainable adaptation of the agricultural sector and rural areas and to the country's preparation for the implementation of the acquis communautaire concerning the CAP and related policies.
2014-2020 Greece - Albania Cross-border cooperation	2,304,930.00	2,721,286.89	Committed	ODA	Standard grant	Cross-cutting	Cross-cutting	Albania	Infrastructure and environment, economy, education and culture, technical assistance
2014-2020 Greece - Albania Cross-border cooperation	720,510.00	850,661.16	Committed	ODA	Standard grant	Cross-cutting	Cross-cutting	Albania	Infrastructure and environment, economy, education and culture, technical assistance

Programme d'Appui à la Transition de l'Algérie vers une Economie Verte et Circulaire	20,000,000.00	23,612,750.89	Committed	ODA	Standard grant	Mitigation	Industry	Algeria	Quatre résultats sont attendus: Résultat 1 : Le cadre et les outils institutionnels pour la promotion des MCPD /PPER auprès des PME-PMI et TPE sont renforcés Résultat 2 : La demande en outils MCPD /PPER par les PME-TPE est stimulée Résultat 3 : L"offre de services et d'outils MCPD /PPER est développée auprès des incubateurs, clusters, pépinières et associations. Résultat 4 : Des plans de financements publics-privés permettent la réalisation des investissements des entreprises.
Programme de renforcement des capacités des acteurs de développement local	4,000,000.00	4,722,550.18	Committed	ODA	Standard grant	Adaptation	Other (Other)	Algeria	Axe "développement économique local" du programme CAPDEL initié en 2015 par la Décision ENI/2015/38431
B-Envelope after Irma hurricane. Housing Support to Barbuda	4,975,000.00	5,873,671.78	Committed	ODA	Standard grant	Adaptation	Other (Other)	Antigua and Barbuda	Overall objective: Impact Contribute to improved safety and security for Barbudans through better housing and enhanced local capacities towards a more resilient community Specific objective(s): Outcome(s) Increased disaster resilience for the most vulnerable population in Barbuda after the impact of Hurricane Irma Outputs 1. 150 private houses of the most vulnerable population in Barbuda (level 3 and level 4) repaired/reconstructed. 2. Capacity of the local population enhanced
B-Envelope after Irma hurricane. Housing Support to Barbuda	350,000.00	413,223.14	Committed	ODA	Standard grant	Adaptation	Other (Other)	Antigua and Barbuda	Early recovery project to support the housing sector in Barbuda affected by Irma hurricane.
Asia Investment Facility (AIF) - MA part 2 -2018	20,000,000.00	23,612,750.89	Committed	ODA	Standard grant	Cross-cutting	Transport	Asia	Replenishment RIP and MIP VN
"Belize Sustainable Energy Roadmap" (11th EDF Belize MIP focal area)	14,015,000.00	16,546,635.18	Committed	ODA	Standard grant	Mitigation	Energy	Belize	The overall objective of the Project is: To implement Belize sustainable energy roadmap for achieving a thriving clean and productive energy sector that helps create opportunities for improving Belizean’s lives in an inclusive and equitable manner and where all its people have access to modern, affordable, and sustainable energy services

									to achieve sustainable development.
PRomouvoir l'Économie VERte au Bénin (2nde Phase) : investir pour l'accès, la production et l'efficacité d'une énergie propre et durable (PRÉVER 2 – B	36,000,000.00	42,502,951.59	Committed	ODA	Standard grant	Mitigation	Energy	Benin	Contribution à l'AfIF pour des investissements sous forme de blending
SIDA repayment of unused contributions	93,968.00	110,942.15	Committed	ODA	Standard grant	Mitigation	Other (Other)	Bosnia and Herzegovina	SIDA repayment of unused contributions
EDF 11 Botswana Dialogue Facility	600,000.00	708,382.53	Committed	ODA	Standard grant	Cross-cutting	Cross-cutting	Botswana	contributing to sustainable and inclusive growth, improving the quality of the policy development and implementation of Botswana's key NDPpriorities in the areas of economic development and diversification, and strengthening stakeholders capacity
AAP 2018 - Programme de Soutien au Secteur de l'Energie	6,000,000.00	7,083,825.27	Committed	ODA	Standard grant	Cross-cutting	Energy	Burkina Faso	Contribuer à la croissance économique et à la création d'emplois à travers une amélioration de l'accès à une énergie durable, fiable et propre au Burkina Faso, principalement en faveur des populations les plus fragiles et en milieu rural.
Complétion des travaux de réhabilitation de l'axe transfrontalier RN 4 entre le Burundi et la RDC	1,200,000.00	1,416,765.05	Committed	ODA	Standard grant	Adaptation	Transport	Burundi	Finalisation des travaux de réhabilitation de la RN 4 Bujumbura-Frontière RDC
CAPFISH-Capture Cambodia Programme for Sustainable and Inclusive Growth in the Fisheries Sector: Capture component, MA part 1	34,082,308.00	40,238,852.42	Committed	ODA	Standard grant	Adaptation	Agriculture	Cambodia	The present action aims at supporting the implementation of the Strategic Planning Framework for Fisheries (SPF), with the objective of managing sustainably the fishery resource, in inland and marine domains, and generating increased added value
Cambodia Climate Change Alliance (CCCA) Phase 3	6,000,000.00	7,083,825.27	Committed	ODA	Standard grant	Cross-cutting	Cross-cutting	Cambodia	Cambodia’s development path is increasingly climate-resilient and low-carbon through enhanced climate action (i) better-informed policies and programmes, (ii) better-equipped institutional frameworks and (iii) increased effectiveness of financing mec

Contribution à la Plateforme d'investissement pour l'Afrique (AIP) en faveur du secteur énergétique au Cameroun	16,150,000.00	19,067,296.34	Committed	ODA	Standard grant	Mitigation	Cross-cutting	Cameroon	Financement de projets visant l'augmentation de l'accès à l'énergie durable (notamment à l'électricité d'origine renouvelable), ainsi que l'amélioration de l'environnement des affaires et l'activité économique dans le secteur Energie
Contribution à la Facilité d'investissement pour l'Afrique (AfIF) en faveur du secteur énergétique au Cameroun	10,000,000.00	11,806,375.44	Committed	ODA	Standard grant	Mitigation	Energy	Cameroon	Financement de projets visant l'augmentation de l'accès à l'énergie durable (notamment à l'électricité d'origine renouvelable), ainsi que l'amélioration de l'environnement des affaires et l'activité économique dans le secteur de l'Energie
Dispositif d'appui à la compétitivité du Cameroun (DACC)	4,000,000.00	4,722,550.18	Committed	ODA	Standard grant	Mitigation	Other (Other)	Cameroon	L'objectif général du programme est de contribuer à améliorer la compétitivité du Cameroun par un environnement institutionnel plus propice aux affaires et un secteur privé plus performant et capable de tirer profit de la libéralisation des échanges, soutenant la croissance économique et la création d'emploi.
Programme de mise en oeuvre du secteur 3 du PIN -allocation 2018	18,000,000.00	21,251,475.80	Committed	ODA	Standard grant	Mitigation	Other (Other)	Central African Republic	Décision de la Commission relative à la mesure individuelle en faveur du Fonds Fiduciaire Bêkou de l'Union européenne pour la République centrafricaine financée à partir du 11e Fonds européen de développement
Investment Facility for Central Asia	20,000,000.00	23,612,750.89	Committed	ODA	Standard grant	Adaptation	Other (Other)	Asia Pacific	Replenishment 2018
Investment Facility for Central Asia (IFCA) - 2018	14,500,000.00	17,119,244.39	Committed	ODA	Standard grant	Cross-cutting	Water and Sanitation	Asia Pacific	Replenishment 2018 (RIP) - part 1
Strengthening financial resilience and accelerating risk reduction in Central Asia	8,050,000.00	9,504,132.23	Committed	ODA	Standard grant	Cross-cutting	Other (Other)	Asia Pacific	This programme aims to build disaster and climate resilience in Central Asia, and lay the foundations for a future disaster risk financing solution at regional level. Support will also be provided to the CESDRR (capacity-building).
SWITCH-Asia and Central Asia II - Promoting Sustainable Consumption and Production- MA part 1	5,600,000.00	6,611,570.25	Committed	ODA	Standard grant	Mitigation	Industry	Asia Pacific	The overall objective of the programme SWITCH-Asia and Central Asia II is to promote sustainable growth, to contribute to the economic prosperity and poverty reduction in Asia and to

									mitigate climate change.
Réhabilitation et extension de l'adduction en eau potable de la ville de N'Djamena en faveur d'une croissance inclusive	6,000,000.00	7,083,825.27	Committed	ODA	Standard grant	Adaptation	Water and Sanitation	Chad	Réhabilitation et extension de l'adduction en eau potable de la ville de N'Djamena en faveur d'une croissance inclusive
Communes du Nord (COM-NORD)	4,000,000.00	4,722,550.18	Committed	ODA	Standard grant	Adaptation	Cross-cutting	Chad	Appuyer le développement integré et participatif des espaces urbains et péri-urbains des chefs lieux-régionaux du Nord du Tchad (Faya-Largeau, Fada, Bardaï), avec un focus sur les besoins des femmes, des jeunes et des groups défavorisés
Programme d'extension et de mise à niveau environnementale des infrastructures du Port Autonome de Pointe Noire	12,000,000.00	14,167,650.53	Committed	ODA	Standard grant	Cross-cutting	Transport	Congo	Cette action se caractérisera par la mise en œuvre d'un programme de réaménagement/extension des infrastructures et de mise à niveau environnementale du Port Autonome de Pointe Noire.
Programme PIN 11ème FED - Gouvernance forestière	3,440,000.00	4,061,393.15	Committed	ODA	Standard grant	Cross-cutting	Other (Other)	Congo	Programme d'appui à la Gouvernance forestière en République du Congo
Alliance Mondiale contre le Changement Climatique Plus AMCC+	8,500,000.00	10,035,419.13	Committed	ODA	Standard grant	Cross-cutting	Forestry	Côte d'Ivoire	Promotion de systèmes agroforestiers intensifs en appui à la mise en œuvre de la stratégie nationale de Réduction des Emissions de gaz à effet de serres, liées à la Déforestation et à la Dégradation des forêts (REDD+).
GCCA+ CUBA	5,000,000.00	5,903,187.72	Committed	ODA	Standard grant	Adaptation	Cross-cutting	Cuba	GCCA+ CUBA Building Coastal Resilience in Cuba through Natural Adaptation Solutions
B enveloppe - Support to renewable energy access and resilient economic recovery in the regions of Cuba most affected by IRMA	4,000,000.00	4,722,550.18	Committed	ODA	Standard grant	Adaptation	Energy	Cuba	On the basis of solid assessments, the Action will support local planning, and contribute in the supply of renewable energy for the most affected households and in the worst affected agricultural production sites, in line with Cuba´s INDCs commitments (24% of electricity supply from renewable sources by 2030) and the National Programmes on renewable Energy and on Climate Change ("Tarea Vida"). Through the promotion of decentralised grids powered by

									renewables, the Action will contribute to red
Support Measures II	100,000.00	118,063.75	Committed	ODA	Standard grant	Cross-cutting	Cross-cutting	Cuba	Support Measures II
Complexe Lac Edouard (CLÉ)	4,000,000.00	4,722,550.18	Committed	ODA	Standard grant	Cross-cutting	Water and Sanitation	Democratic Republic of the Congo	
AAP 2018 contribution to the NIP SOUTH	242,950,000.00	286,835,891.38	Committed	ODA	Standard grant	Cross-cutting	Industry	Developing countries, unspecified	Support blending operations and other actvities related to blending in the Southern Neighbourhood
2018 Contribution to the NIP (Neighbourhood Investment Platform) for the EAST	96,412,000.00	113,827,626.92	Committed	ODA	Standard grant	Cross-cutting	Cross-cutting	Developing countries, unspecified	The NIP's main purpose is to promote additional investments in key infrastructures sectors, such as transport, energy, water and environment, and to support social and private sector development in Partner countries
ACP-EU Climate Services programme	85,000,000.00	100,354,191.26	Committed	ODA	Standard grant	Adaptation	Cross-cutting	Developing countries, unspecified	Contribute to strengthened production, availability, delivery and application of science-based climate prediction and services.
Civil Society Organisations as actors of Governance and Development Work in the Field	62,150,160.00	73,376,812.28	Committed	ODA	Standard grant	Cross-cutting	Other (Other)	Developing countries, unspecified	CSO-LA Thematic Programme - MAAP 2018-2020 - Civil Society Organisations as actors of Governance and Development work in the Field (Action Document nº 2)
Policy advice, technical assistance and capacity building in support of regulatory reforms and investments in sustainable energy	58,000,000.00	68,476,977.57	Committed	ODA	Standard grant	Mitigation	Energy	Developing countries, unspecified	Action aiming at the gradual improvement of the partner countries' capacities in energy sector, fully integrated in pillars II of the EIP and regional blending platforms, and also assist to sector governance and improvement of the business environmen
DeSIRA – Climate-relevant actions at country level	55,000,000.00	64,935,064.94	Committed	ODA	Standard grant	Cross-cutting	Agriculture	Developing countries, unspecified	This action is part of the Development Smart Innovation through Research in Agriculture initiative. By linking more effectively research and innovation with development initiatives, it will contribute to Improved resilience to climate change.

DeSIRA: Towards climate-relevant Agricultural and Knowledge Innovation Systems	40,000,000.00	47,225,501.77	Committed	ODA	Standard grant	Cross-cutting	Agriculture	Developing countries, unspecified	This action is part of an initiative on Development Smart Innovation through Research in Agriculture (DeSIRA). It intends to link research and innovation with development initiatives, to boost food systems transformation in partner countries.
Intra-ACP Global Climate Change Alliance Plus (Part 2)	36,346,840.00	42,912,443.92	Committed	ODA	Standard grant	Adaptation	Cross-cutting	Developing countries, unspecified	Intra-ACP GCCA+
Improving forest governance and reducing deforestation	35,400,000.00	41,794,569.07	Committed	ODA	Standard grant	Mitigation	Forestry	Developing countries, unspecified	The aim of the action is to help partner countries to sustainably manage forests with a view to contributing to SDGs related to Climate Action, Life on Land, Peace and Economic Growth
Support to ocean governance in ACP countries	35,000,000.00	41,322,314.05	Committed	ODA	Standard grant	Adaptation	Cross-cutting	Developing countries, unspecified	A support to a network of selected relevant Higher education institutions to increase national capacities in biodiversity and forest conservation with a specific window to reinforce people dependant from renewable natural resources
PROACT	33,000,000.00	38,961,038.96	Committed	ODA	Standard grant	Adaptation	Other (Other)	Developing countries, unspecified	The Pro Resilience Action – (PRO-Act) aims to build resilience to food crisis and strengthen food security. Multi-Country: Cameroon, The Republic of Chad, Democratic People's Republic of Korea, Democratic Republic of Congo, Mozambique, Nigeria, Sudan, Syria.
Identification and support of financially sustainable business models in the energy-digital nexus for financial inclusion, job creation and growth	26,500,000.00	31,286,894.92	Committed	ODA	Standard grant	Mitigation	Energy	Developing countries, unspecified	Identifying, stimulating financially sustainable business models of energy micro/mini-grid investments for productive uses of local RE, delivering electricity, digital and others contributing to financial inclusion, job creation, reducing migration
Local Authorities 2018 Programme	24,740,640.00	29,209,728.45	Committed	ODA	Standard grant	Adaptation	Other (Other)	Developing countries, unspecified	CSO-LA Thematic Programme - AAP 2018 Local Authorities (Action Document nº 1 & Action Document nº 2)
ACP-EU Programme to strengthen Research and Innovation capacity in ACP countries	24,000,000.00	28,335,301.06	Committed	ODA	Standard grant	Mitigation	Cross-cutting	Developing countries, unspecified	The overall objective of the Action is to unlock the inclusive innovation potential of ACP countries and support their transition into knowledge-based economies for sustainable development and poverty

									reduction.
Counterterrorism	21,500,000.00	25,383,707.20	Committed	ODA	Standard grant	Adaptation	Other (Other)	Developing countries, unspecified	In accordance with the IcSP Strategy paper 2014-2020 and MIP 2018-20, the overall objective of the Action is to disrupt terrorist networks and the activities of recruiters to terrorism, cut off terrorist funding and bring terrorists to justice while continuing to respect human rights and international and humanitarian law
CBRN risk mitigation	21,500,000.00	25,383,707.20	Committed	ODA	Standard grant	Adaptation	Other (Other)	Developing countries, unspecified	Annual Action Programme 2018 Instrument contributing to Stability and Peace
Farmers' Organizations for ACP	16,000,000.00	18,890,200.71	Committed	ODA	Standard grant	Adaptation	Agriculture	Developing countries, unspecified	support to Farmers organisations at national and regional levels
Nutrition for Development (N4D).	15,800,000.00	18,654,073.20	Committed	ODA	Standard grant	Adaptation	Other (Other)	Developing countries, unspecified	Enhancing Governance, Capacities, and Knowledge for Nutrition.
Integrated management of watersheds and ecosystems to sustain growth and protect our planet	14,880,000.00	17,567,886.66	Committed	ODA	Standard grant	Cross-cutting	Water and Sanitation	Developing countries, unspecified	The action aims to promote sustainable development and poverty alleviation by supporting integrated approaches to ecosystems and water resources management
EU for Green MED III and sustainable transport	12,400,000.00	14,639,905.55	Committed	ODA	Standard grant	Adaptation	Transport	Developing countries, unspecified	By focusing on three complementary and interlinked lines of action (depollution of the Mediterranean, promotion of green and circular economy and sustainable transport), this action aims to support the depollution of the Mediterranean through the imp
Protecting Critical Infrastructure	10,000,000.00	11,806,375.44	Committed	ODA	Standard grant	Adaptation	Other (Other)	Developing countries, unspecified	Annual Action Programme 2018 Instrument contributing to Stability and Peace
Support to the green and circular economy	7,720,000.00	9,114,521.84	Committed	ODA	Standard grant	Cross-cutting	Cross-cutting	Developing countries, unspecified	Support to the green and circular economy under the GPGC AAP 2018
Fighting Organised Crime	6,000,000.00	7,083,825.27	Committed	ODA	Standard grant	Adaptation	Other (Other)	Developing countries, unspecified	Annual Action Programme 2018 Instrument contributing to Stability and Peace
Climate change and biosecurity	5,000,000.00	5,903,187.72	Committed	ODA	Standard grant	Adaptation	Cross-cutting	Developing countries, unspecified	Annual Action Programme 2018 Instrument contributing to Stability and Peace

GLOBAL COMMITMENT ENV.F - PROCEDURES LAUNCHED BUT NOT FINALISED UNDER THE 2018 BUDGET - GRANTS	4,400,000.00	5,194,805.19	Committed	ODA	Standard grant	Mitigation	Cross-cutting	Developing countries, unspecified	New Programme Cooperation Agreement with the UN Environment Programme to strengthen international environmental governance, including targeted support to the Secretariats of Multilateral Environmental Agreements
Promoting responsible governance of investments in land.	4,000,000.00	4,722,550.18	Committed	ODA	Standard grant	Adaptation	Agriculture	Developing countries, unspecified	Support to the International Land Coalition for a crucially needed land matrix to defend the right of ownership of the most vulnerable
SUPPORT TO THE INTERNATIONAL CLIMATE NEGOTIATIONS INCLUDING ENHANCING THE PARTICIPATION OF DEVELOPPING COUNTRIES IN THE UNFCCC PROCESS	3,000,000.00	3,541,912.63	Committed	ODA	Standard grant	Mitigation	Cross-cutting	Developing countries, unspecified	SUPPORT TO THE INTERNATIONAL CLIMATE NEGOTIATIONS INCLUDING ENHANCING THE PARTICIPATION OF DEVELOPPING COUNTRIES IN THE UNFCCC PROCESS
FIRST	2,800,000.00	3,305,785.12	Committed	ODA	Standard grant	Adaptation	Agriculture	Developing countries, unspecified	Food Security Impact, Resilience Sustainability and Transformation (FIRST): Support to partner countries to improve food and nutrition security and sustainable agriculture (FNSSA) policy frameworks
Annual Action Programme 2018 Instrument contributing to Stability and Peace - art 5	1,900,000.00	2,243,211.33	Committed	ODA	Standard grant	Adaptation	Other (Other)	Developing countries, unspecified	Annual Action Programme 2018 Instrument contributing to Stability and Peace
Contribution of the European Union to the budget of the Energy Community. This contribution stems from an international treaty	1,805,344.00	2,131,456.91	Committed	ODA	Standard grant	Mitigation	Energy	Developing countries, unspecified	Develop a legislative framework based on EU Acquis in the areas of energy, environment and competition in the Balkans, allowing the creation of a regional energy market.
SUPPORT TO THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE	1,750,000.00	2,066,115.70	Committed	ODA	Standard grant	Mitigation	Cross-cutting	Developing countries, unspecified	IPCC WMO - SUPPORT TO THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE- GPGC
GLOBAL COMMITMENT - OECD CLIMATE CHANGE EXPERT GROUP (CCXG) AND "SUPPORT TO DEVELOPING COUNTRIES' ALLIANCES ON CLIMATE CHANGE"	1,200,000.00	1,416,765.05	Committed	ODA	Standard grant	Mitigation	Cross-cutting	Developing countries, unspecified	GLOBAL COMMITMENT - OECD CLIMATE CHANGE EXPERT GROUP (CCXG) AND "SUPPORT TO DEVELOPING COUNTRIES' ALLIANCES ON CLIMATE CHANGE"
GLOBAL COMMITMENT - ORGANISATION OF TRAINING AND EVENTS ON EMISSIONS TRADING	1,000,000.00	1,180,637.54	Committed	ODA	Standard grant	Mitigation	Cross-cutting	Developing countries, unspecified	GLOBAL COMMITMENT - ORGANISATION OF TRAINING AND EVENTS ON EMISSIONS TRADING
Support measures 2018 for the INSC management	602,264.00	711,055.49	Committed	ODA	Standard grant	Adaptation	Energy	Developing countries, unspecified	This Action provides support to the sound management of the INSC programme, the achievement of its expected results and objectives and the

									measurement, analysis and reporting on its impact.
SUPPORT TO IEA WORLD ENERGY OUTLOOK: CLIMATE-ENERGYDEVELOPMENT NEXUS	500,000.00	590,318.77	Committed	ODA	Standard grant	Mitigation	Cross-cutting	Developing countries, unspecified	IEA (OECD) - SUPPORT TO IEA WORLD ENERGY OUTLOOK: CLIMATE-ENERGYDEVELOPMENT NEXUS - GPGC
GLOBAL COMMITMENT ENV.D - PROCEDURES LAUNCHED BUT NOT FINALISED UNDER THE 2018 BUDGET - GRANTS	400,000.00	472,255.02	Committed	ODA	Standard grant	Cross-cutting	Agriculture	Developing countries, unspecified	Support to FAO Global Soil Partnership (Phase III 2019-2020)
Support services for the coordination of regional components of the International Urban Cooperation and the Covenant of Mayors through ICLEI (City net	300,000.00	354,191.26	Committed	ODA	Standard grant	Cross-cutting	Energy	Developing countries, unspecified	Support the operations of a Brussels-based office for the international Urban Cooperation programme and the Global Covenant of Mayors initiative and its regional covenants
E+-KA1-EA-Joint Masters Degrees (JMD)-A3	245,000.00	289,256.20	Committed	ODA	Standard grant	Adaptation	Other (Other)	Developing countries, unspecified	Groundwater and Global Change - Impacts and Adaptation
Support Measures under GPGC environment and climate change 2018	200,260.00	236,434.47	Committed	ODA	Standard grant	Cross-cutting	Cross-cutting	Developing countries, unspecified	The Support Measures will be used to finance, among others, activities such as i) risk-based audits and evaluations, ii) technical support for the identification and formulation of new actions, iii) studies and advisory services, trainings, seminars,
Sustainable Energy support measures 2018	182,336.00	215,272.73	Committed	ODA	Standard grant	Mitigation	Energy	Developing countries, unspecified	This will finance, among others, activities such as i) audits, monitoring, evaluations, impact assessments, ii) TA for the identification and formulation of new actions,iii) studies, advisory services, trainings, seminars, conferences, workshops, etc.
Appui à la décentralisation, la gouvernance et le développement local dans les 5 régions de la République de Djibouti	12,000,000.00	14,167,650.53	Committed	ODA	Standard grant	Adaptation	Other (Other)	Djibouti	Favoriser le développement local inclusif à travers les interventions des collectivités territoriales conduites sous leur maîtrise d'ouvrage et renforcer le système local de gouvernance. Le Programme entend (i) privilégier les initiatives de développement qui mettent au cœur de leur action les acteurs locaux, spécifiquement les Conseils Régionaux à travers l'exercice de leur maîtrise d'ouvrage pour la réalisation des

									investissements/équipements (ii) placer l'accent sur le développement insti
AMCC+ Djibouti: renforcement de la résilience climatique par le traitement intégré et durable des eaux de Douda	6,500,000.00	7,674,144.04	Committed	ODA	Standard grant	Adaptation	Agriculture	Djibouti	L'objectif spécifique est d'étendre et sécuriser la chaine de réutilisation des eaux usées traitées mise en œuvre à Douda dans le cadre du programme AMCC. Une des conséquences directes d'une filière de réutilisation contrôlée est de limiter les rejet
EDF 11 – Dominica	2,620,000.00	3,093,270.37	Committed	ODA	Standard grant	Cross-cutting	Energy	Dominica	The Overall Objective of the Action is to increase Dominica's climate change resilience and to stimulate the county's economic growth.
Building climate and disaster risk reduction resilience in Dominican Republic´s coastal-mountainous gradient via ecosystem-based adaptation	5,000,000.00	5,903,187.72	Committed	ODA	Standard grant	Adaptation	Other (Other)	Dominican Republic	GCCA+ project in Dominican Republic
Dominican Republic Component	2,750,000.00	3,246,753.25	Committed	ODA	Standard grant	Adaptation	Other (Other)	Dominican Republic	The overall objective of the programme is to contribute to the reduction of the vulnerability and sustainable development of the CARIFORUM States to disaster risks
Renewable Energy	35,000,000.00	41,322,314.05	Committed	ODA	Standard grant	Mitigation	Energy	Ethiopia	"Contribution to Africa Investment Platform (AIP) for the Sustainable Energy Programme in Ethiopia"
Co-financing of Connectivity Projects in the Western Balkans – allocation 2018	68,872,000.00	81,312,868.95	Committed	ODA	Standard grant	Adaptation	Transport	Europe	Multi-country Programme for Connectivity 2018-2019 - allocation 2018
EU support to the Western Balkans Investment Framework for Technical Assistance for 2018	20,000,000.00	23,612,750.89	Committed	ODA	Standard grant	Cross-cutting	Cross-cutting	Europe	Multi-country Programme 2018 - PART NEAR
2014-2020 Italy - Albania - Montenegro Cross-border cooperation	5,060,130.00	5,974,179.46	Committed	ODA	Standard grant	Cross-cutting	Cross-cutting	Europe	Infrastructure and environment, economy, education and culture, technical assistance
EU Integration Facility, including EU support for the participation of IPA II beneficiaries in EU Agencies	4,800,000.00	5,667,060.21	Committed	ODA	Standard grant	Mitigation	Cross-cutting	Europe	Multi-country Programme 2018 - PART NEAR

EU4Environment regional programme within the Eastern Partnership - 2018 budget	4,200,000.00	4,958,677.69	Committed	ODA	Standard grant	Cross-cutting	Cross-cutting	Europe	"EU4Environment" aims to help the six partner countries preserve their natural capital, increase people's environmental well-being and secure healthy economies. Work to be done will concern both the design and implementation of relevant policies.
2014-2020 Croatia-Bosnia and Herzegovina - Montenegro Cross-border cooperation	3,670,150.00	4,333,116.88	Committed	ODA	Standard grant	Cross-cutting	Cross-cutting	Europe	Infrastructure and environment, economy, education and culture, technical assistance
Climate Action regional programme - 2018 budget share	3,000,000.00	3,541,912.63	Committed	ODA	Standard grant	Cross-cutting	Cross-cutting	Europe	Contribute to climate change mitigation and adaptation and the development towards a low-emissions and climate-resilient economy - budget share 2018
Multi-country Programme 2018 - PART MOVE	800,000.00	944,510.04	Committed	ODA	Standard grant	Cross-cutting	Transport	Europe	Multi-country Programme 2018 - PART MOVE
CBC 2018-2020 Action Programme Serbia-Bosnia and Herzegovina (allocation 2018)	800,000.00	944,510.04	Committed	ODA	Standard grant	Cross-cutting	Other (Other)	Europe	Cross-Border Cooperation Action Programme 2018-2020 Serbia-Bosnia and Herzegovina (allocation 2018)
CBC 2018-2020 Action Programme Serbia-Montenegro (allocation 2018)	480,000.00	566,706.02	Committed	ODA	Standard grant	Cross-cutting	Other (Other)	Europe	Cross-Border Cooperation Action Programme 2018-2020 Serbia-Montenegro (2018 allocation)
CBC 2018-2020 Action Programme BiH-Montenegro (Allocation 2018)	480,000.00	566,706.02	Committed	ODA	Standard grant	Cross-cutting	Cross-cutting	Europe	Cross border Cooperation Action Programme Bosnia and Herzegovina -Montenegro for the years 2018-2020 (allocation 2018)
CBC 2018-2020 Action Programme Serbia-the former Yugoslav Republic of Macedonia (allocation 2018)	224,000.00	264,462.81	Committed	ODA	Standard grant	Cross-cutting	Cross-cutting	Europe	Cross-Border Cooperation 2018-2020 Action Programme Serbia-the former Yugoslav Republic of Macedonia (allocation 2018)
Understand, prepare for and respond to disaster displacement in the Pacific	3,000,000.00	3,541,912.63	Committed	ODA	Standard grant	Adaptation	Other (Other)	Fiji	Addressing protection needs of people displaced in the context of disasters and adverse effects of climate change Pacific region + global component
Support to participation in Union Programmes	7,689,680.00	9,078,724.91	Committed	ODA	Standard grant	Cross-cutting	Cross-cutting	Former Yugoslav Republic of Macedonia	Annual Action Programme for the former Yugoslav Republic of Macedonia for the year 2018 - Objective 1
Rural development programme	4,000,000.00	4,722,550.18	Committed	ODA	Standard grant	Cross-cutting	Agriculture	Former Yugoslav Republic of Macedonia	Programme designed to contribute to the sustainable adaptation of the agricultural sector and rural areas and to the country's preparation for the implementation of the acquis communautaire concerning the CAP and related policies.

2014-2020 Greece - former Yugoslav Republic of Macedonia Cross-border cooperation	1,852,110.00	2,186,670.60	Committed	ODA	Standard grant	Cross-cutting	Cross-cutting	Former Yugoslav Republic of Macedonia	Infrastructure and environment, economy, education and culture, technical assistance
2014-2020 Bulgaria - former Yugoslav Republic of Macedonia Cross-border cooperation	792,720.00	935,914.99	Committed	ODA	Standard grant	Cross-cutting	Cross-cutting	Former Yugoslav Republic of Macedonia	Infrastructure and environment, economy, education and culture, technical assistance
2014-2020 Bulgaria - former Yugoslav Republic of Macedonia Cross-border cooperation	20,830.00	24,592.68	Committed	ODA	Standard grant	Cross-cutting	Cross-cutting	Former Yugoslav Republic of Macedonia	Infrastructure and environment, economy, education and culture, technical assistance
Second contribution of the 11th EDF NIP Support to The Gambia Sustainable Energy Sector	35,000,000.00	41,322,314.05	Committed	ODA	Standard grant	Mitigation	Energy	Gambia	Support to The Gambia to attain sustainable energy
Support for the implementation of the EU-Georgia Association Agreement	13,400,000.00	15,820,543.09	Committed	ODA	Standard grant	Adaptation	Other (Other)	Georgia	The purpose of the programme is to contribute to the deepening of political, economic and trade relations between the EU and Georgia, raise awareness about EU support to Georgia and enhance mobility of persons between the EU and Georgia.
Boosting renewable energy investment in rural areas for private sector development	10,000,000.00	11,806,375.44	Committed	ODA	Standard grant	Mitigation	Energy	Ghana	Boosting renewable energy investment in rural areas for private sector development
Appui au secteur des transports - (TRANSIT)	4,000,000.00	4,722,550.18	Committed	ODA	Standard grant	Mitigation	Transport	Guinea	L'objectif spécifique est d'améliorer la gouvernance des secteurs des transports et des travaux publics, ainsi que de finaliser la Route Nationale 3 avec la réalisation d'un ouvrage de franchissement sur le fleuve Konkouré.
PRO-GB: Programme pour la résilience et opportunités économiques en Guinée-Bissau	17,600,000.00	20,779,220.78	Committed	ODA	Standard grant	Cross-cutting	Other (Other)	Guinea-Bissau	Programme social d'urgence pour la population de Guinée-Bissau: renforcer les services de base et accès à ceux-ci, ainsi que la sécurité alimentaire et les opportunités économiques basées sur la filière agricole
Mesures d'appui aux cycles des projets N°2	3,000,000.00	3,541,912.63	Committed	ODA	Standard grant	Adaptation	Other (Other)	Haiti	Dans le cadre du 11ème Fonds européen de développement (FED), des mesures d'appui aux cycles des projets sont prévus à travers les appuis au Bureau de l'Ordonnateur national du FED (BONFED) et la Facilité de Coopération technique (FCT) pour l'identification, formulation et exécution des projets/programmes.

2018 Special Measure in favour of Iran	7,200,000.00	8,500,590.32	Committed	ODA	Standard grant	Adaptation	Other (Other)	Iran	This Special Measure is intended to support EU-Iran cooperation in areas identified in the Foreign Affairs Council conclusions on Iran of 14 November 2016 and the European Parliament resolution on the EU strategy towards Iran of 25 October 2016.
Supporting Recovery and Stabilisation through Local Government in Iraq	19,400,000.00	22,904,368.36	Committed	ODA	Standard grant	Adaptation	Other (Other)	Iraq	Special Measure 2018 Part 2 - Supporting Local Government Systems in Iraq
Support to Energy Sector Reform in Iraq 2018	5,600,000.00	6,611,570.25	Committed	ODA	Standard grant	Mitigation	Energy	Iraq	Support Government of Iraq's efforts to ensure increased and more reliable access to energy for the Iraqi population, by sustaining the necessary policy changes to enhance performances in the energy sector (focusing on renewable energy)
ASEAN Regional Integration Support – Lao PDR Trade-Related Assistance (ARISE Plus – Lao PDR)	2,000,000.00	2,361,275.09	Committed	ODA	Standard grant	Adaptation	Other (Other)	Lao People's Democratic Republic	The Overall Objective is to contribute to inclusive economic growth, increased climate change resilience, mitigation of vulnerability (especially due to dependence on a limited number of sectors and markets) and job creation in Lao PDR.
Supporting Lebanon's Vision for Stabilization, Growth and Employment	15,000,000.00	17,709,563.16	Committed	ODA	Standard grant	Cross-cutting	Water and Sanitation	Lebanon	The programme will accompany and support structural reforms in strategic sectors, including trade, and support national plans for construction/rehabilitation of critical infrastructure for the economy (Capital Investment Plan), once adopted
Promoting innovation and entrepreneurship in support to Lebanon's clean energy transition	10,000,000.00	11,806,375.44	Committed	ODA	Standard grant	Mitigation	Industry	Lebanon	This new programme will simultaneously address Lebanon's stagnated economy – in line with the recently developed "Vision for Stabilization, Growth and Employment" – and Climate Change Mitigation (gradual phasing out from fossil fuels)
Towards a Decentralised Waste management Integrated Response (TaDWIR) - Lebanon	8,284,220.00	9,780,661.16	Committed	ODA	Standard grant	Mitigation	Water and Sanitation	Lebanon	This programme aims first and foremost at enhancing the capacity of the Beirut and the Governorate of Beirut and Mount Lebanon (BML) in waste management.

Support to Integrated Catchment Management in Lesotho	28,000,000.00	33,057,851.24	Committed	ODA	Standard grant	Adaptation	Water and Sanitation	Lesotho	The specific objective of the proposed co-financed action is to have ICM institutionalised and under full implementation in Lesotho, based on gender equality and climate adaptation principles.
Sanniquellie-Loguatuo road: NIP co-financing	2,400,000.00	2,833,530.11	Committed	ODA	Standard grant	Adaptation	Transport	Liberia	Sanniquellie-Loguatuo road: NIP co-financing
Support to the VPA	1,600,000.00	1,889,020.07	Committed	ODA	Standard grant	Mitigation	Forestry	Liberia	The General objective of this intervention is to strengthen forest sector governance and enforcement of national forest sector-related laws.
Contribution à la Plateforme d'Investissement pour l'Afrique en appui au secteur des transports, de l'eau et de l'énergie à Madagascar	29,200,000.00	34,474,616.29	Committed	ODA	Standard grant	Cross-cutting	Cross-cutting	Madagascar	Contribution à la Plateforme d'Investissement pour l'Afrique en appui au secteur des transports, de l'eau et de l'énergie à Madagascar
Appuis institutionnels au secteur des infrastructures - 11ème FED	2,400,000.00	2,833,530.11	Committed	ODA	Standard grant	Cross-cutting	Cross-cutting	Madagascar	Appuis institutionnels et organisationnels dans les secteurs des transports, de l'énergie et de l'eau et de l'assainissement.
EU Support to Implement the Nationally Determined Contributions (NDCs) related to Green House Gas emissions in the Maldives	5,000,000.00	5,903,187.72	Committed	ODA	Standard grant	Mitigation	Energy	Maldives	The Overall Objective is to increase Maldives' resilience to climate change by increasing the generation of renewable energy (RE) in the energy mix, thereby ensuring energy security while reducing the cost of electricity both environmentally and economically. The Specific Objective of the current project is to support the Maldives in the achievement of its NDC target related to the reduction of GHG emissions.
RIMFIL - Développement de filières agro-sylvo-pastorale aux niveaux familial et communautaire	7,200,000.00	8,500,590.32	Committed	ODA	Standard grant	Adaptation	Cross-cutting	Mauritania	Ce programme vise à contribuer au renforcement des capacités de résilience des populations rurales les plus vulnérables. Il constitue l'Objectif N°3 du 1er Secteur de concentration du 11ème FED.
Inclusive economic empowerment of micro-regions of the Republic of Moldova	23,000,000.00	27,154,663.52	Committed	ODA	Standard grant	Adaptation	Cross-cutting	Moldova	The overall objective is to stimulate smart, sustainable and inclusive economic growth and development in pilot micro-regions in the Republic of Moldova

Rural development programme	2,800,000.00	3,305,785.12	Committed	ODA	Standard grant	Cross-cutting	Agriculture	Montenegro	Programme designed to contribute to the sustainable adaptation of the agricultural sector and rural areas and to the country's preparation for the implementation of the acquis communautaire concerning the CAP and related policies.
CBC Action Programme Montenegro-Albania 2018-2020 (Allocation 2018)	680,000.00	802,833.53	Committed	ODA	Standard grant	Cross-cutting	Cross-cutting	Montenegro	Cross-Border Cooperation Action Programme Montenegro-Albania 2018-2020 (Allocation 2018)
Rural Development through Improved Rural Transport in Mozambique	49,600,000.00	58,559,622.20	Committed	ODA	Standard grant	Adaptation	Transport	Mozambique	Implementation of rural road projects serving the specific objectives of the Rural Development Component of the NIP to i) improve food security and nutrition status and ii) enhance rural competitiveness in focus Provinces of Nampula and Zambezia.
PROMOVE-Agribiz. Improving rural competitiveness in Nampula and Zambézia provinces	27,200,000.00	32,113,341.20	Committed	ODA	Standard grant	Cross-cutting	Agriculture	Mozambique	The action will aim at improving small producers' productivity and resilience, enhance the provision of support services, including financial and rural extension services, as well as, foster commercial partnerships with enterprises and increase the availability of commercial operational services along selected value chains.
Myanmar Climate Change Alliance - phase II	7,500,000.00	8,854,781.58	Committed	ODA	Standard grant	Adaptation	Cross-cutting	Myanmar	Support the implementation of the Myanmar Climate Change Strategy
Sustainable and Inclusive Drinking Water Supply for Altamira – Managua	10,000,000.00	11,806,375.44	Committed	ODA	Standard grant	Adaptation	Water and Sanitation	Nicaragua	La acción mejora la prestación del servicio de agua potable para la población de Altamira bajo un enfoque de gestión eficiente del recurso hídrico, eficiencia empresarial, sostenibilidad ambiental y equidad de género.
Boosting Rural and Rurban Economy in Times of Crisis and Beyond (BOOST)	6,000,000.00	7,083,825.27	Committed	ODA	Standard grant	Adaptation	Agriculture	Nicaragua	Mitigate the impacts of the 2018 crisis on food production and consumption in targeted areas of the country specifically, promote sustainable agri-food systems in rural and urban areas, addressing the effects of crisis in targeted areas of Nicaragu

EU Support to Yobe State	12,000,000.00	14,167,650.53	Committed	ODA	Standard grant	Adaptation	Other (Other)	Nigeria	The programme aims to strengthen resilience, stability and restoration of livelihood of conflict-affected people. Actions would cover girls' education, livelihoods, job creation, rehabilitation and restoration of basic amenities in selected LGAs
Nigeria Climate Change Response Programme-NCCRP	8,000,000.00	9,445,100.35	Committed	ODA	Standard grant	Mitigation	Cross-cutting	Nigeria	The programme will support the development and implementation of Nigerian climate change response program to guarantee country's economic growth and development strategies while meeting its conditional 45% NDC targets by 2030.
Fondo Verde para América Central	20,000,000.00	23,612,750.89	Committed	ODA	Standard grant	Adaptation	Cross-cutting	North & Central America, regional	General objective: To contribute to building more resilient and sustainable societies through a better preparation of the region to address climate change. Specific objective: Contribute to address climate change and environmental related issues by supporting the adoption and implementation of adaptation, mitigation and disaster risk reduction measures and promoting low-emission investments. Lines of action: • In line with the Regional Climate Change Strategy, promote adaptation
11°FED Régional PTOM Pacifique	36,000,000.00	42,502,951.59	Committed	ODA	Standard grant	Adaptation	Water and Sanitation	Oceania, regional	L'objectif général du programme est de construire un développement durable et résilient des économies des PTOM face au changement climatique en s'appuyant sur la biodiversité et les ressources naturelles renouvelables.
Pacific - European Union Waste Management Programme (PacWaste Plus)	6,800,000.00	8,028,335.30	Committed	ODA	Standard grant	Adaptation	Other (Other)	Oceania, regional	The proposed Waste Management Programme overall objective is to provide a strategic, information driven framework to help address priority waste and pollution issues that will reduce associated threats to sustainable development
Strengthening Public Finance Management and Governance in the Pacific Project	4,400,000.00	5,194,805.19	Committed	ODA	Standard grant	Cross-cutting	Other (Other)	Oceania, regional	11th EDF - This project enhances PFM systems, external audit institutions and improves the budget oversight role of

									parliaments in the Pacific ACP states.
Focal Sector Energy Efficiency	1,000,000.00	1,180,637.54	Committed	ODA	Standard grant	Mitigation	Energy	Palau	This programme will implement energy efficiency in Palau, provide support to the office of the NAO and build capacity of civil society.
Support Measures	350,000.00	413,223.14	Committed	ODA	Standard grant	Mitigation	Other (Other)	Palau	This programme will implement energy efficiency in Palau, provide support to the office of the NAO and build capacity of civil society.
Civil Society Measures	200,000.00	236,127.51	Committed	ODA	Standard grant	Mitigation	Other (Other)	Palau	This programme will implement energy efficiency in Palau, provide support to the office of the NAO and build capacity of civil society.
11th EDF Support to Energy Efficiency in Palau	50,000.00	59,031.88	Committed	ODA	Standard grant	Mitigation	Other (Other)	Palau	This programme will implement energy efficiency in Palau, provide support to the office of the NAO and build capacity of civil society.
Support to Rural Entrepreneurship, Investment and Trade in Papua New Guinea (STREIT PNG)	34,000,000.00	40,141,676.51	Committed	ODA	Standard grant	Cross-cutting	Agriculture	Papua New Guinea	The overall objective is to improve sustainable and inclusive economic development and job creation, thus leading to poverty reduction.
Technical Cooperation Facility VI	2,000,000.00	2,361,275.09	Committed	ODA	Standard grant	Cross-cutting	Other (Other)	Rwanda	Support to the cooperation Between Government of Rwanda and EU, and to the implementation of the 11th EDF National Indicative Programme.
Programme de coopération Sénégal-UE pour la sécurité alimentaire et la protection sociale	12,000,000.00	14,167,650.53	Committed	ODA	Standard grant	Adaptation	Other (Other)	Senegal	Programme d'AB (incluant enveloppe AT) pour le renforcement de la protection sociale en lien avec la sécurité alimentaire et nutritionnelle
Changement climatique et gestion intégrée des zones côtières au Sénégal (AMCC+)	5,000,000.00	5,903,187.72	Committed	ODA	Standard grant	Adaptation	Cross-cutting	Senegal	Améliorer durablement la résilience climatiques des zones côtières, en s'appuyant sur des mesures concrètes au niveau local.
Annual Action Programme 2018 Serbia - Objective 2 - Environment, energy and climate action	61,915,000.00	73,099,173.55	Committed	ODA	Standard grant	Mitigation	Cross-cutting	Serbia	Annual Action Programme 2018 Serbia - Objective 2 - Environment, energy and climate action
Rural development programme	12,000,000.00	14,167,650.53	Committed	ODA	Standard grant	Cross-cutting	Agriculture	Serbia	Programme designed to contribute to the sustainable adaptation of the agricultural sector and rural areas and to the country's preparation for the

									implementation of the acquis communautaire concerning the CAP and related policies.
2014-2020 Romania-Serbia Cross-border cooperation	3,589,560.00	4,237,969.30	Committed	ODA	Standard grant	Cross-cutting	Cross-cutting	Serbia	Infrastructure and environment, economy, education and culture, technical assistance
2014-2020 Hungary-Serbia Cross-border cooperation	3,120,780.00	3,684,510.04	Committed	ODA	Standard grant	Cross-cutting	Cross-cutting	Serbia	Infrastructure and environment, economy, education and culture, technical assistance
2014-2020 Croatia-Serbia Cross-border cooperation	1,643,350.00	1,940,200.71	Committed	ODA	Standard grant	Cross-cutting	Cross-cutting	Serbia	Infrastructure and environment, economy, education and culture, technical assistance
2014-2020 Bulgaria - Serbia Cross-border cooperation	1,389,070.00	1,639,988.19	Committed	ODA	Standard grant	Cross-cutting	Cross-cutting	Serbia	Infrastructure and environment, economy, education and culture, technical assistance
Somalia Regional Corridors Infrastructure Programme (SRCIP)	16,800,000.00	19,834,710.74	Committed	ODA	Standard grant	Adaptation	Transport	Somalia	The programme is designed to support Somalia to make progress on road infrastructural under some components: (1)rehabilitation of road infrastructure (2)technical assistance & capacity building (3) management of road reserve encroachments
Sustainable Environment, Water and Energy Development (WECOOP 3	10,900,000.00	12,868,949.23	Committed	ODA	Standard grant	Cross-cutting	Water and Sanitation	South & Central Asia, regional	The overall objective of the action is to promote sustainable development at regional and national levels in Central Asia by strengthening water and energy security and promoting green investments.
Infrastructure: African Investment Platform	67,580,000.00	79,787,485.24	Committed	ODA	Standard grant	Cross-cutting	Water and Sanitation	South of Sahara, regional	Regional EA-SA-IO infrastructure programme, as EDF contribution to the African Investment Platform
Contribution of Sustainable Fisheries to the Blue Economy of the Eastern Africa, Southern Africa and the Indian Ocean (EA-SA-IO) region	11,200,000.00	13,223,140.50	Committed	ODA	Standard grant	Adaptation	Agriculture	South of Sahara, regional	The overall objective of the E€OFISH programme is to enhance equitable economic growth by promoting sustainable fisheries in the EA-SA-IO region. The specific objective is to support sustainable management and development of fisheries, while addressing climate change resilience and enhancing marine biodiversity

Local Climate Adaptive Living Facility (LoCAL II)	7,000,000.00	8,264,462.81	Committed	ODA	Standard grant	Adaptation	Cross-cutting	South of Sahara, regional	The action shall be carried out at the following location: Lesotho, Tanzania, Tuvalu and Uganda (phase I), Bangladesh, Benin, Cambodia, Ghana, Lao PDR, Mali, Mozambique, Nepal and Niger (phase II) and Bhutan (phase III).
Programme Régional de Gestion des Ressources Transfrontalières en Eau dans le Bassin du Lac Tanganyika	7,000,000.00	8,264,462.81	Committed	ODA	Standard grant	Adaptation	Water and Sanitation	South of Sahara, regional	Gestion durable des ressources transfrontalières en eau dans le Bassin du Lac Tanganyika
Upscaling interventions in favour of sustainable cities	6,800,000.00	8,028,335.30	Committed	ODA	Standard grant	Cross-cutting	Cross-cutting	South of Sahara, regional	The overall objective of the programme is to improve access to basic services for the population of beneficiary ACP countries. The specific objective of the programme is to overcome barriers to access finance for a number of concrete investments
Programme for the Transboundary Water Management in the Cubango – Okavango River Basin	6,000,000.00	7,083,825.27	Committed	ODA	Standard grant	Adaptation	Water and Sanitation	South of Sahara, regional	The Project aims at contributing to the equitable utilisation, shared benefits and mitigation of common risks of transboundary waters in the Cubango-Okavango river basin.
"Agri-Connect: Supporting value chains for shared prosperity" (Agri Component) 11th EDF	40,000,000.00	47,225,501.77	Committed	ODA	Standard grant	Adaptation	Other (Other)	Tanzania	The Action “Agri-Connect: Supporting value chains for shared prosperity” contributes to two NIP objectives within Sustainable Agriculture: i) generate agricultural wealth, through linking farmers to markets and value chains and ii) improve food and nutrition security, through improved access, availability, and use of food. The Programme contributes to SDG 1, 2, 5, 8, 9 and 13 and is the Prosperity component of the new European Consensus on Development, which promotes sustainable agriculture

Programme d'Appui au Secteur de l'Energie au Togo PASET) - Phase II	6,000,000.00	7,083,825.27	Committed	ODA	Standard grant	Mitigation	Energy	Togo	L'objectif global du projet est de stimuler la croissance économique et de contribuer à la réduction de la pauvreté en augmentant la capacité installée de production actuellement disponible au Togo. Les objectifs spécifiques sont: (1) réduire la dépendance énergétique du Togo des sources d'approvisionnement extérieures, (2) augmenter l'utilisation des énergies renouvelables et diversifier le mix énergétique national, qui repose aujourd'hui essentiellement sur des sources thermiques et (3) augme
Rural development programme	47,193,920.00	55,718,913.81	Committed	ODA	Standard grant	Cross-cutting	Agriculture	Turkey	Programme designed to contribute to the sustainable adaptation of the agricultural sector and rural areas and to the country's preparation for the implementation of the acquis communautaire concerning the CAP and related policies.
Energy	5,360,000.00	6,328,217.24	Committed	ODA	Standard grant	Mitigation	Energy	Turkey	2018 Annual Action Programme for Turkey Objective 2
Rural development programme	5,206,080.00	6,146,493.51	Committed	ODA	Standard grant	Cross-cutting	Agriculture	Turkey	Programme designed to contribute to the sustainable adaptation of the agricultural sector and rural areas and to the country's preparation for the implementation of the acquis communautaire concerning the CAP and related policies.
2014-2020 Bulgaria - Turkey Cross-border cooperation	1,207,430.00	1,425,537.19	Committed	ODA	Standard grant	Cross-cutting	Cross-cutting	Turkey	Infrastructure and environment, economy, education and culture, technical assistance
Infrastructure: African Investment Platform	12,420,000.00	14,663,518.30	Committed	ODA	Standard grant	Cross-cutting	Transport	Uganda	Regional EA-SA-IO infrastructure programme, as EDF contribution to the African Investment Platform
Contribution to the Development Initiative for Northern Uganda through the rehabilitation of the Tororo-Gulu railway	8,600,000.00	10,153,482.88	Committed	ODA	Standard grant	Mitigation	Transport	Uganda	Rehabilitation of the railway from Tororo to Gulu - Uganda
Energy Efficiency Support Programme (EE4U-II)	54,000,000.00	63,754,427.39	Committed	ODA	Standard grant	Mitigation	Energy	Ukraine	The programme will provide support to the activities of the Energy Efficiency Fund aimed at implementing energy efficiency measures in the residential sector in Ukraine.

Technical Cooperation Facility 2018	14,800,000.00	17,473,435.66	Committed	ODA	Standard grant	Cross-cutting	Other (Other)	Ukraine	This Action aims at supporting Ukraine in implementing the EU-Ukraine Association Agreement, including DCFTA, as well as enhancing Ukraine's capacities to ensure respect for human rights and fundamental freedoms
"Livestock Sector Development Project"	15,000,000.00	17,709,563.16	Committed	ODA	Standard grant	Adaptation	Agriculture	Uzbekistan	OO: To contribute to sustainable and inclusive growth in the rural sector in Uzbekistan in the context of a changing climate. SO: To improve livestock productivity and access to market in selected regions
Vanuatu Value Chain Development	10,000,000.00	11,806,375.44	Committed	ODA	Standard grant	Adaptation	Agriculture	Vanuatu	As per NIP 2014-2020, intervention aims at rural development through support to the value chains of Coconut, Beef and Fruits&Vegetables.
Asia Investment Facility (AIF) - MA part 2 -2018	12,000,000.00	14,167,650.53	Committed	ODA	Standard grant	Cross-cutting	Transport	Viet Nam	Replenishment RIP and MIP VN
Access to self-sufficient water and energy services	12,560,000.00	14,828,807.56	Committed	ODA	Standard grant	Adaptation	Water and Sanitation	West Bank and Gaza Strip	This Action intends to operationalize - through a set of complementary interventions - its objective of supporting the PA to provide sufficient, equitable, affordable and sustainable access to energy, safe water and sanitation services for all.
Support to sustainable economic development and enhanced governance	11,180,000.00	13,199,527.74	Committed	ODA	Standard grant	Adaptation	Cross-cutting	West Bank and Gaza Strip	The AAP 2018 covers EU's programme in Area C, interventions in Gaza and UNIDO. Furthermore, a component to enhance governance. The EU's contribution includes approx. 1,8M€ as fund transfer from Denmark to Area C.
11th EDF Caribbean OCT Regional Program	40,000,000.00	47,225,501.77	Committed	ODA	Standard grant	Cross-cutting	Other (Other)	West Indies, regional	The twelve Caribbean Overseas Countries and Territories (OCTs) will under the 11th EDF regional programme focus on sustainable energy and marine biodiversity. Activities in both sub-sectors have the overall objective to contribute to the Caribbean OCTs' social, economic and environmental development. Building resilience to future changes in the Caribbean basin and striving towards a low carbon economy will contribute to sustainable economic

									development in the Caribbean OCTs.
Post-Hurricanes Irma and Maria: Regional Resilience Building Facility	27,775,000.00	32,792,207.79	Committed	ODA	Standard grant	Adaptation	Cross-cutting	West Indies, regional	The Regional Resilience Building Facility is organised around the three following components: • A Regional TA facility for resilience mainstreaming (EUR 4 million) • An adaptation facility for infrastructure vulnerability reduction (EUR 10 million) • Expansion of CCRIF and other risk financing measures (EUR 13.2 million)
Caribbean Investment Facility (CIF) under the European Development Fund	20,000,000.00	23,612,750.89	Committed	ODA	Standard grant	Cross-cutting	Water and Sanitation	West Indies, regional	Allocation 2018 for the Caribbean Investment Facility from the 11th EDF Caribbean Regional Indicative Programme (CRIP). The CIF aims to operations leveraging investments in climate change adaptation/resilience, sustainable energy, transport and PSD
Direct grant to CDEMA	7,000,000.00	8,264,462.81	Committed	ODA	Standard grant	Adaptation	Other (Other)	West Indies, regional	The overall objective of the programme is to contribute to the reduction of the vulnerability and sustainable development of the CARIFORUM States to disaster risks
11th EDF - Support to the OECS Cooperation and Integration Process	4,120,000.00	4,864,226.68	Committed	ODA	Standard grant	Cross-cutting	Other (Other)	West Indies, regional	The Programme will continue the support already given to the OECS under the previous EDF Caribbean Regional Programmes, further assisting the OECS in their efforts towards more integration
Cross Sub-delegation ECHO	4,000,000.00	4,722,550.18	Committed	ODA	Standard grant	Adaptation	Other (Other)	West Indies, regional	The overall objective of the programme is to contribute to the reduction of the vulnerability and sustainable development of the CARIFORUM States to disaster risks
Coconut Industry Development Expansion and Enhanced Support for the Caribbean	2,400,000.00	2,833,530.11	Committed	ODA	Standard grant	Adaptation	Agriculture	West Indies, regional	Second phase of support to the coconut sectors in the CARIFORUM Member States

11th EDF Natural Disaster Facility in the CARIFORUM	250,000.00	295,159.39	Committed	ODA	Standard grant	Adaptation	Other (Other)	West Indies, regional	The overall objective of the programme is to contribute to the reduction of the vulnerability and sustainable development of the CARIFORUM States to disaster risks
Supporting Resilient Livelihoods and Food and Nutrition Security in Yemen	2,400,000.00	2,833,530.11	Committed	ODA	Standard grant	Cross-cutting	Cross-cutting	Yemen	"Supporting Resilient Livelihoods and Food Security in Yemen" 's objective is to contribute to reduced vulnerability and strengthened resilience capacity of crisis-affected communities in
Support to the sustainable commercialisation of Zambia's smallholder farmers	39,600,000.00	46,753,246.75	Committed	ODA	Standard grant	Adaptation	Agriculture	Zambia	The overall objective of the programme is to contribute to reducing rural poverty and malnutrition and improving rural livelihoods. Its specific objective is to contribute to job creation and increase smallholder farmers' productivity, income and livelihoods through more inclusive, market oriented, climate change adapted and nutrition sensitive agriculture

Documentation box

1: Core/general

The EU supports a variety of global programmes and Trust Funds managed by multilateral organisations, including the UNDP, UNEP, FAO and the World Bank. The EU also provides support to the operating entities of the financial mechanism of UNFCCC, the Global Environment Facility (GEF) and the Green Climate Fund (GCF).

2: Climate-specific

The EU categorises its climate finance as climate specific if it has been given a Rio Marker. CTF Table 7 combines the climate finance provided by the EU and EIB for the years 2017 and 2018, from CTF Tables 7(a) and 7(b). The EIB's climate relevant financial flows are tracked using the joint approach developed by the Multilateral Development Banks (MDBs) that does not use the Rio markers.

The EU's statistical system categorises all climate finance support as bilateral with multiple recipients, even where the finance is delivered through a multilateral organisation. Therefore, this is all reported in CTF 7(b).

The EIB's climate finance is aggregated and reported as multilateral, and so is reported in CTF Table 7(a). This differs from the EU's 3rd Biennial Report (3BR) and 7th National Communication (7NC), where it was categorised in CTF Table 7(b). Categorising these financial flows in CTF Table 7(a) is a more accurate reflection of where the financial flows from a MDB should be reported. In order to provide the same high level of transparency as with the EU 3BR and 7NC, a Technical Annex has been added to this report, which contains all of the disaggregated information for the EIB's climate finance reported in CTF Table 7(a).

The currency exchange rates used throughout the climate finance chapter and its CTF tables are average annual conversion rates and were sourced from the OECD website (https://data.oecd.org/conversion/exchange-rates.htm):
2017: 1 USD to 0.887 EUR
2018: 1 USD to 0.847 EUR

3: Status

The EU categorises the status of its climate finance as committed and disbursed but reports on committed funding for a given calendar year, in this case, 2017 and 2018. The status of the EIB's climate finance is committed.

4: Funding source

The EU categorises the funding source of its climate finance as ODA. All EIB categorises its funding sources as ODA, OOF and Other.

5: Financial instrument

The EU categorises the financial instrument used in its climate finance as grants. All EIB funds that are reported here are provided in the form of loans alongside several grant and equity investments.

6: Type of support

The EU categorises the type of its climate finance support into "mitigation", "adaptation" or "cross-cutting", making use of the Rio markers. The method that it assigns is explained in detail in Section 6.2 of the EU Biennial Report. The EIB categorises its climate finance support into "mitigation" and "adaptation".

7: Sector

The EU categorises the provision of climate finance into the following eight sectors: Energy, Transport, Industry, Agriculture, Forestry, Water & sanitation, Cross-cutting, Other, and assigns one of these sectoral codes to each project visible in CTF Tables 7(a) and 7(b).

In order to reduce the number of DAC CRS codes being allocated to EU 4BR sector "Other", the below improvements were made compared with the EU 3BR and 7NC:
- Code 313 "Fishing" was moved to Sector code 311 "Agriculture" for the EU 4BR, compared to "Other" in EU 3BR&7NC
- Codes 322 "Mineral resources and mining" and 323 "Construction" were moved to sector Code 321 "Industry" for the EU 4BR, compared to "Other" in EU 3BR&7NC
- Code 410 (General environmental protection) was added to the "Cross-cutting", compared to "Other" in the EU3BR&7NC

Each Party shall provide an indication of what new and additional financial resources they have provided, and clarify how they have determined that such resources are new and additional. Please provide this information in relation to table 7(a) and (b).

CTF Table 8: Provision of technology development and transfer support during 2017-2018

Recipient country and/or region	Targeted area	Sector	Measures and activities related to technology transfer	Source of the funding for technology transfer	Activities undertaken by	Status	Additional information
Middle East and North Africa, Rwanda	Mitigation and Adaptation	Technical Cooperation Facility VI	Other (Government & Civil Society-general)	Private and Public	Private and Public	Implemented	Support to the cooperation between Government of Rwanda and EU, and to the implementation of the 11th European Development Fund (EDF) National Indicative Programme.
Developing countries, unspecified	Mitigation and Adaptation	Support Measures for environment and climate change under the Global Public Goods and Challenges (GPGC) thematic programme 2018	Other (General Environmental Protection)	Private and Public	Private and Public	Implemented	The Support Measures will be used to finance, among others, activities such as i) risk-based audits and evaluations, ii) technical support for the identification and formulation of new actions, iii) studies and advisory services, trainings, seminars, conferences, workshops, meetings and production of related publications, and iv) technical support for the overall monitoring, evaluation and impact assessment of the programme.
Albania	Mitigation and Adaptation	Rural development programme	Agriculture	Private and Public	Private and Public	Implemented	Programme designed to contribute to the sustainable adaptation of the agricultural sector and rural areas and to the country's preparation for the implementation of the acquis communautaire concerning the Common Agricultural Policy (CAP) and related policies.
Developing countries, unspecified	Adaptation	Support to ocean governance in African, Carribean and Pacific (ACP) countries	Other (General Environmental Protection)	Private and Public	Private and Public	Implemented	Support to a network of selected relevant higher education institutions to increase national capacities in biodiversity and forestry conservation with a specific window to reinforce people dependant on renewable natural resources.
Developing countries, unspecified	Adaptation	EU for Green Mediterranean (MED) III and sustainable transport	Transport	Private and Public	Private and Public	Implemented	Focussed on three complementary and interlinked lines of action: depollution of the Mediterranean and reduction of water stress, promotion of green and circular economy, and promotion of sustainable transport.

Recipient country and/or region	Targeted area	Sector	Measures and activities related to technology transfer	Source of the funding for technology transfer	Activities undertaken by	Status	Additional information
Nicaragua	Adaptation	Boosting Rural and Rurban Economy in Times of Crisis and Beyond (BOOST)	Agriculture	Private and Public	Private and Public	Implemented	Mitigate the impacts of the 2018 crisis on food production and consumption in targeted areas of the country; specifically, promote sustainable agri-food systems in rural and urban areas, addressing the effects of crisis in targeted areas of Nicaragua.
Developing countries, unspecified	Mitigation and Adaptation	Development-Smart Innovation through Research in Agriculture (DeSIRA): Towards climate-relevant Agricultural and Knowledge Innovation Systems	Agriculture	Private and Public	Private and Public	Implemented	This action is part of an initiative on Development Smart Innovation through Research in Agriculture (DeSIRA). It intends to link research and innovation with development initiatives, to boost food systems transformation in partner countries.

Footnote: This table includes details of a non-exhaustive list of selected initiatives implemented in cooperation with developing country partners, with an important technology development and transfer component, which the EU believes are representative of the overall technology development and transfer support provided by the EU.

CTF Table 9: Provision of capacity-building support during 2017-2018

Recipient country / region	Targeted area	Programme or project title	Description of programme or project
Asia, Central	Multiple Areas	Strengthening financial resilience and accelerating risk reduction in Central Asia	The main objective of this programme is to build disaster and climate resilience in Central Asia, and lay the foundations for a future disaster risk financing solution at regional level in line with the Sendai Framework. The programme will aim to embed an approach that shifts from managing disasters to managing risks and will allow investments to be risk-informed and livelihoods and growth to be sustainable.
Somalia	Adaptation	Somalia Regional Corridors Infrastructure Programme (SRCIP)	The programme is designed to support Somalia to make progress on road infrastructure under some components: (1) improvement of road infrastructure (2) technical assistance & capacity building (3) management of road reserve encroachments.
Africa, regional	Mitigation	Capacity building for CO2 mitigation from international aviation (Phase II)	The objective is to mitigate greenhouse gas emissions from civil aviation. It will be achieved through: a) implementing State Action Plans to reduce emissions b) participating in the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA).
Developing countries, unspecified	Mitigation	Policy advice, technical assistance and capacity building in support of regulatory reforms and investments in sustainable energy	Action aiming at the gradual improvement of the partner countries' capacities in the energy sector, fully integrated in pillar II of the External Investment Plan (EIP) and regional blending platforms, and also assist sector governance and improvement of the business environment.
Asia Pacific	Mitigation	11th European Development Fund (EDF) Support to Energy Efficiency in Palau	This programme will implement energy efficiency in Palau, provide support to the National Authorising Officers (NAO) and build capacity of civil society.
Developing countries, unspecified	Mitigation	ACP-EU Programme to strengthen Research and Innovation capacity in ACP countries	The overall objective of the Action is to unlock the inclusive innovation potential of ACP countries and support their transition into knowledge-based economies for sustainable development and poverty reduction.
Libanon	Mitigation	Towards a Decentralised Waste management Integrated Response (TaDWIR) - Lebanon / 2	This programme aims first and foremost at enhancing the capacity of the Beirut and the Governorate of Beirut and Mount Lebanon (BML) in waste management.
Yemen	Multiple Areas	Supporting Resilient Livelihoods and Food and Nutrition Security in Yemen	The objective of "Supporting Resilient Livelihoods and Food Security in Yemen" is to contribute to sustained improvements in food and nutrition security, reduce vulnerability and strengthened resilience capacity of crisis-affected communities in Yemen through creation of sustainable livelihoods and improve access to basic services.
Botswana	Multiple Areas	EDF 11 Botswana Dialogue Facility	Contributing to sustainable and inclusive growth, improving the quality of policy development and implementation of Botswana's key National Development Plan (NDP) priorities in the areas of economic development and diversification, and strengthening stakeholders' capacity.

Footnote: This table includes details of a non-exhaustive list of selected support initiatives with an important capacity-building component, which the EU believes are representative of the overall capacity building support provided by the EU.

10. TECHNICAL ANNEX – CLIMATE FINANCE PROVIDED BY EIB DURING 2017 AND 2018

This technical annex provides a detailed breakdown of the information provided in CTF Table 7(a) for 2017 and 2018, and shows the climate finance provided by the EIB to developing country parties in this report.

Table 10-1 Climate finance provided by the EIB to developing countries (2017)

Recipient Country	EUR	USD	Status	Funding Source	Financial Instrument	Type of support	Sector	Additional Information
Argentina	1,211,954	1,366,351	Committed	Other	Other	Mitigation	Credit lines	Credit line supporting private sector development in Argentina, implemented by the state-owned Banco de Inversión y Comercio Exterior.
Armenia	5,110,000	5,760,992	Committed	Other	Other	Mitigation	Services	The operation is a framework loan (FL) in support of sustainable energy efficiency improvements targeting public buildings in Yerevan, Armenia. Part of the allocations under the FL has already been identified ex ante through advisory support and consists of the refurbishment of 16 public buildings. The remainder of the pipeline of allocations will be further developed by the Municipality of Yerevan, the promoter, with advisory support.
Azerbaijan	400,000	450,958	Committed	Other	Other	Mitigation	Credit lines	A dedicated EIB loan to finance projects promoted by SMEs in the Republic of Azerbaijan.
China	89,995,499	101,460,540	Committed	Other	Other	Mitigation	Energy	The proposed Framework Loan using the Chinese Exim Bank as intermediary aims to finance diverse sizes of Energy Efficiency, Renewables, Transport, Waste and Water sub-projects, eligible under the Bank's own-risk facility, Climate Action and Environment Facility (CAEF), with a strong focus on climate change mitigation and adaptation.
China	14,994,000	16,904,171	Committed	Other	Other	Adaptation	Energy	The proposed Framework Loan using the Chinese Exim Bank as intermediary aims to finance diverse sizes of Energy Efficiency, Renewables, Transport, Waste and Water sub-projects, eligible under the Bank's own-risk facility, Climate Action and Environment Facility (CAEF), with a strong focus on climate change mitigation and adaptation.
China	35,998,200	40,584,216	Committed	Other	Other	Mitigation	Transport	The proposed Framework Loan using the Chinese Exim Bank as intermediary aims to finance diverse sizes of Energy Efficiency, Renewables, Transport, Waste and Water sub-projects, eligible under the Bank's own-risk facility, Climate Action and Environment Facility (CAEF), with a strong focus on climate change mitigation and adaptation.

China	5,997,600	6,761,668	Committed	Other	Other	Adaptation	Transport	The proposed Framework Loan using the Chinese Exim Bank as intermediary aims to finance diverse sizes of Energy Efficiency, Renewables, Transport, Waste and Water sub-projects, eligible under the Bank's own-risk facility, Climate Action and Environment Facility (CAEF), with a strong focus on climate change mitigation and adaptation.
China	53,997,299	60,876,324	Committed	Other	Other	Mitigation	Water, sewerage	The proposed Framework Loan using the Chinese Exim Bank as intermediary aims to finance diverse sizes of Energy Efficiency, Renewables, Transport, Waste and Water sub-projects, eligible under the Bank's own-risk facility, Climate Action and Environment Facility (CAEF), with a strong focus on climate change mitigation and adaptation.
China	8,996,400	10,142,503	Committed	Other	Other	Adaptation	Water, sewerage	The proposed Framework Loan using the Chinese Exim Bank as intermediary aims to finance diverse sizes of Energy Efficiency, Renewables, Transport, Waste and Water sub-projects, eligible under the Bank's own-risk facility, Climate Action and Environment Facility (CAEF), with a strong focus on climate change mitigation and adaptation.
Côte d'Ivoire	3,149,685	3,550,942	Committed	Other	Other	Mitigation	Water, sewerage	Renforcement du réseau de desserte d'eau potable de la ville d'Abidjan dans le cadre du programme d'investissements prioritaires pour l'augmentation des capacités d'approvisionnement en eau potable d'Abidjan.
Cote d'Ivoire	6,299,370	7,101,883	Committed	Other	Other	Adaptation	Water, sewerage	Renforcement du réseau de desserte d'eau potable de la ville d'Abidjan dans le cadre du programme d'investissements prioritaires pour l'augmentation des capacités d'approvisionnement en eau potable d'Abidjan.
Dominican Republic	100,000	112,740	Committed	Other	Other	Mitigation	Education	Long-term loan to Fundapec, an NGO providing student loans in the Dominican Republic.
Egypt	115,000,000	129,650,507	Committed	Other	Other	Mitigation	Energy	The project involves design, construction and commissioning of a large-size 200 MW onshore wind farm to be located on the west bank of the Gulf of Suez, Egypt; some 400 km southeast of Cairo. Depending on the turbine type up to 100 turbines will be installed. The site, of a size of around about 57 km², is characterised by its arid desert conditions and has very favourable wind resources. In addition, a 22/220 kV substation will be constructed.
Egypt	355,777	401,101	Committed	Other	Other	Mitigation	Credit lines	Loan for SMEs to support the private sector development through all eligible industrial and services sectors of Egyptian economy.
Egypt	5,000,000	5,636,979	Committed	Other	Other	Mitigation	Credit lines	Loan for SMEs and MidCaps to support manufacturing, services and other eligible sectors of the Egyptian economy.

Egypt	1,500,000	1,691,094	Committed	Other	Other	Mitigation	Credit lines	The facility aims to finance eligible small and medium sized investments undertaken by SMEs and Mid-Caps in Jordan as well as Egypt, Lebanon, Palestine and Morocco, thereby contributing to economic resilience, employment generating activities and alleviating the economic burden of the refugee crisis across the region.
Ethiopia	1,400,000	1,578,354	Committed	Other	Other	Mitigation	Credit lines	The project consists of a loan to the Federal Democratic Republic of Ethiopia for on lending to the Development Bank of Ethiopia (DBE), which, in turn, will on-lend directly (leasing finance) to eligible SMEs and indirectly (leasing and loan finance) through financial institutions. The loan is part of a wider SME support scheme led by the WB, the aim of which is to provide sustainable access to finance for SMEs in Ethiopia and capacity building to DBE, as well as Ethiopian leasing companies, microfinance institutions (MFIs), commercial banks (defined as Participating Financial Institutions, PFIs) and SMEs.
Fiji	5,792,003	6,529,879	Committed	Other	Other	Mitigation	Water, sewerage	The project will upgrade and develop water supply and wastewater infrastructure in the greater urban area of Fiji's capital Suva to increase climate change resilience of the water supply system. The project includes construction of a new water treatment facility, upgrading of an existing wastewater treatment plant, improvement of water distribution and wastewater collection networks.
Fiji	7,079,114	7,980,963	Committed	Other	Other	Adaptation	Water, sewerage	The project will upgrade and develop water supply and wastewater infrastructure in the greater urban area of Fiji's capital Suva to increase climate change resilience of the water supply system. The project includes construction of a new water treatment facility, upgrading of an existing wastewater treatment plant, improvement of water distribution and wastewater collection networks.
Georgia	3,500,000	3,945,885	Committed	ODA	Other	Mitigation	Energy	Rehabilitation works at the Enguri and Vardnili cascade of hydropower plants located in the breakaway republic of Abkhazia.
Georgia	11,250,280	12,683,518	Committed	ODA	Other	Mitigation	Water, sewerage	The project will modernise the water supply and sanitation of Georgia's capital Tbilisi and consists of (1) upgrade of the Soviet-era Gardabani waste water treatment plant's mechanical stage to bring it in line with the current Georgian and EU requirements, and (2) upgrade of the outdated water distribution and sewage collection networks to improve access, minimise leaks, and infiltration and save energy.
Georgia	48,750	54,961	Committed	Other	Other	Mitigation	Credit lines	SME loan guarantee provided to ProCredit subsidiaries in Ukraine, Georgia and Moldova under the DCFTA Initiative East - Eastern Neighbourhood Guarantee Facility
Georgia	48,750	54,961	Committed	Other	Other	Mitigation	Credit lines	SME loan guarantee provided to TBC Bank in Georgia under DCFTA Initiative East - Guarantee Facility.

Georgia	84,552	95,324	Committed	Other	Other	Mitigation	Credit lines	USD loan to finance Credo's microfinance portfolio.
India	199,256,160	224,640,541	Committed	ODA	Other	Mitigation	Energy	Financing for corporate project developers in India to implement solar PV investments in India.
India	250,000,000	281,848,929	Committed	ODA	Other	Mitigation	Transport	Construction of a 23 km metro line and purchase of a fleet of about 80 metro cars in Lucknow, Uttar Pradesh, in northern India.
India	300,000,000	338,218,715	Committed	Other	Other	Mitigation	Transport	Construction of a 23 km metro line and purchase of a fleet of about 96 metro cars in Bangalore, Karnataka, in southern India
Jordan	1,375,000	1,550,169	Committed	ODA	Other	Adaptation	Water, sewerage	The Project consists of a new water intake facility from the King Abdullah Canal, a treatment plant, pumping facilities and a transmission pipeline to the Zabda Reservoir on the western side of the City of Irbid. The system will provide an additional 30 million cubic metres of potable water per year to the Northern Governorates.
Jordan	2,100,000	2,367,531	Committed	Other	Other	Mitigation	Credit lines	The facility aims to finance eligible small and medium sized investments undertaken by SMEs and Mid-Caps in Jordan as well as Egypt, Lebanon, Palestine and Morocco, thereby contributing to economic resilience, employment generating activities and alleviating the economic burden of the refugee crisis across the region.
Kazakhstan	39,996,002	45,091,322	Committed	Other	Other	Mitigation	Credit lines	A dedicated EIB loan to finance climate change adaptation and mitigation projects in the agri-food sector in Kazakhstan, promoted by rural Micro-enterprises, SMEs and Mid-Caps
Kazakhstan	19,998,001	22,545,661	Committed	Other	Other	Adaptation	Credit lines	A dedicated EIB loan to finance climate change adaptation and mitigation projects in the agri-food sector in Kazakhstan, promoted by rural Micro-enterprises, SMEs and Mid-Caps
Kenya	72,000,000	81,172,492	Committed	Other	Other	Mitigation	Energy	The project consists of the extension of the existing Olkaria I geothermal power plant with an additional 70 MWe turbine (Unit 6), the necessary wells, steam gathering system and interconnection facilities.
Kyrgyzstan	440,000	496,054	Committed	Other	Other	Mitigation	Agriculture, fisheries, forestry	The credit will be structured as an APEX loan to the Government of the Kyrgyz Republic, with the Ministry of Finance acting as the main interface to Financial Intermediaries. Micro, small and medium enterprises and MidCaps along selected agro-food value chains will be targeted as final beneficiaries.
Lebanon	1,175,947	1,325,758	Committed	Other	Other	Mitigation	Credit lines	This facility aims at providing credit lines to local Financial Intermediaries (FIs) in Lebanon to finance small and medium sized projects promoted by SMEs and Mid-Caps. This project will contribute to support the economic growth and the resilience of the Lebanon economy in the context of the refugee crisis.

Lebanon	2,052,212	2,313,655	Committed	Other	Other	Mitigation	Credit lines	This facility aims at providing credit lines to local Financial Intermediaries (FIs) in Lebanon to finance small and medium sized projects promoted by SMEs and Mid-Caps. This project will contribute to support the economic growth and the resilience of the Lebanon economy in the context of the refugee crisis.
Lebanon	1,953,558	2,202,433	Committed	Other	Other	Mitigation	Credit lines	This facility aims at providing credit lines to local Financial Intermediaries (FIs) in Lebanon to finance small and medium sized projects promoted by SMEs and Mid-Caps. This project will contribute to support the economic growth and the resilience of the Lebanon economy in the context of the refugee crisis.
Lebanon	1,200,000	1,352,875	Committed	Other	Other	Mitigation	Credit lines	SME and MidCaps Loan
Lebanon	1,200,000	1,352,875	Committed	Other	Other	Mitigation	Credit lines	The facility aims to finance eligible small and medium sized investments undertaken by SMEs and Mid-Caps in Jordan as well as Egypt, Lebanon, Palestine and Morocco, thereby contributing to economic resilience, employment generating activities and alleviating the economic burden of the refugee crisis across the region.
Madagascar	30,600,000	34,498,309	Committed	Other	Other	Mitigation	Energy	Expanding an existing hydropower station (Andekaleka) by two further turbines (unit size 33 MW) including associated equipment and an upstream sand trap; reinforcing existing substations and networks, associated transformers, switchgear, cables and various auxiliary and control equipment to enable evacuation of the additional power to the main network.
Malawi	5,535,000	6,240,135	Committed	Other	Other	Adaptation	Water, sewerage	2016-2019 investment programme to optimise the use of available water resources and increase the supply capacity to bridge the water supply-demand gap for the populations of the cities of Mzuzu, Ekwendeni, Chitipa and Mzimba in the north of Malawi. The project's main components consist of upgrading and extending the water distribution system, upgrading of water treatment works, reduction of leakages, improving network management and water supply to low income areas.
Mali	7,500,000	8,455,468	Committed	Other	Other	Adaptation	Water, sewerage	Le projet concerne la Phase 2 du projet d'alimentation en eau potable de Bamako à partir de l'usine de Kabala et la première tranche des travaux d'assainissement de la ville de Bamako (stations de traitement des boues de vidange)
Mexico	85,925,417	96,871,947	Committed	ODA	Other	Mitigation	Energy	The Framework Loan will support utility-scale wind farms and solar photovoltaic plants in Mexico.
Moldova, Republic of	200,000	225,479	Committed	ODA	Other	Mitigation	Credit lines	Loan for small and medium-sized projects promoted by SMEs, Mid-Caps and other private or public sector entities
Moldova, Republic of	97,500	109,921	Committed	Other	Other	Mitigation	Credit lines	SME loan guarantee provided to ProCredit subsidiaries in Ukraine, Georgia and Moldova under the DCFTA Initiative East - Eastern Neighbourhood Guarantee Facility

Moldova, Republic of	10,000,000	11,273,957	Committed	Other	Other	Mitigation	Services	The operation is a framework loan (FL) in support of sustainable energy efficiency improvements targeting public buildings in Chisinau, Republic of Moldova. Part of the allocations under the FL has already been identified ex ante through advisory support and consists of the refurbishment of 22 public buildings. The remainder of the pipeline of allocations will be further developed by the Municipality of Chisinau, the promoter, with advisory support, and may include residential buildings.
Mongolia	39,738,778	44,801,328	Committed	OOF	Other	Mitigation	Energy	Construction of a 54MW onshore wind farm near Sainshand, the capital of Dornogobi province in Mongolia.
Montenegro	20,000,000	22,547,914	Committed	Other	Other	Mitigation	Transport	Rehabilitation of railway infrastructure along the main North-South trunk line crossing Montenegro (extended core TEN-T, Orient/East Med Corridor)
Montenegro	7,500,000	8,455,468	Committed	Other	Other	Mitigation	Credit lines	Loans for financing small and medium-sized projects carried out primarily by SMEs as well as by Final Beneficiaries of any size and ownership, including local authorities in Montenegro.
Montenegro	20,000,000	22,547,914	Committed	Other	Other	Mitigation	Transport	Rehabilitation of railway infrastructure along the main North-South trunk line crossing Montenegro (extended core TEN-T, Orient/East Med Corridor)
Montenegro	7,500,000	8,455,468	Committed	Other	Other	Mitigation	Credit lines	Loans for financing small and medium-sized projects carried out primarily by SMEs as well as by Final Beneficiaries of any size and ownership, including local authorities in Montenegro.
Morocco	13,300,000	14,994,363	Committed	ODA	Other	Mitigation	Education	Le projet soutient la création d'une nouvelle université à Fès, au Maroc. Cette nouvelle institution est co-développée en partenariats avec plusieurs institutions d'enseignement supérieur et de recherche en Europe en vue d'offrir des formations conformes aux standards européens et des diplômes reconnus officiellement en Europe, de conduire une recherche de pointe et d'oeuvrer en faveur d'un rapprochement des deux rives de la Méditerranée. Cette initiative est soutenue par l'Union pour la Méditerranée et la Commission Européenne. Le projet financera l'édification d'un éco-campus situé à Fès, qui comprendra des installations dédiées à la recherche, des bâtiments d'enseignement, une résidence universitaire des locaux pour la gestion administrative et des installations sportives. L'université est principalement financée par les droits de scolarité et son statut légal est celui d'une fondation d'utilité publique.

Morocco	4,200,000	4,735,062	Committed	ODA	Other	Mitigation	Services	Le projet soutient la création d'une nouvelle université à Fès, au Maroc. Cette nouvelle institution est co-développée en partenariats avec plusieurs institutions d'enseignement supérieur et de recherche en Europe en vue d'offrir des formations conformes aux standards européens et des diplômes reconnus officiellement en Europe, de conduire une recherche de pointe et d'oeuvrer en faveur d'un rapprochement des deux rives de la Méditerranée. Cette initiative est soutenue par l'Union pour la Méditerranée et la Commission Européenne. Le projet financera l'édification d'un éco-campus situé à Fès, qui comprendra des installations dédiées à la recherche, des bâtiments d'enseignement, une résidence universitaire des locaux pour la gestion administrative et des installations sportives. L'université est principalement financée par les droits de scolarité et son statut légal est celui d'une fondation d'utilité publique.
Morocco	5,100,000	5,749,718	Committed	Other	Other	Adaptation	Water, sewerage	The project concerns the installation, rehabilitation and extension of wastewater collection networks and the construction of wastewater treatment plants (WWTPs) by Office National de l'Eau et de l'Electricité (ONEE) in a number of small and medium-sized towns throughout the Kingdom of Morocco. The project is a successor operation to the PNA 1 operation signed in 2012.
Morocco	200,000	225,479	Committed	Other	Other	Mitigation	Credit lines	Multiple beneficiary intermediated loan with BMCE to finance high impact small scale water projects for industries, water intensive private entities as well as public sector water operators "regies" in Morocco.
Morocco	60,000,000	67,643,743	Committed	Other	Other	Mitigation	Transport	Le Projet porte sur la construction de la deuxième ligne de tramway de Casablanca entre Anoual et Ain Sebaa (15 km) ainsi que l'extension de la première ligne vers Lissasfa (2 km) comprenant 22 stations, dont 20 sur la deuxième ligne, deux nouveaux centres de maintenance et l'acquisition de 25 rames en double composition.
Morocco	300,000	338,219	Committed	Other	Other	Mitigation	Credit lines	The facility aims to finance eligible small and medium sized investments undertaken by SMEs and Mid-Caps in Jordan as well as Egypt, Lebanon, Palestine and Morocco, thereby contributing to economic resilience, employment generating activities and alleviating the economic burden of the refugee crisis across the region.
Morocco	2,000,000	2,254,791	Committed	Other	Other	Mitigation	Credit lines	L'opération proposée est un Prêt intermédié à FINEA (filiale du groupe CDG) visant à améliorer l'accès au financement bancaire des PME au Maroc. La ligne de crédit BEI sera utilisée directement par FINEA et au travers de lignes de financement octroyées par FINEA à des Intermédiaires financiers marocains avec lesquels FINEA signera une convention bancaire dans le cadre de cette opération; ces derniers ayant la charge de procéder à

								la distribution des financements BEI aux PME marocaines privées ou publiques à caractère industriel ou commercial intervenant dans l'ensemble des secteurs de l'économie marocaine.
Morocco	2,000,000	2,254,791	Committed	Other	Other	Mitigation	Credit lines	A dedicated EIB Loan to finance SMEs and Midcaps in Morocco via medium-long term lending and leasing schemes
Namibia	2,531,005	2,853,444	Committed	Other	Equity	Mitigation	Urban development	Equity fund for affordable and energy efficient housing projects in Namibia and Botswana
New Caledonia	400,000	450,958	Committed	Other	Other	Mitigation	Credit lines	A line of credit to part-finance projects being undertaken by private enterprises and public sector entities in New Caledonia.
Nicaragua	123,951,878	139,742,816	Committed	Other	Other	Mitigation	Transport	The project concerns the construction of a 9.6 km long BRT line in Managua, with segregated preferential lanes dedicated to high-capacity bus services. The BRT corridor is aligned with the avenue Juan Pablo II, a main inner ring road crossing the city from east to west and connecting the central districts to the suburbs and to the Pan-American interurban road network.
Palestine	84,581	95,356	Committed	Other	Other	Mitigation	Credit lines	USD loan to finance a portfolio of microloans in Palestine
Palestine	900,000	1,014,656	Committed	Other	Other	Mitigation	Credit lines	The facility aims to finance eligible small and medium sized investments undertaken by SMEs and Mid-Caps in Jordan as well as Egypt, Lebanon, Palestine and Morocco, thereby contributing to economic resilience, employment generating activities and alleviating the economic burden of the refugee crisis across the region.
Panama	14,822,634	16,710,975	Committed	Other	Other	Mitigation	Water, sewerage	The overall objective of this operation is to support the Panama Sanitation Project in the Panama Oeste Province, located west of Panama City and Canal. The project will consist of the construction of a wastewater collection system -sewerage networks, pumping stations and household connections-, the construction of a conveyance system and a wastewater treatment plant to provide full sanitation services to the sector of Burunga and other surrounding areas.
Paraguay	600,000	676,437	Committed	OOF	Other	Mitigation	Credit lines	MBIL for private sector entities of any size undertaking small-scale investments in support of External Lending Mandate objectives and for SMEs and Midcaps in Paraguay.
Peru	126,828,443	142,985,844	Committed	ODA	Other	Mitigation	Energy	Financing of the investment programme of Enel Green Power for the development, construction and operation of a wind farm and a solar PV park plant in Peru for a total installed capacity of about 312 MW.

Regional - ACP	100,000	112,740	Committed	Other	Other	Mitigation	Credit lines	The ACP Smallholder Financing Facility extends the scope of the regional ACP microfinance and SME facilities with a special focus on intermediated loans to support agricultural and commercial activities of smallholder farmers.
Regional - Africa	680,000	766,629	Committed	Other	Other	Mitigation	Credit lines	A facility for Bank of Africa Group (BOA) subsidiaries across Africa to fund private enterprises and, on a limited basis, BOA capex.
Regional - Africa	2,000,000	2,254,791	Committed	Other	Other	Mitigation	Credit lines	Financing facility for eligible private sector entities or commercially operated public sector entities undertaking trade-related long-term productive investments in Sub-Saharan Africa. These eligible investments would be directly financed by Afreximbank or, in the case of loans to SMEs, through local commercial banks with which the EIB does not maintain a relationship.
Regional - Africa	15,908,705	17,935,406	Committed	Other	Equity	Mitigation	Services	Global debt fund focusing on the finance of small-scale energy efficiency and renewable energy investments.
Regional - Africa	42,162,071	47,533,338	Committed	Other	Other	Mitigation	Energy	The AEGF consists of a first-in-kind guarantee to support an EU based reinsurer in the provision of political and (sub)sovereign risk insurance services for the sub-Saharan African energy sector through local partners (primary insurers). The operation is initiated by the EIB and forms part of the Bank's response under the UN initiative Sustainable Energy for All (SE4All).
Regional - Asia	15,908,705	17,935,406	Committed	Other	Equity	Mitigation	Services	Global debt fund focusing on the finance of small-scale energy efficiency and renewable energy investments.
Regional - Caribbean	60,000	67,644	Committed	OOF	Other	Mitigation	Credit lines	Lending Facility to provide medium to long-term funding to low-income small and micro-enterprises, low-income households and community based organisations through selected financial intermediaries in the Caribbean and Pacific countries.
Regional - Caribbean	13,872,000	15,639,233	Committed	Other	Other	Mitigation	Energy	Framework loan to finance CDB's climate mitigation, adaptation and climate-resilience lending programme, supporting a) the regional efforts to reduce vulnerability to climate change in Caribbean developing countries and b) these countries low-carbon pathways.
Regional - Caribbean	10,200,000	11,499,436	Committed	Other	Other	Mitigation	Industry	Framework loan to finance CDB's climate mitigation, adaptation and climate-resilience lending programme, supporting a) the regional efforts to reduce vulnerability to climate change in Caribbean developing countries and b) these countries low-carbon pathways.
Regional - Caribbean	2,040,000	2,299,887	Committed	Other	Other	Mitigation	Transport	Framework loan to finance CDB's climate mitigation, adaptation and climate-resilience lending programme, supporting a) the regional efforts to reduce vulnerability to climate change in Caribbean developing countries and b) these countries low-carbon pathways.

Regional - Caribbean	360,000	405,862	Committed	Other	Other	Adaptation	Transport	Framework loan to finance CDB's climate mitigation, adaptation and climate-resilience lending programme, supporting a) the regional efforts to reduce vulnerability to climate change in Caribbean developing countries and b) these countries low-carbon pathways.
Regional - Caribbean	14,688,000	16,559,188	Committed	Other	Other	Mitigation	Water, sewerage	Framework loan to finance CDB's climate mitigation, adaptation and climate-resilience lending programme, supporting a) the regional efforts to reduce vulnerability to climate change in Caribbean developing countries and b) these countries low-carbon pathways.
Regional - East Africa	380,000	428,410	Committed	Other	Other	Mitigation	Credit lines	Line of credit to finance projects undertaken by private enterprises in Tanzania, Uganda and the Democratic Republic of Congo (DRC)
Regional - East Africa	400,000	450,958	Committed	Other	Other	Mitigation	Credit lines	Line of credit to finance projects undertaken by private enterprises in Tanzania, Uganda and the Democratic Republic of Congo (DRC)
Regional - East Africa	720,000	811,725	Committed	Other	Other	Mitigation	Credit lines	Line of credit to finance projects undertaken by private enterprises in Tanzania, Uganda and the Democratic Republic of Congo (DRC)
Regional - East Africa	170,416	192,126	Committed	Other	Other	Mitigation	Credit lines	A regional facility for four banks within the I&M banking group to part-finance small-scale investments by private sector enterprises and public sector entities in Kenya, Rwanda, Tanzania and Mauritius.
Regional - Latin America	15,908,705	17,935,406	Committed	Other	Equity	Mitigation	Services	Global debt fund focusing on the finance of small-scale energy efficiency and renewable energy investments.
Regional - West Africa	80,000	90,192	Committed	Other	Other	Mitigation	Services	Framework credit line of up to EUR 50 m to provide medium to long term funding to micro and small enterprises through selected financial intermediaries in West Africa countries.
Regional - West Africa	80,000	90,192	Committed	Other	Other	Mitigation	Services	Framework credit line of up to EUR 50 m to provide medium to long term funding to micro and small enterprises through selected financial intermediaries in West Africa countries.
Regional - Caribbean	2,448,000	2,759,865	Committed	Other	Other	Adaptation	Energy	Framework loan to finance CDB's climate mitigation, adaptation and climate-resilience lending programme, supporting a) the regional efforts to reduce vulnerability to climate change in Caribbean developing countries and b) these countries low-carbon pathways.
Regional - Caribbean	1,800,000	2,029,312	Committed	Other	Other	Adaptation	Industry	Framework loan to finance CDB's climate mitigation, adaptation and climate-resilience lending programme, supporting a) the regional efforts to reduce vulnerability to climate change in Caribbean developing countries and b) these countries low-carbon pathways.
Regional - Caribbean	2,592,000	2,922,210	Committed	Other	Other	Adaptation	Water, sewerage	Framework loan to finance CDB's climate mitigation, adaptation and climate-resilience lending programme, supporting a) the regional efforts to reduce vulnerability to climate change in Caribbean developing countries and b) these countries low-carbon pathways.

Rwanda	31,950,000	36,020,293	Committed	Other	Other	Mitigation	Water, sewerage	Construction of a new sewerage system for central areas of Kigali including collector sewers, secondary, tertiary sewers and a wastewater treatment plant.
Senegal	80,000,000	90,191,657	Committed	Other	Other	Mitigation	Transport	Construction d'une ligne BRT (Bus Rapid Transit) dans l'agglomération du Grand Dakar, d'une longueur de 18,4 kilomètres avec 23 stations et 3 pôles d'échange, y compris l'acquisition de 144 bus articulés.
Serbia	600,000	676,437	Committed	ODA	Other	Mitigation	Credit lines	Loan for small and medium-sized projects promoted by SMEs, Mid-Caps and other private or public sector entities
Serbia	400,000	450,958	Committed	Other	Other	Mitigation	Credit lines	Loan for financing SMEs and eligible projects promoted by local authorities and final beneficiaries of any size and ownership for investments of limited scale in the fields of knowledge economy, energy, environment protection, industry, health, education and services
Serbia	1,000,000	1,127,396	Committed	Other	Other	Mitigation	Credit lines	Loan for financing SMEs, Mid-Caps and eligible projects promoted by local authorities and final beneficiaries of any size for investments of limited scale in the fields of knowledge economy, energy, environmental protection and improvement, industry, health, education and services, and possibly EYET projects.
Serbia	1,200,000	1,352,875	Committed	Other	Other	Mitigation	Credit lines	Loan for financing (i) SMEs and Mid-Caps, in the industry, tourism, agriculture, services sectors and (ii) eligible projects promoted by local authorities and final beneficiaries of any size for investments of limited scale in the fields of knowledge economy, energy, environmental protection, industry, health, education, services and possibly under the EYET initiative.
South Africa	15,908,705	17,935,406	Committed	Other	Equity	Mitigation	Services	Global debt fund focusing on the finance of small-scale energy efficiency and renewable energy investments.
South Africa	14,999,250	16,910,090	Committed	Other	Other	Mitigation	Credit lines	EIB facility to Land Bank for on lending to eligible private entities implementing small/medium-scale projects along the agri-food value chain in South Africa.
South Africa	2,499,000	2,817,362	Committed	Other	Other	Adaptation	Credit lines	EIB facility to Land Bank for on lending to eligible private entities implementing small/medium-scale projects along the agri-food value chain in South Africa.
Sri Lanka	25,000,000	28,184,893	Committed	Other	Other	Adaptation	Water, sewerage	As part of the Greater Colombo Water and Wastewater Management Improvement Investment Programme initiated by the Asian Development Bank, this project will support the improvement of wastewater collection and treatment facilities. The project will improve resilience to severe storms and result in emissions reductions through increased pumping efficiency, making it eligible under Climate Action.
Tunisia	2,400,000	2,705,750	Committed	Other	Other	Mitigation	Credit lines	Prêt intermédié visant à financer les projets localisés en Tunisie portés par des (i) Entreprises de Taille Intermédiaire, (ii) des petites et moyennes entreprises (PME) et des (iii) très petites entreprises (TPE), privées ou publiques à caractère industriel ou commercial intervenant

								dans l'ensemble des secteurs de l'économie tunisienne.
Tunisia	83,000,000	93,573,844	Committed	Other	Other	Mitigation	Transport	L'opération vise le financement du matériel roulant nécessaire pour le besoin d'exploitation d'un nouveau système de transport rapide à Tunis (Tunisie) qui comprend la construction de deux lignes ferroviaires de banlieue d'une longueur totale de 17 km. L'infrastructure est en construction et fait partie du Projet. Elle a déjà fait l'objet d'une première opération de financement (2009-0154 RESEAU FERROVIAIRE RAPIDE).
Tunisia	2,100,000	2,367,531	Committed	Other	Other	Mitigation	Industry	The project concerns the promoter's capital expenditure program and new product development focusing on cables and mechatronic components. The investments are aiming to improve the promoter's competitiveness and to increase its manufacturing capacities and own value added. The investments will be carried out in Tunisia and to a minor extent in Morocco.
Turkey	16,800,000	18,940,248	Committed	ODA	Other	Mitigation	Energy	Construction of three wind power plants in Turkey (Uluborlu, Kizilcaterzi and Karova) for a total capacity of 106MW
Turkey	40,000,000	45,095,829	Committed	OOF	Other	Mitigation	Credit lines	Multi-Beneficiary Intermediated Loan aimed at increasing the availability and improving the financial conditions of the SMEs and Mid-Caps across Turkey.
Turkey	2,000,000	2,254,791	Committed	Other	Other	Mitigation	Credit lines	Intermediated loan for the long term financing of projects promoted by SMEs and Midcaps located in Turkey.
Turkey	800,000	901,917	Committed	Other	Other	Mitigation	Credit lines	Dedicated EIB loan for the financing, via leasing schemes, of small and medium sized projects in Turkey promoted by SMEs and Mid-Caps in eligible sectors.
Ukraine	1,200,000	1,352,875	Committed	ODA	Other	Mitigation	Credit lines	Loan for small and medium-sized projects promtoted by SMEs, Mid-Caps and other private or public sector entities
Ukraine	210,000	236,753	Committed	Other	Other	Mitigation	Credit lines	SME loan guarantee provided to ProCredit subsidiaries in Ukraine, Georgia and Moldova under the DCFTA Initiative East - Eastern Neighbourhood Guarantee Facility
Ukraine	175,000	197,294	Committed	Other	Other	Mitigation	Credit lines	SME loan guarantee provided to Ukrgasbank Ukraine under DCFTA Initiative East - Eastern Neighbourhood Guarantee Facility
Ukraine	18,440,616	20,789,871	Committed	Other	Other	Mitigation	Agriculture, fisheries, forestry	The project consists of following components: 1) Construction of 4 new grain elevators and silos (4 locations) and expanding grain silos on one additional site, the total storage capacity constructed is 440,000 tons, 2) Construction of a new 50,000 tons sugar silo, 3) RDI activity to develop a tailored agribusiness management software that is capable for optimizing the management and operation of a range of different agribusiness activities typical for agricultural holdings in

								Ukrainian context
Ukraine	12,293,744	13,859,914	Committed	Other	Other	Adaptation	Agriculture, fisheries, forestry	The project consists of following components: 1) Construction of 4 new grain elevators and silos (4 locations) and expanding grain silos on one additional site, the total storage capacity constructed is 440,000 tons, 2) Construction of a new 50,000 tons sugar silo, 3) RDI activity to develop a tailored agribusiness management software that is capable for optimizing the management and operation of a range of different agribusiness activities typical for agricultural holdings in Ukrainian context
Ukraine	1,667,132	1,879,517	Committed	Other	Other	Mitigation	Industry	The project consists of following components: 1) Construction of 4 new grain elevators and silos (4 locations) and expanding grain silos on one additional site, the total storage capacity constructed is 440,000 tons, 2) Construction of a new 50,000 tons sugar silo, 3) RDI activity to develop a tailored agribusiness management software that is capable for optimizing the management and operation of a range of different agribusiness activities typical for agricultural holdings in Ukrainian context
Ukraine	1,111,421	1,253,012	Committed	Other	Other	Adaptation	Industry	The project consists of following components: 1) Construction of 4 new grain elevators and silos (4 locations) and expanding grain silos on one additional site, the total storage capacity constructed is 440,000 tons, 2) Construction of a new 50,000 tons sugar silo, 3) RDI activity to develop a tailored agribusiness management software that is capable for optimizing the management and operation of a range of different agribusiness activities typical for agricultural holdings in Ukrainian context
Ukraine	160,000,000	180,383,315	Committed	Other	Other	Mitigation	Transport	The project purpose is to improve public transport in the southern part of Kharkiv (Ukraine), and high density area, which is currently only served by buses. The project consists of a 3.5 km long extension of the existing Green line of the Kharkiv Metro system, adding two new underground stations to the metro network. Furthermore, the project includes purchase of new metro trains and construction of a new depot for these trains.
Ukraine	175,000	197,294	Committed	Other	Other	Mitigation	Credit lines	SME loan guarantee provided to Oschadbank Ukraine under DCFTA Initiative East - Guarantee Facility

Ukraine	240,000	270,575	Committed	Other	Other	Mitigation	Credit lines	SME loan guarantee provided to Raiffeisen Ukraine under DCFTA Initiative East - Guarantee Facility
Viet Nam	68,000,000	76,662,909	Committed	ODA	Other	Mitigation	Transport	Construction of a new metro line in Hanoi (Metro Line 3)
Zambia	51,762,500	58,356,821	Committed	Other	Other	Mitigation	Water, sewerage	Rehabilitation of Chunga WWTP and construction of a new WWTP in Ngwerere and their related pumping stations as well as some of the main collectors in Lusaka. The project will also address the expansion of sewage networks and on-site sanitation facilities.
Total	**2,640,362,319**	**2,976,733,167**						

Table 10-2 Climate finance provided by the EIB to developing countries (2018)

Recipient Country / region / project / programme	EUR	USD	Status	Funding Source	Financial Instrument	Type of support	Sector	Additional Information
Argentina			Committed	Other	Other	Adaptation	Other	The project consists of a multi-scheme Framework Loan (FL) operation for the implementation of an integrated waste management system (Plan Estructural en Gestión Integral de Residuos Sólidos Urbanos) for the collection, treatment and safe disposal of municipal solid waste generated within the province of Jujuy / Argentina.
Benin	25,000,000	29,515,939	Committed	Other	Other	Adaptation	Water and Sanitation	Infrastructures de retention et evacuation des eaux pluviales à Cotonou
Bolivia	20,795,127	24,551,508	Committed	Other	Other	Adaptation	Water and Sanitation	The project consists of water and sanitation investments in a series of municipalities of Bolivia
Cambodia	1,125,077	1,328,308	Committed	Other	Other	Adaptation	Water and Sanitation	Construction of Bakheng Water Treatment Plant (WTP), in the northern outskirts of Phnom Penh.The intake will be located on the west bank of the Mekong River.
China	50,000,000	59,031,877	Committed	Other	Other	Adaptation	Forestry	The operation consists of planting and rehabilitating about 58,600 ha of forests in the Province of Hunan, People's Republic of China. The plan is to afforest about 6,100 ha of abandoned lands, to further diversify the tree species composition in about 27,300 ha of existing forests, to tend some 24,900 ha of low quality young forests, and to enrich the underwood species composition of some 300 ha of forests. The project will also include a biodiversity conservation and forest protection component
Jordan	21,000,000	24,793,388	Committed	Other	Other	Adaptation	Water and Sanitation	Construction and operation of: (i) a desalination plant in the Gulf of Aqaba producing 65 million

								cubic meters (MCM)/year of desalinated water for Aqaba, Jordan and Eilat, Israel; (ii) a brine and seawater pipeline linking the Red Sea with the Dead Sea discharging 235 MCM/year of brine and seawater to the Dead Sea; and (iii) hydropower plants on the brine and seawater pipeline.
Kingdom of Eswatini	18,200,000	21,487,603	Committed	Other	Other	Adaptation	Water and Sanitation	The second phase of the Lower Usuthu Smalholder Irrigation Project (LUSIP II) aims at equipping 5,750 ha with irrigation infrastructure including main conveyance, distribution network and on-farm infrastructure and targets smallholders as final beneficiaries. LUSIP II is the second phase of an investment to establish an irrigation system in the Usuthu River basin in Swaziland to adapt the agricultural production systems to the changing climate while addressing widespread poverty in the region.
Lao People's Democratic Rep.	6,200,000	7,319,953	Committed	Other	Other	Adaptation	Transport	The project covers a 4-year rehabilitation programme of provincial and district roads in six provinces of Lao PDR and includes investments to increase climate resilience.
Regional - ACP	7,975,188	9,415,807	Committed	Other	Other	Adaptation	Agriculture	Cornerstone investment in a fund targeting sustainable land use projects, promoted by the United Nations Convention to Combat Desertification (UNCCD).
Regional - ACP	1,000,000	1,180,638	Committed	Other	Other	Adaptation	Agriculture	Investment in a fund targeting sustainable land use projects, promoted by the United Nations Convention to Combat Desertification (UNCCD). Operation to be realized under the Luxembourg-EIB Climate Finance Platform trust fund.
Regional - Africa	3,408,607	4,024,329	Committed	ODA	Equity	Adaptation	Forestry	A fund combating climate change by investing in forestry and forest conservation projects to sequester and reduce emissions of carbon.
Regional - Central Africa	1,232,742	1,455,421	Committed	ODA	Other	Adaptation	Forestry	Equity fund combating climate change by investing in sustainable forestry projects in Sub-Saharan Africa
Regional - East Africa	3,698,225	4,366,263	Committed	ODA	Other	Adaptation	Forestry	Equity fund combating climate change by investing in sustainable forestry projects in Sub-Saharan Africa
Regional - Latin America	3,351,768	3,957,223	Committed	Other	Other	Adaptation	Other	An investment fund targeting companies and projects that deliver biodiversity benefits.
Regional - Latin America	4,912,999	5,800,471	Committed	Other	Other	Adaptation	Other	The Framework Loan aims at supporting multi-sector projects targeting extreme poverty and climate change resilience in the sub-region eligible for Fonplata financing, which comprises the River Plata Basin (i.e. part of Argentina, Bolivia, Brazil, Paraguay and Uruguay).
Regional -	4,094,166	4,833,726	Committed	Other	Other	Adaptation	Industry	The Framework Loan aims at supporting multi-

Latin America								sector projects targeting extreme poverty and climate change resilience in the sub-region eligible for Fonplata financing, which comprises the River Plata Basin (i.e. part of Argentina, Bolivia, Brazil, Paraguay and Uruguay).
Regional - Latin America	8,188,332	9,667,452	Committed	Other	Other	Adaptation	Other	The Framework Loan aims at supporting multi-sector projects targeting extreme poverty and climate change resilience in the sub-region eligible for Fonplata financing, which comprises the River Plata Basin (i.e. part of Argentina, Bolivia, Brazil, Paraguay and Uruguay).
Regional - Latin America	3,408,607	4,024,329	Committed	ODA	Other	Adaptation	Forestry	A fund combating climate change by investing in forestry and forest conservation projects to sequester and reduce emissions of carbon.
Regional - Southern Africa	7,396,450	8,732,526	Committed	ODA	Other	Adaptation	Forestry	Equity fund combating climate change by investing in sustainable forestry projects in Sub-Saharan Africa
Senegal	5,200,000	6,139,315	Committed	Other	Other	Adaptation	Transport	Financement des travaux de réhabilitation de la route Sénoba-Ziguinchor-Mpack et de desenclavement des regions du sud du Senegal.
Tunisia	770,000	909,091	Committed	Other	Other	Adaptation	Other	The project concerns the rehabilitation of 146 disadvantaged urban areas distributed across all 24 regions (Gouvernorats) of Tunisia through the provision of basic public infrastructure. In particular, the project's outputs will consist in the creation - or extension, as needed - of water and wastewater networks, roads pavement and drainage, extensions of power networks, installation of public lighting, constructions of playgrounds, sports and socio-cultural centers, and economic and manufacture
Ukraine	326,543	385,529	Committed	Other	Other	Adaptation	Agriculture	The project consists of the financing of (i) 2 inland grain silos, (ii) a grain handling and storage terminal located within the Port of Chernomorsk, (iii) 5 biomass-fired CHPs and (iv) one sunflower oil crushing plant, in different locations in Ukraine
Ukraine	269,455	318,129	Committed	Other	Other	Adaptation	Energy	The project consists of the financing of (i) 2 inland grain silos, (ii) a grain handling and storage terminal located within the Port of Chernomorsk, (iii) 5 biomass-fired CHPs and (iv) one sunflower oil crushing plant, in different locations in Ukraine
Ukraine	488,673	576,946	Committed	Other	Other	Adaptation	Industry	The project consists of the financing of (i) 2 inland grain silos, (ii) a grain handling and storage terminal located within the Port of Chernomorsk, (iii) 5 biomass-fired CHPs and (iv) one sunflower oil crushing plant, in different locations in Ukraine
Ukraine	57,088	67,400	Committed	Other	Other	Adaptation	Transport	The project consists of the financing of (i) 2 inland grain silos, (ii) a grain handling and storage terminal

								located within the Port of Chernomorsk, (iii) 5 biomass-fired CHPs and (iv) one sunflower oil crushing plant, in different locations in Ukraine
Ukraine	3,708,176	4,378,012	Committed	Other	Other	Adaptation	Agriculture	The project consists of the financing of (i) 2 inland grain silos, (ii) a grain handling and storage terminal located within the Port of Chernomorsk, (iii) 5 biomass-fired CHPs and (iv) one sunflower oil crushing plant, in different locations in Ukraine
Ukraine	3,059,893	3,612,625	Committed	Other	Other	Adaptation	Energy	The project consists of the financing of (i) 2 inland grain silos, (ii) a grain handling and storage terminal located within the Port of Chernomorsk, (iii) 5 biomass-fired CHPs and (iv) one sunflower oil crushing plant, in different locations in Ukraine
Ukraine	5,549,298	6,551,710	Committed	Other	Other	Adaptation	Industry	The project consists of the financing of (i) 2 inland grain silos, (ii) a grain handling and storage terminal located within the Port of Chernomorsk, (iii) 5 biomass-fired CHPs and (iv) one sunflower oil crushing plant, in different locations in Ukraine
Ukraine	648,282	765,387	Committed	Other	Other	Adaptation	Transport	The project consists of the financing of (i) 2 inland grain silos, (ii) a grain handling and storage terminal located within the Port of Chernomorsk, (iii) 5 biomass-fired CHPs and (iv) one sunflower oil crushing plant, in different locations in Ukraine
Angola	13,000,000	15,348,288	Committed	Other	Other	Adaptation	Water and Sanitation	The project consists of priority investments for the rehabilitation and expansion of water supply production facilities and distribution systems in nine provincial cities across Angola, plus institutional support.
Argentina	8,018,792	9,467,286	Committed	Other	Grant	Adaptation	Other	The project consists of a multi-scheme Framework Loan (FL) operation for the implementation of an integrated waste management system (Plan Estructural en Gestión Integral de Residuos Sólidos Urbanos) for the collection, treatment and safe disposal of municipal solid waste generated within the province of Jujuy / Argentina.
Argentina	12,028,187	14,200,929	Committed	Other	Grant	Mitigation	Other	The project consists of a multi-scheme Framework Loan (FL) operation for the implementation of an integrated waste management system (Plan Estructural en Gestión Integral de Residuos Sólidos Urbanos) for the collection, treatment and safe disposal of municipal solid waste generated within the province of Jujuy / Argentina.
Argentina	2,640,000	3,116,883	Committed	Other	Other	Mitigation	Other	The project consists of a multi-scheme Framework Loan (FL) operation for the implementation of an integrated waste management system (Plan Estructural en Gestión Integral de Residuos Sólidos Urbanos) for the collection, treatment and safe disposal of municipal solid waste generated within

								the province of Jujuy / Argentina.
Argentina	43,558,444	51,426,734	Committed	Other	Other	Mitigation	Water and Sanitation	The project will support water and sanitation investments in the City of Buenos Aires, which will bring about significant social and environmental benefits, and contribute to mitigate climate change through the reduction of greenhouse emissions resulting from the reuse of biogas and the removal of wastewater discharged in uncontrolled anaerobic septic tanks.
Argentina	91,332,221	107,830,249	Committed	Other	Other	Mitigation	Transport	Rehabilitation of Metro de Buenos Aires Metro Line D, including upgrades in the signalling system, the power supply and improvements in the station 9 de Julio .The line is 10.4 km long and has 16 stations.
Armenia	1,000,000	1,180,638	Committed	Other	Other	Mitigation	Other	MBIL with the Central Bank of the Republic of Armenia to support the development of the local private sector, in particular SMEs and Mid-Caps.
Bangladesh	110,000,000	129,870,130	Committed	Other	Other	Mitigation	Transport	Purchase of about 200 rail passenger carriages and 40 locomotives for regional and intercity services on the 1,230-km long broad/dual gauge network across Bangladesh as well as international services to India.
Belarus	62,160,000	73,388,430	Committed	Other	Other	Mitigation	Water and Sanitation	Project consists of the reconstruction of Minsk's largest wastewater treatment plant.
Belarus	1,000,000	1,180,638	Committed	Other	Other	Mitigation	Other	A loan for SMEs to support private sector companies in Belarus
Belarus	500,000	590,319	Committed	Other	Other	Mitigation	Other	A loan for SMEs to support private sector companies in Belarus
Benin	240,000	283,353	Committed	Other	Other	Mitigation	Other	Ligne de crédit (Facilité d'Investissement) pour le financement du secteur privé et marchand au Bénin, dans les secteurs d 'éligibilité traditionnels
Bolivia	14,917,038	17,611,615	Committed	Other	Other	Mitigation	Water and Sanitation	The project consists of water and sanitation investments in a series of municipalities of Bolivia
Bosnia and Herzegovina	100,000	118,064	Committed	ODA	Other	Mitigation	Other	Loan for small and medium-sized projects promtoted by SMEs, Mid-Caps and other private or public sector entities
Bosnia and Herzegovina	500,000	590,319	Committed	Other	Other	Mitigation	Other	Loan to finance small and medium scale projects promoted by SMEs in industry, tourism, services and agriculture or by local authorities in the fields of environmental protection, energy efficiency, knowledge economy and infrastructure.
Bosnia and Herzegovina	300,000	354,191	Committed	Other	Other	Mitigation	Other	Loan for financing SMEs and Mid-Caps, as well as small and medium scale infrastructure projects promoted by local authorities and final beneficiaries of any size in the fields of environmental protection, industry, health, education and services, including investments promoted by youth and/or securing youth employment.
Brazil	45,600,000	53,837,072	Committed	Other	Other	Mitigation	Energy	Framework Loan to part-finance a series of climate action projects in the southern states of Brazil,

								including small-scale hydroelectric power plant projects as well as energy efficiency and mobility projects in urban areas, which could benefit from technical assistance under the FELICITY (Financing Energy for Low-Carbon Investment - Cities Advisory Facility) Initiative.
Brazil	10,400,000	12,278,630	Committed	Other	Other	Mitigation	Transport	Framework Loan to part-finance a series of climate action projects in the southern states of Brazil, including small-scale hydroelectric power plant projects as well as energy efficiency and mobility projects in urban areas, which could benefit from technical assistance under the FELICITY (Financing Energy for Low-Carbon Investment - Cities Advisory Facility) Initiative.
Brazil	24,000,000	28,335,301	Committed	Other	Other	Mitigation	Other	Framework Loan to part-finance a series of climate action projects in the southern states of Brazil, including small-scale hydroelectric power plant projects as well as energy efficiency and mobility projects in urban areas, which could benefit from technical assistance under the FELICITY (Financing Energy for Low-Carbon Investment - Cities Advisory Facility) Initiative.
Cambodia	597,697	705,664	Committed	Other	Other	Mitigation	Water and Sanitation	Construction of Bakheng Water Treatment Plant (WTP), in the northern outskirts of Phnom Penh.The intake will be located on the west bank of the Mekong River.
Cameroon	50,000,000	59,031,877	Committed	Other	Other	Mitigation	Energy	Construction of a 420 MW hydroelectric power plant on the Sanaga river, approximately 65km north of Yaoundé.
China	50,000,000	59,031,877	Committed	Other	Other	Mitigation	Forestry	The operation consists of planting and rehabilitating about 58,600 ha of forests in the Province of Hunan, People's Republic of China. The plan is to afforest about 6,100 ha of abandoned lands, to further diversify the tree species composition in about 27,300 ha of existing forests, to tend some 24,900 ha of low quality young forests, and to enrich the underwood species composition of some 300 ha of forests. The project will also include a biodiversity conservation and forest protection component
Colombia	48,514,251	57,277,746	Committed	Other	Other	Mitigation	Transport	The reorganisation and improvement of the public transport network in Bogotá, the capital city of Colombia, is structured under a framework loan with the major scheme being the construction of the first metro line in Bogotá, comprising a 24km long elevated metro with 15 stations, a depot and 23 metro trains.
Dominican Republic	15,000	17,710	Committed	OOF	Other	Mitigation	Other	Lending Facility to provide medium to long-term funding to low-income small and micro-enterprises,

								low-income households and community based organisations through selected financial intermediaries in the Caribbean and Pacific countries.
Dominican Republic	68,000	80,283	Committed	OOF	Other	Mitigation	Other	Lending Facility to provide medium to long-term funding to low-income small and micro-enterprises, low-income households and community based organisations through selected financial intermediaries in the Caribbean and Pacific countries.
Dominican Republic	32,000	37,780	Committed	OOF	Other	Mitigation	Other	Lending Facility to provide medium to long-term funding to low-income small and micro-enterprises, low-income households and community based organisations through selected financial intermediaries in the Caribbean and Pacific countries.
Egypt	398,705	470,726	Committed	OOF	Other	Mitigation	Other	Line of credit to Egyptian banks for financing small and medium sized projects in productive and service sectors in Egypt. The overall objective of the Loan is to promote economic growth and employment for Egyptian private sector companies.
Egypt	1,875,000	2,213,695	Committed	Other	Equity	Mitigation	Energy	Debt fund targeting small-scale energy efficiency ("EE") and renewable energy ("RE") projects in South East Europe and the European Neighbourhood Regions.
Egypt	5,250,000	6,198,347	Committed	Other	Equity	Mitigation	Industry	Debt fund targeting small-scale energy efficiency ("EE") and renewable energy ("RE") projects in South East Europe and the European Neighbourhood Regions.
Egypt	375,000	442,739	Committed	Other	Equity	Mitigation	Other	Debt fund targeting small-scale energy efficiency ("EE") and renewable energy ("RE") projects in South East Europe and the European Neighbourhood Regions.
Egypt	106,848,000	126,148,760	Committed	Other	Other	Mitigation	Water and Sanitation	Investment programme for the construction and expansion of wastewater collection and treatment facilities in the vicinity of Lake Qarun (Fayoum Governorate). The programme will be implemented in two phases.
Egypt	7,500,000	8,854,782	Committed	Other	Other	Mitigation	Other	Loan for SMEs and MidCaps to support small and medium scale projects in Egypt
Egypt	5,000,000	5,903,188	Committed	OOF	Other	Mitigation	Other	Loan for SMEs and MidCaps to support manufacturing, services and other eligible sectors of the Egyptian economy.
Egypt	5,000,000	5,903,188	Committed	Other	Other	Mitigation	Energy	Participation in a debt fund targeting energy efficiency and renewable energy investments within the Southern Neighbourhood region. Operation to be realised under the Luxembourg-EIB Climate Finance Platform trust fund.

Egypt	81,068,100	95,712,043	Committed	Other	Other	Mitigation	Water and Sanitation	The project concerns the depollution of the Kitchener Drain in the Nile Delta Region in Egypt through investments in domestic wastewater collection and treatment, solid waste management and rehabilitation of the drain infrastructure.
Ethiopia	4,028,684	4,756,416	Committed	Other	Other	Mitigation	Energy	The project aims at providing access to energy to households and micro-entrepreneurs in Sub-Saharan Africa. It consists in the design, assembling, distribution, financing and installation of 7 to 10 million solar devices by the promoter over the next 2.5 years. The project is expected to have significant social impact given technology users (and final beneficiaries) typically are rural and / or low income households and micro-SMEs.
Gambia	24,510,000	28,937,426	Committed	Other	Other	Mitigation	Energy	Implementation of an energy sector program in Gambia, including (1) up to 20 MW grid-connected PV plant, (2) grid reinforcement investments, (3) electricity sector institutional and technical support and (4) off-grid PV systems installed on up to 1100 public schools and health facilities.
Georgia	600,000	708,383	Committed	Other	Other	Mitigation	Other	Loan dedicated to finance through TBC Bank eligible SMEs in Georgia.
Guinea	46,800,000	55,253,837	Committed	Other	Other	Mitigation	Energy	Implementation of a 225 kV electricity interconnector of approximately 714 km between Guinea (substation of N'Zérékoré, Forested Guinea, connected to the CLSG interconnector) and Mali (substation of Sanankoroba, Bamako area). The project also includes several substations and the associated distribution network supporting rural electrification along the line route.
Haiti	240,000	283,353	Committed	Other	Other	Mitigation	Other	The project consists of a loan to Haiti's Fonds de Développement Industriel (FDI), which in turn will on-lend to eligible SMEs.
India	80,276,150	94,777,037	Committed	ODA	Other	Mitigation	Energy	A framework loan of up to USD 200 m to part-finance renewable energy projects in India.
India	150,000,000	177,095,632	Committed	Other	Other	Mitigation	Energy	The operation consists of a framework loan for the support of small to medium-scale capital investments in renewable energy. The framework loan is expected to fund photovoltaic (PV) and on-shore wind technologies.
India	200,000,000	236,127,509	Committed	Other	Other	Mitigation	Transport	Construction of a 23 km metro line and purchase of a fleet of about 96 metro cars in Bangalore, Karnataka, in southern India
Jordan	937,500	1,106,848	Committed	Other	Equity	Mitigation	Energy	Debt fund targeting small-scale energy efficiency ("EE") and renewable energy ("RE") projects in South East Europe and the European Neighbourhood Regions.
Jordan	2,625,000	3,099,174	Committed	Other	Equity	Mitigation	Industry	Debt fund targeting small-scale energy efficiency

								("EE") and renewable energy ("RE") projects in South East Europe and the European Neighbourhood Regions.
Jordan	187,500	221,370	Committed	Other	Equity	Mitigation	Other	Debt fund targeting small-scale energy efficiency ("EE") and renewable energy ("RE") projects in South East Europe and the European Neighbourhood Regions.
Jordan	2,700,000	3,187,721	Committed	Other	Other	Mitigation	Water and Sanitation	Construction and operation of: (i) a desalination plant in the Gulf of Aqaba producing 65 million cubic meters (MCM)/year of desalinated water for Aqaba, Jordan and Eilat, Israel; (ii) a brine and seawater pipeline linking the Red Sea with the Dead Sea discharging 235 MCM/year of brine and seawater to the Dead Sea; and (iii) hydropower plants on the brine and seawater pipeline.
Kenya	4,028,684	4,756,416	Committed	Other	Other	Mitigation	Energy	The project aims at providing access to energy to households and micro-entrepreneurs in Sub-Saharan Africa. It consists in the design, assembling, distribution, financing and installation of 7 to 10 million solar devices by the promoter over the next 2.5 years. The project is expected to have significant social impact given technology users (and final beneficiaries) typically are rural and / or low income households and micro-SMEs.
Kenya	22,644,366	26,734,789	Committed	Other	Other	Mitigation	Energy	Construction of 2 x 40MW net output solar photovoltaic (PV) power plants near Eldoret, Western Kenya. The projects are being developed as Independent Power Producers (IPPs) under the feed-in tariff regime in Kenya. The two projects will have shared facilities and services and will supply electricity to the national grid.
Kenya	22,644,366	26,734,789	Committed	Other	Other	Mitigation	Energy	Construction of 2 x 40MW net output solar photovoltaic (PV) power plants near Eldoret, Western Kenya. The projects are being developed as Independent Power Producers (IPPs) under the feed-in tariff regime in Kenya. The two projects will have shared facilities and services and will supply electricity to the national grid.
Lebanon	3,640,000	4,297,521	Committed	Other	Other	Mitigation	Other	Construction of three new industrial zones in the Municipalities of Baalbek, Tourbol-Kosaya and Deir El Moukhaless-Jleiliye
Lebanon	1,875,000	2,213,695	Committed	Other	Equity	Mitigation	Energy	Debt fund targeting small-scale energy efficiency ("EE") and renewable energy ("RE") projects in South East Europe and the European Neighbourhood Regions.
Lebanon	5,250,000	6,198,347	Committed	Other	Equity	Mitigation	Industry	Debt fund targeting small-scale energy efficiency ("EE") and renewable energy ("RE") projects in South East Europe and the European

								Neighbourhood Regions.
Lebanon	375,000	442,739	Committed	Other	Equity	Mitigation	Other	Debt fund targeting small-scale energy efficiency ("EE") and renewable energy ("RE") projects in South East Europe and the European Neighbourhood Regions.
Lebanon	600,000	708,383	Committed	Other	Other	Mitigation	Other	The operation proposed will provide funding to small and medium-sized enterprises and mid-caps through credit lines to local financial intermediaries, including second tier banks. The operation will support economic resilience of the Lebanese economy in the context of the refugee crisis, with a particular focus on employment creation.
Lebanon	1,900,000	2,243,211	Committed	Other	Other	Mitigation	Other	The operation proposed will provide funding to small and medium-sized enterprises and mid-caps through credit lines to local financial intermediaries, including second tier banks. The operation will support economic resilience of the Lebanese economy in the context of the refugee crisis, with a particular focus on employment creation.
Lebanon	4,000,000	4,722,550	Committed	Other	Other	Mitigation	Other	The operation proposed will provide funding to small and medium-sized enterprises and mid-caps through credit lines to local financial intermediaries, including second tier banks. The operation will support economic resilience of the Lebanese economy in the context of the refugee crisis, with a particular focus on employment creation.
Mexico	21,524,391	25,412,505	Committed	Other	Other	Mitigation	Energy	The Project consists in the part-funding of three solar PV plants in Mexico, through a Project Finance scheme, with a combined capacity of 1.088 MWp. (Post approval change: at appraisal it was: 991 MW)
Mexico	28,473,784	33,617,218	Committed	Other	Other	Mitigation	Energy	The Project consists in the part-funding of three solar PV plants in Mexico, through a Project Finance scheme, with a combined capacity of 1.088 MWp. (Post approval change: at appraisal it was: 991 MW)
Mexico	23,496,121	27,740,403	Committed	Other	Other	Mitigation	Energy	The Project consists in the part-funding of three solar PV plants in Mexico, through a Project Finance scheme, with a combined capacity of 1.088 MWp. (Post approval change: at appraisal it was: 991 MW)
Micronesia, Federated States of	88,176	104,103	Committed	Other	Other	Mitigation	Other	Credit facility to FSMDB to on-lend to SMEs (primarily micro- and small enterprises) with the aim to contribute to private sector development in Micronesia.
Montenegro	2,000,000	2,361,275	Committed	Other	Other	Mitigation	Other	The project consists of a loan to finance small and medium-sized investments carried out by small and medium-sized enterprises (SMEs) and mid-caps as

								well as eligible projects promoted by local authorities or final beneficiaries of any size and ownership
Morocco	40,000,000	47,225,502	Committed	Other	Other	Mitigation	Transport	Le Projet porte sur les travaux d'extension de la deuxième ligne du tramway de Rabat Salé sur une longueur de 2,4 kilomètres et 4 stations dans la ville de Rabat et de 4,6 kilomètre et 9 stations dans la ville de Salé pour un total de 7 kilomètres et 13 stations. Le Promoteur rendra également disponibles 22 rames en unité simple de 33 mètres pour l'exploitation du service.
Morocco	625,000	737,898	Committed	Other	Equity	Mitigation	Energy	Debt fund targeting small-scale energy efficiency ("EE") and renewable energy ("RE") projects in South East Europe and the European Neighbourhood Regions.
Morocco	1,750,000	2,066,116	Committed	Other	Equity	Mitigation	Industry	Debt fund targeting small-scale energy efficiency ("EE") and renewable energy ("RE") projects in South East Europe and the European Neighbourhood Regions.
Morocco	125,000	147,580	Committed	Other	Equity	Mitigation	Other	Debt fund targeting small-scale energy efficiency ("EE") and renewable energy ("RE") projects in South East Europe and the European Neighbourhood Regions.
Morocco	1,284,400	1,516,411	Committed	Other	Grant	Mitigation	Other	Le projet soutient la création d'une nouvelle université à Fès, au Maroc. Cette nouvelle institution est co-dévelopée en partenariats avec plusieurs institutions d'enseignement supérieur et de recherche en Europe en vue d'offrir des formations conformes aux standards européens et des diplômes reconnus officiellement en Europe, de conduire une recherche de pointe et d'oeuvrer en faveur d'un rapprochement des deux rives de la Méditerranée. Cette initiative est soutenue par l'Union pour la Méditerranée
Morocco	405,600	478,867	Committed	ODA	Grant	Mitigation	Other	Le projet soutient la création d'une nouvelle université à Fès, au Maroc. Cette nouvelle institution est co-dévelopée en partenariats avec plusieurs institutions d'enseignement supérieur et de recherche en Europe en vue d'offrir des formations conformes aux standards européens et des diplômes reconnus officiellement en Europe, de conduire une recherche de pointe et d'oeuvrer en faveur d'un rapprochement des deux rives de la Méditerranée. Cette initiative est soutenue par l'Union pour la Méditerranée
Morocco	119,000,000	140,495,868	Committed	Other	Other	Mitigation	Energy	This project is the Midelt Solar Complex, located near the city of Midelt in Morocco. It consists in the construction and operation of two hybrid PV-CSP

								power plants with storage of ca. 500 MW each (total gross capacity of up to ca. 1000 MW).
Morocco	268,000,000	316,410,862	Committed	Other	Other	Mitigation	Energy	This project is the Midelt Solar Complex, located near the city of Midelt in Morocco. It consists in the construction and operation of two hybrid PV-CSP power plants with storage of ca. 500 MW each (total gross capacity of up to ca. 1000 MW).
Nicaragua	3,370,839	3,979,740	Committed	ODA	Other	Mitigation	Water and Sanitation	The project consists of the first phase of the Government programme aiming at the improvement and expansion of the provisioning of drinking water as well as sanitation in secondary cities in Nicaragua.
Nigeria	4,028,684	4,756,416	Committed	Other	Other	Mitigation	Energy	The project aims at providing access to energy to households and micro-entrepreneurs in Sub-Saharan Africa. It consists in the design, assembling, distribution, financing and installation of 7 to 10 million solar devices by the promoter over the next 2.5 years. The project is expected to have significant social impact given technology users (and final beneficiaries) typically are rural and / or low income households and micro-SMEs.
North Macedonia	2,000,000	2,361,275	Committed	Other	Other	Mitigation	Other	Loan for SMEs and small and mid-sized projects carried out by public and private entities in all eligible sectors
Palestine	312,500	368,949	Committed	Other	Equity	Mitigation	Energy	Debt fund targeting small-scale energy efficiency ("EE") and renewable energy ("RE") projects in South East Europe and the European Neighbourhood Regions.
Palestine	875,000	1,033,058	Committed	Other	Equity	Mitigation	Industry	Debt fund targeting small-scale energy efficiency ("EE") and renewable energy ("RE") projects in South East Europe and the European Neighbourhood Regions.
Palestine	62,500	73,790	Committed	Other	Equity	Mitigation	Other	Debt fund targeting small-scale energy efficiency ("EE") and renewable energy ("RE") projects in South East Europe and the European Neighbourhood Regions.
Panama	19,369,835	22,868,754	Committed	Other	Other	Mitigation	Water and Sanitation	The overall objective of this operation is to support the Panama Sanitation Project in the Panama Oeste Province. The project will consist of the construction of a wastewater collection system - sewerage networks, pumping stations and household connections-, the construction of a conveyance system and a wastewater treatment plant to provide full sanitation services to the sector of La Chorrera and other surrounding areas. The project is a successor operation to the West Panama City Sanitation Pro
Regional -	15,950,377	18,831,613	Committed	Other	Other	Mitigation	Agriculture	Cornerstone investment in a fund targeting

ACP								sustainable land use projects, promoted by the United Nations Convention to Combat Desertification (UNCCD).
Regional - ACP	2,000,000	2,361,275	Committed	Other	Other	Mitigation	Agriculture	Investment in a fund targeting sustainable land use projects, promoted by the United Nations Convention to Combat Desertification (UNCCD). Operation to be realized under the Luxembourg-EIB Climate Finance Platform trust fund.
Regional - ACP	240,000	283,353	Committed	Other	Other	Mitigation	Other	Line of credit to SOFID, the Portuguese development finance institution, for on lending to small and medium sized businesses in the ACP region, with a focus on Lusophone countries.
Regional - Africa	5,681,818	6,708,168	Committed	ODA	Equity	Mitigation	Other	Green Bond Fund investing in a portfolio of Green Bonds issued by Financial Intermediaries in Emerging Markets
Regional - Africa	171,556	202,545	Committed	ODA	Equity	Mitigation	Agriculture	Investment fund targeting projects in sustainable fisheries and aquaculture, responsible seafood supply chains and sustainable coastal development
Regional - Africa	5,112,910	6,036,494	Committed	ODA	Equity	Mitigation	Forestry	A fund combating climate change by investing in forestry and forest conservation projects to sequester and reduce emissions of carbon.
Regional - Africa	9,024,654	10,654,846	Committed	ODA	Equity	Mitigation	Energy	Equity participation in a Fund investing in power generation assets (using renewable energy and natural gas) in Sub-Saharan Africa, Southeast Asia and Latin America.
Regional - Africa	30,780,055	36,340,088	Committed	Other	Other	Mitigation	Energy	Equity fund focused on medium size renewable energy projects (10-60 MW) in Africa.
Regional - Africa	37,500,000	44,273,908	Committed	Other	Other	Mitigation	Other	Loan for financing private sector trade related infrastructure investments in Sub-Saharan Africa including at least 25% climate action projects. These eligible investments would be directly financed by Afreximbank or, in the case of loans to small SMEs, through local commercial banks with which the EIB does not maintain a relationship.
Regional - Africa	12,500,000	14,757,969	Committed	Other	Other	Mitigation	Energy	Loan for financing private sector trade related infrastructure investments in Sub-Saharan Africa including at least 25% climate action projects. These eligible investments would be directly financed by Afreximbank or, in the case of loans to small SMEs, through local commercial banks with which the EIB does not maintain a relationship.
Regional - Asia	25,568,182	30,186,755	Committed	ODA	Equity	Mitigation	Other	Green Bond Fund investing in a portfolio of Green Bonds issued by Financial Intermediaries in Emerging Markets
Regional - Asia	171,556	202,545	Committed	ODA	Equity	Mitigation	Agriculture	Investment fund targeting projects in sustainable fisheries and aquaculture, responsible seafood supply chains and sustainable coastal development
Regional -	4,412,053	5,209,036	Committed	ODA	Equity	Mitigation	Energy	Equity participation in a Fund investing in power

Asia								generation assets (using renewable energy and natural gas) in Sub-Saharan Africa, Southeast Asia and Latin America.
Regional - Caribbean	20,000	23,613	Committed	OOF	Other	Mitigation	Other	Lending Facility to provide medium to long-term funding to low-income small and micro-enterprises, low-income households and community based organisations through selected financial intermediaries in the Caribbean and Pacific countries.
Regional - Caribbean	214,445	253,182	Committed	ODA	Equity	Mitigation	Agriculture	Investment fund targeting projects in sustainable fisheries and aquaculture, responsible seafood supply chains and sustainable coastal development
Regional - Central Africa	1,232,742	1,455,421	Committed	ODA	Equity	Mitigation	Forestry	Equity fund combating climate change by investing in sustainable forestry projects in Sub-Saharan Africa
Regional - Central Africa	75,000	88,548	Committed	Other	Other	Mitigation	Other	Project Description A Private Enterprise Finance Facility (PEFF); Regional credit facility for financial institutions to on-lend to private enterprises in West Africa (excluding Nigeria) and Central Africa aiming to contribute to the private sector development in the region.
Regional - East Africa	327,788	386,999	Committed	Other	Other	Mitigation	Other	A regional facility for four banks within the I&M banking group to part-finance small-scale investments by private sector enterprises and public sector entities in Kenya, Rwanda, Tanzania and Mauritius.
Regional - East Africa	3,698,225	4,366,263	Committed	ODA	Equity	Mitigation	Forestry	Equity fund combating climate change by investing in sustainable forestry projects in Sub-Saharan Africa
Regional - East Africa	300,000	354,191	Committed	ODA	Other	Mitigation	Other	Credit facility for financial institutions to finance SMEs and MidCaps in East & Central Africa. The facility contributes to private sector development in the region.
Regional - East Africa	600,000	708,383	Committed	Other	Other	Mitigation	Other	The East Africa SME-focused Regional Facility is a regional facility for financial intermediaries to on-lend primarily to SMEs in East Africa, with the aim to contribute to private sector development in the region.
Regional - Latin America	25,568,182	30,186,755	Committed	ODA	Equity	Mitigation	Other	Green Bond Fund investing in a portfolio of Green Bonds issued by Financial Intermediaries in Emerging Markets
Regional - Latin America	13,407,072	15,828,893	Committed	Other	Equity	Mitigation	Other	An investment fund targeting companies and projects that deliver biodiversity benefits.
Regional -	214,445	253,182	Committed	ODA	Equity	Mitigation	Agriculture	Investment fund targeting projects in sustainable

Latin America								fisheries and aquaculture, responsible seafood supply chains and sustainable coastal development
Regional - Latin America	1,228,250	1,450,118	Committed	Other	Other	Mitigation	Other	The Framework Loan aims at supporting multi-sector projects targeting extreme poverty and climate change resilience in the sub-region eligible for Fonplata financing, which comprises the River Plata Basin (i.e. part of Argentina, Bolivia, Brazil, Paraguay and Uruguay).
Regional - Latin America	2,047,083	2,416,863	Committed	Other	Other	Mitigation	Other	The Framework Loan aims at supporting multi-sector projects targeting extreme poverty and climate change resilience in the sub-region eligible for Fonplata financing, which comprises the River Plata Basin (i.e. part of Argentina, Bolivia, Brazil, Paraguay and Uruguay).
Regional - Latin America	5,112,910	6,036,494	Committed	ODA	Equity	Mitigation	Forestry	A fund combating climate change by investing in forestry and forest conservation projects to sequester and reduce emissions of carbon.
Regional - Latin America	6,618,080	7,813,554	Committed	ODA	Equity	Mitigation	Energy	Equity participation in a Fund investing in power generation assets (using renewable energy and natural gas) in Sub-Saharan Africa, Southeast Asia and Latin America.
Regional - Pacific	5,000	5,903	Committed	OOF	Other	Mitigation	Other	Lending Facility to provide medium to long-term funding to low-income small and micro-enterprises, low-income households and community based organisations through selected financial intermediaries in the Caribbean and Pacific countries.
Regional - Pacific	85,778	101,273	Committed	ODA	Equity	Mitigation	Agriculture	Investment fund targeting projects in sustainable fisheries and aquaculture, responsible seafood supply chains and sustainable coastal development
Regional - Southern Africa	7,396,450	8,732,526	Committed	ODA	Equity	Mitigation	Forestry	Equity fund combating climate change by investing in sustainable forestry projects in Sub-Saharan Africa
Regional - Southern Africa	250,000	295,159	Committed	Other	Other	Mitigation	Other	The SME Focused Regional Facility (SMERF) is a regional credit facility to financial intermediaries for on-lending to primarily SME projects in the Southern Africa and Indian Ocean region (excluding South Africa).
Regional - West Africa	225,000	265,643	Committed	Other	Other	Mitigation	Other	Project Description A Private Enterprise Finance Facility (PEFF); Regional credit facility for financial institutions to on-lend to private enterprises in West Africa (excluding Nigeria) and Central Africa aiming to contribute to the private sector development in the region.

Regional - West Africa	240,000	283,353	Committed	Other	Other	Mitigation	Other	Framework credit line of up to EUR 50 m to provide medium to long term funding to micro and small enterprises through selected financial intermediaries in West Africa countries.
Serbia	1,000,000	1,180,638	Committed	Other	Other	Mitigation	Other	Loan for financing (i) SMEs and Mid-Caps, in the industry, tourism, agriculture, services sectors and (ii) eligible projects promoted by local authorities and final beneficiaries of any size for investments of limited scale in the fields of knowledge economy, energy, environmental protection, industry, health, education, services and possibly under the EYET initiative.
Serbia	600,000	708,383	Committed	Other	Other	Mitigation	Other	Loan for financing (i) SMEs and Mid-Caps, in the industry, tourism, agriculture, services sectors and (ii) eligible projects promoted by local authorities and final beneficiaries of any size for investments of limited scale in the fields of knowledge economy, energy, environmental protection, industry, health, education and services, and possibly under EYET initiative.
Serbia	600,000	708,383	Committed	Other	Other	Mitigation	Other	Loan for financing (i) SMEs and Mid-Caps, in the industry, tourism, agriculture, services sectors and (ii) eligible projects promoted by local authorities and final beneficiaries of any size for investments of limited scale in the fields of knowledge economy, energy, environmental protection, industry, health, education and services, and possibly under EYET initiative.
Serbia	134,000,000	158,205,431	Committed	Other	Grant	Mitigation	Transport	Modernization of the existing railway line Nis-Dimitrovgrad (approx. 96 km) and construction of railway by-pass around Nis (approx. 22 km).
Serbia	44,666,200	52,734,593	Committed	Other	Grant	Mitigation	Transport	Modernization of the existing railway line Nis-Dimitrovgrad (approx. 96 km) and construction of railway by-pass around Nis (approx. 22 km).
Serbia	28,375,540	33,501,228	Committed	Other	Grant	Mitigation	Transport	Modernization of the existing railway line Nis-Dimitrovgrad (approx. 96 km) and construction of railway by-pass around Nis (approx. 22 km).
Serbia	600,000	708,383	Committed	ODA	Other	Mitigation	Other	Loan for financing SMEs, Mid-Caps and eligible projects promoted by local authorities and final beneficiaries of any size for investments of limited scale in the fields of knowledge economy, energy, environmental protection and improvement, industry, health, education and services, and possibly EYET projects.
Serbia	100,000,000	118,063,754	Committed	Other	Other	Mitigation	Transport	The project consists of several investments in the existing core Trans-European Transport (TEN-T) Rhine-Danube inland waterway network of the Republic of Serbia, along the Danube and Sava

								rivers, which aim at increasing the capacity and improving the efficiency and the safety of the inland waterway navigation, thus allowing for a modal shift from roads to river navigation. The different schemes of the framework loan will be linked to the 2015-2025 Development Strategy on Waterborne Transport of
South Africa	1,400,000	1,652,893	Committed	Other	Other	Mitigation	Other	Credit facility to IDC for on lending to private sector limited scale investments in South Africa.
Tanzania, United republic of	4,028,684	4,756,416	Committed	Other	Other	Mitigation	Energy	The project aims at providing access to energy to households and micro-entrepreneurs in Sub-Saharan Africa. It consists in the design, assembling, distribution, financing and installation of 7 to 10 million solar devices by the promoter over the next 2.5 years. The project is expected to have significant social impact given technology users (and final beneficiaries) typically are rural and / or low income households and micro-SMEs.
Tunisia	3,080,000	3,636,364	Committed	Other	Other	Mitigation	Other	The project concerns the rehabilitation of 146 disadvantaged urban areas distributed across all 24 regions (Gouvernorats) of Tunisia through the provision of basic public infrastructure. In particular, the project's outputs will consist in the creation - or extension, as needed - of water and wastewater networks, roads pavement and drainage, extensions of power networks, installation of public lighting, constructions of playgrounds, sports and socio-cultural centers, and economic and manufacture
Tunisia	625,000	737,898	Committed	Other	Equity	Mitigation	Energy	Debt fund targeting small-scale energy efficiency ("EE") and renewable energy ("RE") projects in South East Europe and the European Neighbourhood Regions.
Tunisia	1,750,000	2,066,116	Committed	Other	Equity	Mitigation	Industry	Debt fund targeting small-scale energy efficiency ("EE") and renewable energy ("RE") projects in South East Europe and the European Neighbourhood Regions.
Tunisia	125,000	147,580	Committed	Other	Equity	Mitigation	Other	Debt fund targeting small-scale energy efficiency ("EE") and renewable energy ("RE") projects in South East Europe and the European Neighbourhood Regions.
Turkey	150,000,000	177,095,632	Committed	Other	Other	Mitigation	Transport	The Project involves the additional financing of the Bosphorus Tunnel Project that consists of a rail tunnel crossing underneath the Bosphorus Strait to link the existing commuter lines on the European and Asian side of Istanbul, a city of 13 m inhabitants. It also includes the upgrading of these existing lines and the procurement of new rolling

								stock. Once completed, this flagship investment will constitute the first seamless mass transit system in Istanbul to cross the Bosphorus and link the
Uganda	4,028,684	4,756,416	Committed	Other	Other	Mitigation	Energy	The project aims at providing access to energy to households and micro-entrepreneurs in Sub-Saharan Africa. It consists in the design, assembling, distribution, financing and installation of 7 to 10 million solar devices by the promoter over the next 2.5 years. The project is expected to have significant social impact given technology users (and final beneficiaries) typically are rural and / or low income households and micro-SMEs.
Ukraine	5,000,000	5,903,188	Committed	Other	Other	Mitigation	Transport	The project consists of a framework loan for the financing of a series of small-scale transport projects addressing transport bottlenecks in Ukraine.
Ukraine	720,226	850,326	Committed	Other	Other	Mitigation	Agriculture	The project consists of the financing of (i) 2 inland grain silos, (ii) a grain handling and storage terminal located within the Port of Chernomorsk, (iii) 5 biomass-fired CHPs and (iv) one sunflower oil crushing plant, in different locations in Ukraine
Ukraine	594,313	701,668	Committed	Other	Other	Mitigation	Energy	The project consists of the financing of (i) 2 inland grain silos, (ii) a grain handling and storage terminal located within the Port of Chernomorsk, (iii) 5 biomass-fired CHPs and (iv) one sunflower oil crushing plant, in different locations in Ukraine
Ukraine	1,077,821	1,272,516	Committed	Other	Other	Mitigation	Industry	The project consists of the financing of (i) 2 inland grain silos, (ii) a grain handling and storage terminal located within the Port of Chernomorsk, (iii) 5 biomass-fired CHPs and (iv) one sunflower oil crushing plant, in different locations in Ukraine
Ukraine	125,914	148,658	Committed	Other	Other	Mitigation	Transport	The project consists of the financing of (i) 2 inland grain silos, (ii) a grain handling and storage terminal located within the Port of Chernomorsk, (iii) 5 biomass-fired CHPs and (iv) one sunflower oil crushing plant, in different locations in Ukraine
Ukraine	8,178,780	9,656,175	Committed	Other	Other	Mitigation	Agriculture	The project consists of the financing of (i) 2 inland grain silos, (ii) a grain handling and storage terminal located within the Port of Chernomorsk, (iii) 5 biomass-fired CHPs and (iv) one sunflower oil crushing plant, in different locations in Ukraine
Ukraine	6,748,924	7,968,033	Committed	Other	Other	Mitigation	Energy	The project consists of the financing of (i) 2 inland grain silos, (ii) a grain handling and storage terminal located within the Port of Chernomorsk, (iii) 5 biomass-fired CHPs and (iv) one sunflower oil crushing plant, in different locations in Ukraine
Ukraine	12,239,574	14,450,500	Committed	Other	Other	Mitigation	Industry	The project consists of the financing of (i) 2 inland grain silos, (ii) a grain handling and storage terminal

								located within the Port of Chernomorsk, (iii) 5 biomass-fired CHPs and (iv) one sunflower oil crushing plant, in different locations in Ukraine
Ukraine	1,429,857	1,688,143	Committed	Other	Other	Mitigation	Transport	The project consists of the financing of (i) 2 inland grain silos, (ii) a grain handling and storage terminal located within the Port of Chernomorsk, (iii) 5 biomass-fired CHPs and (iv) one sunflower oil crushing plant, in different locations in Ukraine
Uzbekistan	100,000,000	118,063,754	Committed	Other	Other	Mitigation	Other	The loan will support energy-efficiency projects of industrial enterprises in Uzbekistan.
Zambia	10,148,558	11,981,768	Committed	Other	Other	Mitigation	Energy	The construction and operation of an independent 34MW solar PV plant under the World Bank Group's Scaling Solar program, located in the Lusaka industrial zone, Zambia
Total	**2,972,437,897**	**3,509,371,779**						