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Report on the technical review of the third biennial report of Greece

Developed country Parties were requested by decision 2/CP.17 to submit their third biennial report to the secretariat by 1 January 2018. This report presents the results of the technical review of the third biennial report of Greece, conducted by an expert review team in accordance with the “Guidelines for the technical review of information reported under the Convention related to greenhouse gas inventories, biennial reports and national communications by Parties included in Annex I to the Convention”.

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Abbreviations and acronyms

AEA	annual emission allocation
AR4	Fourth Assessment Report of the Intergovernmental Panel on Climate Change
BR	biennial report
CH ₄	methane
CO ₂	carbon dioxide
CO ₂ eq	carbon dioxide equivalent
CTF	common tabular format
ERT	expert review team
ESD	effort-sharing decision
EU	European Union
EU ETS	European Union Emissions Trading System
F-gas	fluorinated gas
GDP	gross domestic product
GHG	greenhouse gas
HFC	hydrofluorocarbon
ICAO	International Civil Aviation Organization
IMO	International Maritime Organization
LULUCF	land use, land-use change and forestry
MEEN	Ministry of Environment and Energy of Greece
Mtoe	million tonnes of oil equivalent
NA	not applicable
NC	national communication
NE	not estimated
NF ₃	nitrogen trifluoride
NO	not occurring
non-Annex I Party	Party not included in Annex I to the Convention
non-ETS sectors	sectors not covered by the European Union Emissions Trading System
N ₂ O	nitrous oxide
PaMs	policies and measures
PFC	perfluorocarbon
SF ₆	sulfur hexafluoride
UNFCCC reporting guidelines on BRs	“UNFCCC biennial reporting guidelines for developed country Parties”
UNFCCC reporting guidelines on NCs	“Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications”
WAM	‘with additional measures’
WEM	‘with measures’
WOM	‘without measures’

I. Introduction and summary

A. Introduction

1. This is a report on the in-country technical review of the BR3¹ of Greece. The review was organized by the secretariat in accordance with the “Guidelines for the technical review of information reported under the Convention related to greenhouse gas inventories, biennial reports and national communications by Parties included in Annex I to the Convention”, particularly “Part IV: UNFCCC guidelines for the technical review of biennial reports from Parties included in Annex I to the Convention” (annex to decision 13/CP.20).

2. In accordance with the same decisions, a draft version of this report was transmitted to the Government of Greece, which provided comments that were considered and incorporated, as appropriate, into this final version of the report.

3. The review was conducted from 4 to 9 February 2019 in Athens by the following team of nominated experts from the UNFCCC roster of experts: Mr. Amr Osama Abdel-Aziz (Egypt), Ms. Veronika Ginzburg (Russian Federation), Ms. Maria Jose Lopez (Belgium), Ms. Ekaterine Mikadze (Georgia), Ms. Katherine Monahan (Canada) and Mr. Adriano Santhiago de Oliveira (Brazil). Mr. Abdel-Aziz and Ms. Lopez were the lead reviewers. The review was coordinated by Ms. Ruta Bubniene and Mr. James Howland (UNFCCC secretariat).

B. Summary

4. The ERT conducted a technical review of the information reported in the BR3 of Greece in accordance with the UNFCCC reporting guidelines on BRs (annex I to decision 2/CP.17).

1. Timeliness

5. The BR3 was submitted on 22 December 2017, before the deadline of 1 January 2018 mandated by decision 2/CP.17. The CTF tables were submitted on 22 December 2017.

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

6. Issues and gaps identified by the ERT related to the reported information are presented in table 1. The information reported by Greece in its BR3 mostly adheres to the UNFCCC reporting guidelines on BRs.

Table 1

Summary of completeness and transparency of mandatory information reported by Greece in its third biennial report

<i>Section of BR</i>	<i>Completeness</i>	<i>Transparency</i>	<i>Reference to description of recommendations</i>
GHG emissions and trends	Complete	Transparent	
Assumptions, conditions and methodologies related to the attainment of the quantified economy-wide emission reduction target	Complete	Transparent	
Progress in achievement of targets	Complete	Mostly transparent	Issue 1 in table 4 Issue 1 in table 6

¹ The BR submission comprises the text of the report and the CTF tables, which are both subject to the technical review.

<i>Section of BR</i>	<i>Completeness</i>	<i>Transparency</i>	<i>Reference to description of recommendations</i>
Provision of support to developing country Parties	Mostly complete	Mostly transparent	Issues 1 and 2 in table 11 Issue 1 in table 14 Issue 1 in table 16

Note: A list of recommendations pertaining to the completeness and transparency issues identified in this table is included in chapter III below. The assessment of completeness and transparency by the ERT in this table is based only on the “shall” reporting requirements.

II. Technical review of the information reported in the third biennial report

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

1. Technical assessment of the reported information

7. Total GHG emissions² excluding emissions and removals from LULUCF decreased by 11.1 per cent between 1990 and 2016, whereas total GHG emissions including net emissions or removals from LULUCF decreased by 12.6 per cent over the same period. This reflects an increase in total GHG emissions excluding LULUCF of 32.2 per cent between 1990 and 2005, and then a decrease in total emissions by 32.8 per cent from 2005 to 2016. Table 2 illustrates the emission trends by sector and by gas for Greece.

Table 2
Greenhouse gas emissions by sector and by gas for Greece for the period 1990–2016

<i>Sector</i>	<i>GHG emissions (kt CO₂ eq)</i>					<i>Change (%)</i>		<i>Share (%)</i>	
	<i>1990</i>	<i>2000</i>	<i>2010</i>	<i>2015</i>	<i>2016</i>	<i>1990–2016</i>	<i>2015–2016</i>	<i>1990</i>	<i>2016</i>
1. Energy	76 870.29	96 674.35	93 078.01	71 024.71	66 826.84	–13.1	–5.9	74.6	72.9
A1. Energy industries	43 252.76	54 932.09	52 211.41	40 911.69	37 021.08	–14.4	–9.5	42.0	40.4
A2. Manufacturing industries and construction	9 404.85	9 932.57	6 898.61	5 249.74	5 361.50	–43.0	2.1	9.1	5.9
A3. Transport	14 506.98	18 859.96	22 476.45	17 100.42	17 438.52	20.2	2.0	14.1	19.0
A4. and A5. Other	8 496.39	11 487.51	10 156.14	6 657.04	6 179.16	–27.3	–7.2	8.2	6.7
B. Fugitive emissions from fuels	1 209.31	1 462.22	1 335.40	1 105.82	826.58	–31.6	–25.3	1.2	0.9
C. CO ₂ transport and storage	NO	NO	NO	NO	NO	–	–	–	–
2. Industrial processes and product use	11 226.96	15 176.41	11 665.99	11 915.70	12 394.17	10.4	4.0	10.9	13.5
3. Agriculture	10 140.24	9 146.79	8 838.65	7 846.02	7 846.58	–22.6	0.0	9.8	8.6
4. LULUCF	–2 118.97	–1 936.05	–3 038.38	–3 691.69	–3 308.82	56.2	–10.4	–	–
5. Waste	4 863.82	5 348.87	4 781.00	4 523.60	4 539.81	–6.7	0.4	4.7	5.0

² In this report, the term “total GHG emissions” refers to the aggregated national GHG emissions expressed in terms of CO₂ eq excluding LULUCF, unless otherwise specified. Values in this paragraph are calculated on the basis of the 2018 annual submission, version 1.

Sector	GHG emissions (kt CO ₂ eq)					Change (%)		Share (%)	
	1990	2000	2010	2015	2016	1990–2016	2015–2016	1990	2016
	6. Other	NO	NO	NO	NO	NO	–	–	–
Indirect CO ₂	NE, NO	NE, NO	NE, NO	NE, NO	NE, NO	–	–	–	–
Gas ^a									
CO ₂	83 375.36	102 982.30	97 342.98	74 962.45	71 373.08	–14.4	–4.8	80.9	77.9
CH ₄	10 906.80	11 629.75	11 003.49	10 044.50	9 679.15	–11.3	–3.6	10.6	10.6
N ₂ O	7 443.14	6 346.44	5 489.25	4 258.87	4 298.76	–42.2	0.9	7.2	4.7
HFCs	1 182.82	5 261.86	4 392.63	5 919.62	6 116.04	417.1	3.3	1.1	6.7
PFCs	190.26	122.26	129.44	119.52	135.17	–29.0	13.1	0.2	0.1
SF ₆	2.93	3.81	5.86	5.06	5.20	77.6	2.8	0.0	0.0
NF ₃	NA, NO	NA, NO	NA, NO	NO, NA	NO, NA	–	–	–	–
Total GHG emissions without LULUCF	103 101.31	126 346.42	118 363.64	95 310.03	91 607.40	–11.1	–3.9	100.0	100.0
Total GHG emissions with LULUCF	100 982.34	124 410.38	115 325.27	91 618.34	88 298.58	–12.6	–3.6	–	–

Source: GHG emission data: Greece's 2018 annual submission, version 1.

^a Emissions by gas without LULUCF and without indirect CO₂.

8. The increase in Greece's total GHG emissions between 1990 and 2005 was driven by economic growth and improvements in living standards, which increased energy demand, particularly in the residential, service and transport sectors. The decrease in total emissions from 2006 was driven mainly by the economic crisis, which began in 2009, but also by PaMs introduced, particularly in the energy sector.

9. Between 1990 and 2016, GHG emissions from the energy sector decreased by 13.1 per cent (10,043.45 kt CO₂ eq). Factors contributing to this trend include the decommissioning or refurbishment of lignite-fired power plants and the shift towards natural gas and renewable energy sources, leading to a 14.4 per cent decrease in GHG emissions from the energy sector. At the same time, GHG emissions from fuel combustion from transport increased by 20.2 per cent (2,931.54 kt CO₂ eq), while GHG emissions in all other energy subsectors decreased over the same period.

10. Between 1990 and 2016, GHG emissions from industrial processes and product use increased by 10.4 per cent (1,167.21 kt CO₂ eq). The lowest value, seen in 2011, was the result of the economic crisis, but the general increase can be attributed to the increase in F-gas emissions related to HFCs. Between 1990 and 2016, GHG emissions from the agriculture sector decreased by 22.6 per cent (2,293.66 kt CO₂ eq), owing mainly to the economic crisis, a more efficient use of fertilizers and a trend towards urbanization. Between 1990 and 2016, GHG emissions from the waste sector decreased by 6.7 per cent (324.01 kt CO₂ eq), owing mainly to the increase in recycling rates and biogas capture, as well as the increased use of aerobic wastewater handling facilities.

11. Between 1990 and 2016, CO₂ emissions decreased by 14.4 per cent, owing mainly to the decrease in energy demand caused by the economic crisis. Over the same period, CH₄ emissions decreased by 11.3 per cent, mainly owing to an increase in biogas capture in the waste sector, while N₂O emissions decreased by 42.2 per cent, mainly owing to a more efficient use of synthetic nitrogen fertilizers in the agriculture sector. While PFCs decreased by 29.0 per cent, mainly owing to production improvements in the aluminium sector, HFCs and SF₆ emissions increased by 417.1 and 77.6 per cent, respectively. For HFCs, this increase

was attributed to their use in replacing ozone-depleting substances under the Montreal Protocol.

12. The summary information provided on GHG emissions was consistent with the information reported in the 2017 annual submission.

13. MEEN has the overall responsibility for the GHG inventory at the national level and plays an active role in its planning and management. MEEN assigns the task of preparing the GHG inventory to external consultants at the National Technical University of Athens/School of Chemical Engineering and a LULUCF expert retained on a contractual basis. Appointed persons at governmental ministries and agencies provide the necessary data.

14. Greece's national inventory arrangements were formalized in Joint Ministerial Decision 22993/2017 entitled "Structure and operation of the National Greenhouse Gases Inventory System". There were no changes in domestic institutional arrangements, including institutional, legal, administrative and procedural arrangements used for domestic compliance, monitoring, reporting, archiving of information and evaluation of the progress towards its economy-wide emission reduction target since the BR2.

2. Assessment of adherence to the reporting guidelines

15. The ERT assessed the information reported in the BR3 of Greece and recognized that the reporting is complete, transparent and adhering to the UNFCCC reporting guidelines on BRs.

B. Quantified economy-wide emission reduction target and related assumptions, conditions and methodologies

1. Technical assessment of the reported information

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

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

18. The EU 2020 climate and energy package includes the EU ETS and the ESD. The EU ETS mainly covers point emissions sources in the energy, industry and aviation sectors. An EU-wide emissions cap has been put in place for the period 2013–2020 with the goal of reducing emissions by 21 per cent below the 2005 level by 2020. Emissions from non-ETS sectors are regulated through member State specific targets that add up to a reduction at the EU level of 10 per cent below the 2005 level by 2020.

19. Under the revised EU ETS directive (directive 2009/29/EC), a single EU ETS cap covers the EU member States and three participating non-EU countries (Norway, Iceland and Liechtenstein); that is, there are no further individual caps by country. Allowances allocated under the EU ETS from 2013 to 2020 decrease by 1.74 per cent annually, starting from the average allowances issued by member States during the second trading period (2008–2012).

20. Under the ESD, Greece has a target of reducing its total emissions by 4 per cent below the 2005 level by 2020. National emission targets for non-ETS sectors for 2020 have been

translated into binding quantified AEAs for the period 2013–2020. Greece’s AEAs change following a linear path from 58,955.025 kt CO₂ eq in 2013 to 60,049.191 kt CO₂ eq in 2020.³

21. In general, in the EU flexible mechanisms can be used by operators under the EU ETS or by governments for the achievement of ESD targets. Under the revised EU ETS directive (Article 11a, para. 8), the overall use of credits must not exceed 50 per cent of the community-wide reductions below the relevant 2005 level from 2008 to 2020. This is further broken down into limits at the installation level in the EU regulation on international credit entitlements (EU Commission Regulation No. 1123/2013). Since some entitlements are expressed as a percentage of verified emissions over the entire period, the exact overall limit will only become known at the end of the third trading period (2013–2020). For example, the majority of EU ETS emissions in Greece come from operators of stationary installations that received a free allocation or an entitlement to use international credits from 2008 to 2012. These operators, assuming they do not have a significant capacity extension, are entitled to use international credits during the period 2008–2020 up to an amount corresponding to a maximum of 11 per cent of their allocation in the period from 2008 to 2012. Therefore, these operators are permitted to use up to about 34.7 million carbon credits during the period 2008–2020.

22. The ESD allows member States to make use of flexibility provisions for meeting their annual targets, with certain limitations. In non-ETS sectors, the annual use of carbon credits is limited to up to 3 per cent of each member State’s ESD emissions in 2005. Member States that do not use their 3 per cent limit for international credits in any specific year can transfer the unused part of their limit to another member State or reserve it for their own use until 2020. Approximately 750 million international credits can be used under the ESD during the period 2013 to 2020.

23. The EU and its member States are committed to an internal target of at least a 40 per cent domestic reduction in GHG emissions by 2030 compared to the 1990 level, to be fulfilled jointly, as set out in the conclusions of the European Council of October 2014. The European Commission presented in July 2015 a legislative proposal to revise the EU ETS for the period after 2020. This is the first step towards delivering on the EU’s target as set out above, in line with the 2030 climate and energy framework and as part of its contribution to the Paris Agreement. To achieve the 40 per cent EU target, ETS sectors have to reduce their emissions by 43 per cent compared with the 2005 level. To this end, the overall number of emission allowances will decline at an annual rate of 2.2 per cent from 2021–2030, compared with 1.74 per cent in the current trading period. This amounts to an additional reduction in emissions from ETS sectors of around 556 Mt over the decade.

2. Assessment of adherence to the reporting guidelines

24. In its BR3 and CTF tables 2(a–f), Greece provided a description of its target, including associated conditions and assumptions. CTF tables 2(a–f) contain the required information such as the base year, gas and sectors covered, global warming potential values used, approach to counting emissions and removals from the LULUCF sector and use of market-based mechanisms. Further information on the target and the related assumptions, conditions and methodologies is provided in section A.I.3 of the BR3.

25. The ERT assessed the information reported in the BR3 of Greece and recognized that the reporting is complete, transparent and adhering to the UNFCCC reporting guidelines on BRs. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

³ European Commission decision 2017/1471 of 10 August 2017 amending decision 2013/162/EU of 26 March 2013 to revise member States’ AEAs for the period from 2017 to 2020.

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

1. Mitigation actions and their effects

(a) Technical assessment of the reported information

26. Greece provided information on its package of PaMs implemented and adopted in order to fulfil its commitments under the Convention and its Kyoto Protocol. Greece reported on its policy context and legal and institutional arrangements put in place to implement its commitments and monitor and evaluate the effectiveness of its PaMs.

27. The Party reported on the GHGs affected by its PaMs in its BR3 (CTF table 3), but did not subdivide this information by gas (CO₂, CH₄, N₂O, HFCs, PFCs and SF₆).

28. Greece provided information on a set of PaMs similar to those previously reported, but did not indicate cases where PaMs had been either amended or newly introduced since the previous submission.

29. Greece reported that all the PaMs listed in previous BRs were still in place. Greece also confirmed that, since the previous submission, no changes had been made to its institutional, legal, administrative and procedural arrangements used for domestic compliance, monitoring, reporting, archiving of information and evaluation of the progress made towards its target.

30. Greece did not explicitly discuss the effects of PaMs achieved since its BR2, although some information on the progress of the implementation of policies and emission reductions in 2015 was presented in the BR3 via reference to the NC7. For example, tables 4.7, 4.9 and 4.13a provide information on effects (renewable energy share in electricity generation, natural gas penetration, estimated mitigation effect, etc.) achieved in 2015.

31. Greece reported that a significant portion of PaMs are implemented at the local level because half of GHG emissions are created in cities, which account for up to 80 per cent of the total energy consumption. Local PaMs reported by the Party include traffic and public transport measures, incorporation of renewable energy projects into regional development plans, implementation of infrastructure projects and recycling of electric appliances, batteries and packaging materials.

32. Greece reported on its self-assessment of compliance with emission reduction targets and national rules for taking action against non-compliance.

33. The key overarching cross-sectoral policy in the EU is the 2020 climate and energy package, adopted in 2009, which includes the revised EU ETS and the ESD. The package is supplemented by renewable energy and energy efficiency legislation and legislative proposals on the 2020 targets for CO₂ emissions from cars and vans, the carbon capture and storage directive, and the general programmes for environmental conservation, namely the 7th Environment Action Programme and the clean air policy package.

34. In operation since 2005, the EU ETS is a cap-and-trade system that covers all significant energy-intensive installations (mainly large point emissions sources such as power plants and industrial facilities), which produce 40–45 per cent of the GHG emissions of the EU. It is expected that the EU ETS will guarantee that the 2020 target (a 21 per cent emission reduction below the 2005 level) will be achieved for sectors under the scheme. The third phase of the EU ETS started in 2013 and the system now includes aircraft operations (since 2012) as well as N₂O emissions from chemical industries, PFC emissions from aluminium production and CO₂ emissions from some industrial processes that were not covered in the previous phases of the EU ETS (since 2013).

35. The ESD became operational in 2013 and covers sectors outside the EU ETS, including transport (excluding domestic and international aviation, and international maritime transport), residential and commercial buildings, agriculture and waste, together accounting for 55–60 per cent of the GHG emissions of the EU. The aim of the ESD is to

decrease GHG emissions in the EU by 10 per cent below the 2005 level by 2020, and it includes binding annual targets for each member State for 2013–2020.

36. Other overarching cross-sectoral policies, which constitute a legislative framework that supports and sets the targets of the respective national policies for restricting GHG emissions in Greece, are the EU 2030 climate and energy framework; aviation and marine bunker regulations (ICAO, IMO); financing mechanisms (Green Fund, LIFE, European Structural and Investment Funds, etc.); and fiscal measures such as the EU directive on energy taxation (directive 2003/96/EC), taxation of energy products, car registration tax and road taxes. The Second National Climate Change Programme continues to be the most important national policy supporting climate change mitigation in Greece.

37. Greece reported information related to adopted and implemented PaMs, but noted via reference to section 5.2 of the NC7 that it had not reported any planned policies because it believes the national mitigation commitments (ESD target) will be met without the need for any additional policies. However, the referenced NC7 discusses the policies planned in the context of the new 2030 climate and energy framework.

38. Greece reported that EU policy takes into account the minimization of adverse effects of PaMs for reducing emissions via reference to section 4.4 of its NC7. Greece also informed the ERT that its climate change policies are formulated in line with EU policy and thus it did not report any national policies on minimizing adverse social, environmental and economic impacts on developing country Parties.

39. Greece introduced national-level policies to achieve its target under the ESD. The key policies reported are the promotion of natural gas, improvements to the conventional power generation system, the promotion of renewable energy sources, the implementation of energy efficiency measures, the implementation of road transport measures, the recovery of organic waste and biogas, the reduction of emissions of F-gases and the implementation of the Common Agricultural Policy. The policies with the most significant impacts on climate change mitigation are the promotion of renewable energy sources and improvements to the conventional power generation system. Other policies that have delivered significant emission reductions are the promotion of natural gas and energy efficiency and transport measures.

40. Greece did not include in its BR3 any domestic mitigation actions that are under development. However, during the review Greece provided information regarding a number of nationally planned PaMs, for example as part of the new National Energy and Climate Plan and the Action Plan on Emissions Reduction. Table 3 provides a summary of the reported information on the PaMs of Greece.

Table 3

Summary of information on policies and measures reported by Greece

<i>Sector</i>	<i>Key PaMs</i>	<i>Estimate of mitigation impact by 2020 (kt CO₂ eq)</i>
Energy		32 162
Improvements in the conventional power generation system	Decommissioning of old thermal power units; commissioning of new power units that have lower emissions; increase of the natural gas share in electricity production; interconnection of certain islands with the mainland grid	11 700
Natural gas promotion	Promotion of natural gas in residential, tertiary and industrial sectors	1 225
Transport	Promotion of natural gas and biofuel use in transport; road transport measures	1 007

Sector	Key PaMs	<i>Estimate of mitigation impact by 2020 (kt CO₂ eq)</i>
Renewable energy	Promotion of renewable energy sources for electricity generation	15 000
Energy efficiency	Implementation of National Energy Efficiency Action Plan in industry and residential and tertiary sectors	3 230
Industrial processes and product use	Reduction of emissions of F-gases	460
Agriculture	Common Agricultural Policy, Rural Development Programme, green direct payments	905
Waste	Recovery of organic waste and biogas	1 300

Note: The estimates of mitigation impact are estimates of emissions of CO₂ or CO₂ eq avoided in a given year as a result of the implementation of mitigation actions.

41. Greece provided a brief description of the estimation method used for quantifying GHG emission impacts in its NC7; however, the information provided was insufficient for the ERT to perform a technical assessment of the estimated impacts of the PaMs. During the review, Greece provided detailed information on the methodologies used to estimate the mitigation effects of individual PaMs.

42. Greece reported on the effects of 16 individual mitigation actions for 2020 in CTF table 3, and referred in the BR3 to information presented in its NC7 on the 2015 estimated ex-post effects of 13 of them.

43. The ERT noted that there was a significant difference between the reported mitigation effects of the same PaMs in two consecutive submissions, but no explanation for this difference was provided. For example, the estimated effect of the implementation of biofuel in transport decreased from 2,173 kt CO₂ eq in the BR1 to 650 kt CO₂ eq in the current submission. In addition, the estimated effects of natural gas promotion increased. The Party clarified during the review that this difference was due to changes in national circumstances since previous submissions and the use of actual, up-to-date effects of certain PaMs in projections up to 2020.

(b) Policies and measures in the energy sector

44. The Second National Climate Change Programme continues to be the most important national policy framework supporting climate change mitigation in the energy sector.

45. Greece reported only CO₂-related mitigation impacts of PaMs in the energy sector (CTF table 3), stating that CO₂ accounts for more than 99 per cent of affected gases. The ERT noted that reducing the non-CO₂ GHGs that make up the remaining 1 per cent of emissions could have a significant impact on some sectors, further stating that transparency could be improved if Greece provided information on the effects of reducing non-CO₂ GHGs through PaMs in the energy sector.

46. **Energy supply.** The most significant PaM related to energy supply is the improvement of the conventional power generation system, which includes gradually decommissioning old, inefficient and thus more polluting thermal power units; commissioning new power units that meet the best available technology standard (in terms of emission control) and Greece's new industrial emissions directive; increasing the natural gas share in electricity production; and interconnecting a number of islands with the mainland grid.

47. Lignite is still the dominant fuel in the energy mix, followed by natural gas and renewable energy sources (solar and wind), although Greece has made substantial progress in diversifying its energy mix for electricity generation, having reduced its lignite capacity by 913 MW during 2010–2016.

48. Some of the northern Cycladic islands are currently being connected to the mainland grid. This project is considered critical for two important government energy policies: enhancing the reliability of the electricity supply and supporting the development of renewable energy sources. The Cycladic islands have high wind potential, a large part of which has not yet been exploited.

49. The other significant policy related to energy supply is the promotion of natural gas. Decommissioned lignite is mainly replaced by natural gas in electricity and heat production. Natural gas is becoming an increasingly important fuel in Greece, accounting for 28 per cent of power generation and 15 per cent of the total primary energy supply in 2016, and more than doubling its share in total final consumption over the last decade. Power generation is the largest gas-consuming sector, accounting for half of the total gas consumption in 2015. The contribution of natural gas to the generation of power in the national energy system was 55 PJ in 2015, and is expected to account for almost 90 per cent of fuels used in power generation in 2020.

50. Action taken to increase the use of natural gas was reported by the Party, including fiscal measures such as discounts on connection fees, marketing, the development of networks (infrastructure), liberalization of the electricity and natural gas markets, participation in the EU ETS and the restriction of environmental permits for industrial installations.

51. **Renewable energy sources.** Greece developed its policy on renewable energy promotion under the EU renewable energy directive (directive 2009/28/EC). The National Renewable Energy Action Plan (time frame 2010–2020) set the following indicative sector targets for the contribution of renewable energy sources to gross final energy consumption: 20 per cent for heating and cooling, 10 per cent for transportation and 40 per cent for gross final electricity consumption.

52. In 2015, the share of renewable energy in final energy consumption was around 26 per cent for heating and cooling and 1.4 per cent for transportation. The share of renewable energy represented almost 19 per cent of the total electricity generated in 2016.

53. **Energy efficiency.** The EU 2020 climate and energy package includes an energy efficiency target of 20 per cent by 2020. In Greece, energy efficiency measures were developed and implemented through the 2011 Energy Efficiency Plan and the EU energy efficiency directive (directive 2012/27/EU). The directive establishes a common framework of measures for the promotion of energy efficiency within the EU. Every three years, Greece prepares and submits a National Energy Efficiency Action Plan, which covers significant energy efficiency measures and their expected and/or achieved energy savings. Greece reported that measures under its National Energy Efficiency Action Plan include cross-cutting measures as well as measures addressing residential and tertiary private sector buildings, the tertiary public sector, industry, the transport sector, and efficient heating and cooling systems.

54. As a member of the EU, in compliance with the EU energy efficiency directive, Greece set a total final consumption target of 18.4 Mtoe for 2020, which represents a 12 per cent reduction compared with the 2005 level. However, due to the economic crisis, total final consumption fell to 16.4 Mtoe in 2015, 11 per cent below the 2020 reduction target. During the review, the Party informed the ERT that it was difficult to distinguish the effects of energy efficiency measures from the reduction in energy consumption resulting from the economic crisis.

55. **Residential and commercial sectors.** Several actions are included in the National Energy Efficiency Action Plan concerning the conservation and rational use of energy in the residential and tertiary sectors. In addition to the introduction of natural gas and renewable energy, measures involve improving the thermal behaviour of residential sector buildings and promoting energy-efficient appliances and heating equipment.

56. The residential and commercial sectors account for small but growing shares of total natural gas consumption. Following a drop between 2011 and 2013, natural gas consumption hit record levels in these sectors in 2015, accounting for one fifth of the total gas

consumption. However, that natural gas consumption represented only 8 per cent of the total energy consumption in the residential and commercial sectors in 2015.

57. Greece reported that the effect of the implemented and adopted PaMs under the National Energy Efficiency Action Plan concerning the residential and tertiary sectors on GHG emissions is estimated to be a reduction of 2.9 Mt CO₂ eq for 2020. The ERT noted that this estimate was 93 kt CO₂ eq in 2015, which is a considerable difference. During the review the Party explained that this is the result of delays in the implementation of some measures.

58. **Transport sector.** The most significant PaMs in the transport sector are increasing biofuel use; increasing natural gas use; and road transport measures such as infrastructure improvements, EU vehicle efficiency policies and mode shifting. Greece reported that implemented and adopted PaMs in the transport sector would have an estimated effect of a 1,007 kt CO₂ eq reduction in GHG emissions for 2020.

59. Natural gas (0.7 PJ in 2015) is also consumed in the transport sector, with natural gas-powered buses having already been introduced in Athens. The Party reported that it faced difficulties with introducing certified biofuel into the transport sector and meeting its targets, with renewables accounting for just 1.4 per cent of transport energy in 2015, which the Party reported as lagging in view of the 2020 target of 10 per cent.

60. The Party reported on the policies and strategies of the United Nations and other international organizations with respect to aviation and marine bunker fuels via a reference to its NC7. Greece's reported policies focus on EU activities and developments within ICAO and IMO.

61. **Industrial sector.** Greece reported that the EU ETS is the main policy instrument for reducing GHG emissions in the industrial sector.

62. Energy efficiency improvements and cogeneration plants in parts of the industrial sector have been promoted since the First National Climate Change Programme, through the provisions of development assistance acts, Law 2244/93 (for cogeneration plants), the Operational Programme for Energy within the 2nd Community Support Framework (1994–1999) and the Operational Programme for Competitiveness. Such improvements include energy-saving interventions; developing and implementing systems for the recovery, saving and substitution of conventional energy; conducting energy audits and benchmarking; streamlining equipment; upgrading facilities; and installing new energy-efficient technologies.

63. The penetration of natural gas in the industrial sector was reported as 18.1 PJ in 2015 with a target of 24.5 PJ by 2020. The industrial sector is the second-largest consumer of natural gas, accounting for 29 per cent of the total natural gas consumption in 2015.

64. Achievable emission reductions through the implementation of adopted PaMs in the industrial sector (cogeneration plants and PaMs included in the National Energy Efficiency Action Plan) are estimated to reach 300 kt CO₂ eq in 2020.

(c) **Policies and measures in other sectors**

65. **Industrial processes.** The main PaM in this sector is the implementation of two EU legislative acts: the EU directive on mobile air-conditioning units (directive 2006/40/EC) and the F-gas regulation (No. 517/2014), which covers all other key applications related to the use of F-gases. During the review, Greece explained that the latter policy promotes two main strategies: preventing leakage and emissions and controlling the use of F-gases.

66. The most relevant initiatives for preventing leakage and emissions are emission prevention and leak checks, control of by-production, end of life treatment of products and equipment, training and qualifications, and information for users (labelling, product information). The most relevant initiatives for controlling the use of F-gases are a ban on new applications, a ban on uses and phase-out of HFCs. These PaMs are estimated to bring about a reduction of 460 kt CO₂ eq in 2020 and 2,300 kt CO₂ eq in 2030.

67. **Agriculture.** Most PaMs in this sector are mainly were developed as a result of the Common Agricultural Policy, which is applicable to all EU member States. In implementing

the Common Agricultural Policy, Greece has introduced a system of direct payments to farmers (green direct payments), subject to meeting requirements for the provision of environmental public goods, viable food production, sustainable management of farmland and environmentally friendly practices. In order to receive payments, farmers must comply with a set of basic rules.

68. The 2014–2020 Rural Development Programme is a PaM focused on enhancing farm viability and competitiveness, preserving and enhancing ecosystems and promoting local development in rural areas. It will be used to fund actions under the six rural development priorities, with an emphasis on enhancing sustainable forestry and the competitiveness of the agriculture sector and on restoring, preserving and enhancing ecosystems related to forestry and agriculture.

69. The 2014–2020 Rural Development Programme is required to spend at least 30 per cent of the total funds received from the European Agricultural Fund for Rural Development on climate change mitigation and adaptation, and other environmental issues. The Programme carries out the following actions related directly to reducing GHG emissions: organic farming; decreasing the use of synthetic nitrogen fertilizers; disengagement of subsidies from agricultural production (reduction of the rate of intensity of agricultural land use); using environmentally friendly livestock farming methods, including improving the management of animal waste; increasing energy efficiency and renewable energy generation and use, including biomass; improving the management of soil (agricultural practices in mountainous areas, green cover and permanent grassland) and increasing carbon removals.

70. Other PaMs focus on the promotion of organic farming, reduction of fertilizer use, reduction of the rate of intensity of agricultural land use and improvement of animal waste management. These PaMs were estimated to bring about a reduction of 800 kt CO₂ eq in 2015, 905 kt CO₂ eq in 2020 and 1,250 kt CO₂ eq in 2030.

71. **LULUCF.** Greece provided detailed information on PaMs in this sector, including the conservation and protection of existing forest land, a gradual increase in forest land and actions to improve degraded forest lands. During the review the Party provided additional information on the Public Investment Programme, the regular budget of MEEN, the Special Body of Forests (Green Fund), projects under the Operational Programme for Transport Infrastructure, Environment and Sustainable Development (2014–2020) and projects under the Operational Programme for Rural Development (2014–2020). Other projects in this sector, in particular those highlighted during the review, were based on small-scale case studies. As a next step, in view of their success, these practices will be presented to the EU and national stakeholders for possible incorporation into policy or legislative frameworks.

72. The ERT noted that impacts were not estimated for LULUCF PaMs. Greece explained during the review that there was a great deal of uncertainty regarding the impacts of PaMs in the LULUCF sector in general, and that many of these PaMs were small-scale pilot projects, making an accurate estimation of the impacts even more difficult.

73. **Waste management.** PaMs in this sector focus on the recovery of organic waste and biogas. Greece has implemented a number of measures aiming at reducing landfills, enhancing recycling and improving landfill management. The main results from those measures are a reduction in biodegradable waste landfilled through the installation of solid waste treatment facilities, the promotion of measures for separating biowaste, recycling, energy recovery and the use of sludge in agriculture as a fertilizer or for composting.

74. Greece reported both EU and national policies and regulations for the sector, such as the revised National Waste Management Plan, which calls for 50 per cent of waste (recyclable and biowaste) to be recovered through recycling and reuse at the local level; the development of regional waste management plans; financing of projects with provisions for the recovery of resources, energy and secondary materials; regulation of the alternative management of packaging waste and other products; and application of the “pay as you throw” principle.

75. The regulation for the management of biodegradable waste is expected to facilitate reductions of 800 kt CO₂ eq in 2020 and 1,000 kt CO₂ eq in 2030. The flaring or recovery of

biogas in solid waste disposal sites is also expected to facilitate reductions of 500 kt CO₂ eq in 2020 and 700 kt CO₂ eq in 2030.

76. Greece also reported on actions concerning the collection, treatment and discharge of urban wastewater, as well as the implementation of regulations for the use of sludge in agriculture.

(d) Response measures

77. Greece reported on the assessment of the economic and social consequences of its response measures. Greece presented initiatives aimed at minimizing adverse impacts and also reported that it formulates its climate policy in line with EU policy. In this context, the EU has established processes, including an impact assessment system, that assess the economic and social consequences of climate policy measures to ensure that all possible relevant impacts are taken into account.

78. Greece also reported that procedures for assessing the impacts of EU climate change policies on external countries have been established. In this context, the impacts of policy measures implemented by the EU are being discussed bilaterally and at the regional level.

(e) Assessment of adherence to the reporting guidelines

79. The ERT assessed the information reported in the BR3 of Greece and identified issues relating to transparency and adherence to the UNFCCC reporting guidelines on BRs. The findings are described in table 4.

Table 4
Findings on mitigation actions and their effects from the review of the third biennial report of Greece

<i>No.</i>	<i>Reporting requirement, issue type and assessment</i>	<i>Description of the finding with recommendation or encouragement</i>
1	Reporting requirement specified in paragraph 6 Issue type: transparency Assessment: recommendation	The Party did not report PaMs subdivided by gas in its BR3. In CTF table 3, although information on GHGs affected by PaMs was provided, it was not subdivided by the GHGs (CO ₂ , CH ₄ , N ₂ O, HFCs, PFCs, SF ₆) affected. During the review, Greece explained that each section covers a sectoral policy and specifies which gases are affected for each PaM, and that this information is included in CTF table 3. The ERT recommends that, to the extent appropriate, Greece organize the reporting of mitigation actions by sector and by gas in order to improve transparency in its next BR.
2	Reporting requirement specified in paragraph 8 Issue type: transparency Assessment: encouragement	The ERT noted that in its BR3 Greece did not report on its national assessment of the economic and social consequences of response measures, although it did report on the assessment of the economic and social consequences of response measures at the EU level. During the review, Greece explained that its climate policy is formulated in line with EU policy. However, the Party, did provide an example of assessment at the national level where the EU renewable energy directive was analysed in order to identify any adverse effects it had had on other Parties. This directive and its amendment were subsequently entered into force in Greece, by national law. The ERT encourages Greece to provide, to the extent possible, detailed information on the assessment of the economic and social consequences of response measures at the national level in its next BR submission in order to improve transparency.

Note: Paragraph number listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on BRs. The reporting on the requirements not included in this table is considered to be complete, transparent and adhering to the UNFCCC reporting guidelines on BRs.

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

(a) Technical assessment of the reported information

80. Greece reported in its BR3 and CTF table 4 on its use of units from market-based mechanisms under the Convention and the contribution of LULUCF towards achieving its target. This information was provided for the base year (1990) and for 2010–2015.

81. Greece will not use any units from market-based mechanisms in relation to its ESD target. The allowable use of units from market-based mechanisms by EU ETS operators is described in section A.I.3.2.2 of the BR3.

82. The commitment of the EU under the Convention does not include emissions/removals from LULUCF, but LULUCF is estimated to be a net sink over the relevant period. EU member State inventories also include information on emissions and removals from LULUCF in accordance with relevant reporting commitments under the Convention. Accounting for LULUCF activities only takes place under the Kyoto Protocol.

83. For 2014 Greece reported in CTF table 4 annual total GHG emissions excluding LULUCF of 99,353.49 kt CO₂ eq, which is 3.6 per cent below the 1990 base-year level.

84. For 2015 Greece reported in CTF table 4 annual total GHG emissions excluding LULUCF of 95,715.10 kt CO₂ eq, which is 7.1 per cent below the 1990 base-year level. In 2015 emissions from non-ETS sectors relating to the target under the ESD amounted to 45,449 kt CO₂ eq. Table 5 illustrates Greece's total GHG emissions, the contribution of LULUCF and the use of units from market-based mechanisms to achieve its target.

Table 5

Summary of information on the use of units from market-based mechanisms and land use, land-use change and forestry by Greece to achieve its target

<i>Year</i>	<i>Emissions excluding LULUCF (kt CO₂ eq)</i>	<i>Contribution of LULUCF (kt CO₂ eq)^a</i>	<i>Emissions including contribution of LULUCF (kt CO₂ eq)</i>	<i>Use of units from market-based mechanisms (kt CO₂ eq)</i>
1990	103 081.19	NA	NA	NA
2010	118 308.93	NA	NA	NA
2011	115 331.64	NA	NA	NA
2012	112 024.30	NA	NA	NA
2013	102 436.85	NA	NA	NA
2014	99 353.49	NA	NA	NA
2015	95 715.10	NA	NA	NA

Sources: Greece's BR3 and CTF tables 1, 4, 4(a)I, 4(a)II and 4(b).

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

85. In assessing the progress towards the achievement of the 2020 target, the ERT noted that Greece's emission reduction target for non-ETS sectors is 4 per cent below the 2005 level (see para. 20 above). As discussed above, in 2015 Greece's emissions from non-ETS sectors were 45,449 kt CO₂ eq, or 23.8 per cent (14,159.67 kt CO₂ eq) below the AEA under the ESD.

86. The ERT noted that Greece is making progress towards its emission reduction target by implementing mitigation actions that are delivering emission reductions. On the basis of the results of the projections under the WEM scenario (see para. 107 below), the ERT also noted that the Party is making progress towards achieving its target under the ESD.

(b) Assessment of adherence to the reporting guidelines

87. The ERT assessed the information reported in the BR3 of Greece and identified an issue relating to transparency. The findings are described in table 6.

Table 6

Findings on estimates of emission reductions and removals and the use of units from the market-based mechanisms and land use, land-use change and forestry from the review of the third biennial report of Greece

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
1	Reporting requirement specified in paragraph 10 Issue type: transparency Assessment: recommendation	The Party reported in its BR3 on how ETS operators in its territory could use flexible mechanisms, what the allowable limits were for their use and where data on usage by individual operators, with a three-year lag, could be obtained. The Party reported that aggregated EU-wide information was available sooner; however, it did not report those data or provide a reference to where the data could be obtained. During the review, Greece explained that ETS operators report information on their use of flexible mechanisms within the EU ETS framework and not to Greece. The ERT recommends that Greece, in the textual portion of its next BR or in a footnote to CTF table 4, improve the information reported on progress made towards the emission reduction targets by providing, directly or via reference to the EU BR, an explanation for the use of units from market-based mechanisms by operators under the EU ETS, including aggregated data on the EU-wide use of market-based mechanisms by ETS operators.

Note: Paragraph number listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on BRs. The reporting on the requirements not included in this table is considered to be complete, transparent and adhering to the UNFCCC reporting guidelines on BRs.

3. Projections overview, methodology and results

(a) Technical assessment of the reported information

88. Greece reported updated projections for 2020 and 2030 relative to actual inventory data for 2015 under the WEM scenario. The WEM scenario reported by Greece includes implemented and adopted PaMs until 2017.

89. Greece did not report a WAM or WOM scenario. It stated in its BR3 that a WAM scenario was not provided because it expects to meet its 2020 commitments solely on the basis of its currently adopted and implemented PaMs. During the review, Greece explained that it is currently drafting its integrated National Energy and Climate Plan, which will cover the period from 2021 to 2030 and take into account Greece’s longer-term perspective and associated mitigation commitments.

90. Greece provided a definition of its WEM scenario, stating that it is based on the latest available official energy planning scenario, coupled with methodologies for non-energy sectors that calculate emissions using activity data, emission factors and sector-specific assumptions. In its BR3 it states that its implemented and adopted PaMs, as presented in chapter 4, are incorporated in the WEM scenario. During the review, Greece explained that only selected PaMs from chapter 4 of its NC7 were included in the modelling results, specifically those that include specific quantifiable parameters for that sector.

91. The WEM scenario includes specific assumptions about the electricity sector, reflecting factors such as the decommissioning of lignite-fired power plants and the interconnection of islands to the mainland grid. For example, the installed power of lignite plants is assumed to decrease by 17.0 per cent by 2020 and by 57.4 per cent by 2030 compared with the 2010 level. The WEM scenario also includes conditions based on national targets and EU directives, such as penetration rate of renewable energy of 20 per cent as well as energy efficiency savings aligned with the National Energy Efficiency Action Plan. The definition indicates that the scenario was prepared in accordance with the UNFCCC reporting guidelines on NCs.

92. The projections are presented on a sectoral basis, using the same sectoral categories as those used in the reporting on mitigation actions, and on a gas-by-gas basis for CO₂, CH₄, N₂O, PFCs, HFCs and SF₆ (treating PFCs and HFCs collectively in each case) for 1990–2040. The projections are also provided in an aggregated format for each sector as well as for a Party total using global warming potential values from the AR4.

93. Greece reported emission projections for indirect GHGs such as nitrogen oxides, non-methane volatile organic compounds and sulfur oxides, with the exception of carbon monoxide. The ERT noted that transparency could be increased by including in its next BR information on the methodology used to develop these projections, including references to any related documentation.

94. The ERT noted the improvement in the transparency of several reporting elements, and further noted that Greece successfully responded to the recommendation and encouragements from the technical review of the NC6 regarding the reporting of projections using the same sectoral categories as those used in the section on PaMs and clearly identifying the global warming potential used in the analysis.

95. Emission projections related to fuel sold to ships and aircraft engaged in international transport were reported separately and were not included in the totals.

96. Greece reported on factors and activities affecting emissions for each sector, but did not always represent these data in tabular format. The ERT also noted that it was challenging to clearly identify which specific PaMs or underlying assumptions were driving the expected changes in emission trends for each sector. Likewise, Greece did not clearly identify the years in which each PaM was assumed to be implemented in its emission projections for the non-energy sectors.

(b) Methodology, assumptions and changes since the previous submission

97. The methodology used for the preparation of the projections is identical to that used for the preparation of the emission projections for the BR2 for the energy sector. Greece described the updates used in the modelling since the BR2, such as updated inventory data, as well as the updates to key assumptions such as macroeconomic parameters and energy sector developments. Greece did not specify whether it had made any changes to the methodology used for the preparation of the projections for the non-energy sector. The ERT notes that any changes to methodologies in the non-energy sectors should also be reported.

98. To prepare its projections, Greece relied on the following key underlying assumptions: an annual GDP growth rate of 2.2 and 2.0 per cent for 2025 and 2030, respectively; a population decrease of 200,000 between 2020 and 2030; an increase in energy prices (oil, coal, natural gas) between 2020 and 2030; and an increase in the EU ETS carbon price from EUR 8 in 2020 to EUR 20 in 2030.

99. These variables and assumptions were reported in CTF table 5. The assumptions were updated on the basis of the most recent economic developments known at the time the projections were prepared. However, the historical data corresponding to these variables was not reported in the table. Likewise, projected GDP data for 2020 were not included. In response to a question raised by the ERT during the review, Greece explained that these historical variables were not used as inputs to the TIMES-MARKAL model. Greece elaborated that useful energy demand is calculated exogenously according to the expected GDP, gross value added and demographic projections and becomes the main key assumption inputted into the TIMES-MARKAL model.

100. The ERT noted that any key variables and assumptions used within the calculations included in the projection analysis should be provided on both a projected and a historical basis. This would increase the transparency of the reporting by demonstrating how these drivers have evolved over time and are expected to evolve over the projection period. The ERT further noted that Greece could explain that final useful energy demand is a key driver of energy projections and provide these data in CTF table 5.

101. Sensitivity analyses were not conducted for the key variables reported in CTF table 5. However, a sensitivity analysis was conducted for two scenarios that explored variations in

the assumed annual rate of change in the final useful energy demand. The sensitivity analysis only included CO₂ emissions from the energy sector because they account for more than 80 per cent of GHG emissions in Greece, and are the only GHG emissions reported in the TIMES-MARKAL modelling analysis.

102. In response to a question raised by the ERT during the review, Greece noted that additional sensitivity analyses regarding energy prices and CO₂ allowance costs were performed, with the main impact being on Greece's electricity production portfolio, but this information was not presented in the BR3.

103. The results of the sensitivity analysis conducted showed that energy-related CO₂ emissions are projected to be 4.7 per cent lower than the WEM scenario in 2030 when the annual rate of change in the final useful energy demand was assumed to be 30 per cent lower. For the second scenario, energy-related CO₂ emissions were projected to be 1.1 per cent lower in 2030 when the annual rate of change in the final useful energy demand was assumed to be 30 per cent lower in the industrial sector and 30 per cent higher in the tertiary sector compared with the WEM scenario.

104. The ERT noted that the BR2 included sensitivity analyses for four scenarios with alternative sets of PaMs, renewable energy targets and CO₂ emission targets. These BR2 results showed that CO₂ emissions in 2020 were projected to be higher than those in the WEM scenarios for sensitivities with reduced shares of renewable energy penetration and CO₂ emission targets.

(c) Results of projections

105. The projected emission levels and information on the Kyoto Protocol target and the quantified economy-wide emission reduction target are presented in table 7 and the figure below.

Table 7

Summary of greenhouse gas emission projections for Greece

	<i>GHG emissions (kt CO₂ eq per year)</i>	<i>Changes in relation to base-year^a level (%)</i>	<i>Changes in relation to 1990 level (%)</i>
Kyoto Protocol base year ^b	107 564.14	NA	NA
Quantified emission limitation or reduction commitment under the Kyoto Protocol (2013–2020) ^b	NA	NA	NA
Quantified economy-wide emission reduction target under the Convention ^c	NA	NA	NA
Inventory data 1990 ^d	103 081.19	NA	NA
Inventory data 2015 ^d	95 310.03	NA	–7.5
WEM projections for 2020 ^e	91 515.29	NA	–11.2
WEM projections for 2030 ^e	86 036.49	NA	–16.5

^a "Base year" in this column refers to the base year for the target under the Kyoto Protocol

^b The Kyoto Protocol base-year level of emissions is provided in the initial review report, contained in document FCCC/IRR/2016/GRC.

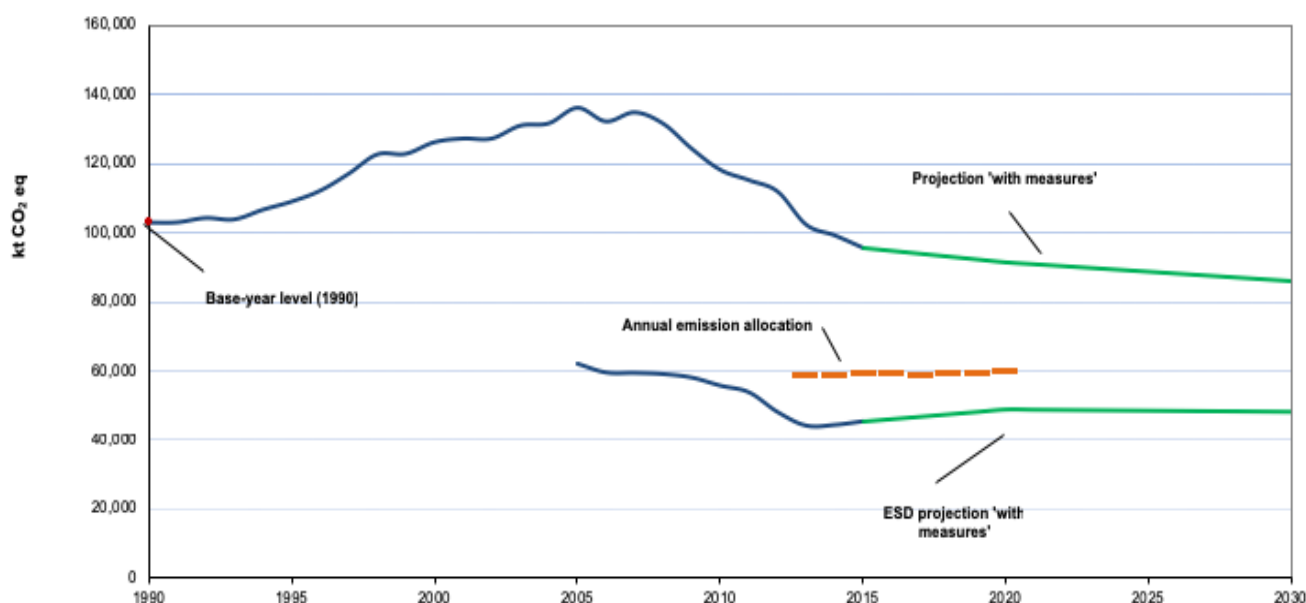
^c The Kyoto Protocol target for the second commitment period (2013–2020) is a joint target of the EU and its 28 member States and Iceland. The target is to reduce emissions by 20 per cent compared with the base-year (1990) level by 2020. The target for non-ETS sectors is 4 per cent for Greece under the ESD. The value presented in this line is based on annex II to European Commission decision 2013/162/EU and as adjusted by Commission implementing decision 2013/634/EU that established the assigned amount for the EU member States, and divided by eight years to calculate the annual emission level.

^d The quantified economy-wide emission reduction target under the Convention is a joint target of the EU and its 28 member States. The target is to reduce emissions by 20 per cent compared with the base-year (1990) level by 2020.

^e From Greece’s BR3 CTF table 6.

^f From Greece’s BR3.

Greenhouse gas emission projections reported by Greece



Sources: (1) data for 1990–2015 (CTF table 1): Greece’s 2017 annual inventory submission, version 1; total GHG emissions excluding LULUCF; (2) data for 2016–2030: Greece’s NC7 and BR3; total GHG emissions excluding LULUCF.

106. Greece’s total GHG emissions excluding LULUCF in 2020 and 2030 are projected to be 11,565.91 and 17,044.71 kt CO₂ eq, respectively, under the WEM scenario, which represents a decrease of 11.2 and 16.5 per cent, respectively, below the 1990 level. The 2020 projections suggest that Greece will continue contributing to the achievement of the EU target under the Convention (see para. 16 above).

107. Greece’s target for non-ETS sectors is to reduce its total emissions by 4 per cent below the 2005 level by 2020 (see para. 20 above). Greece’s AEAs, which correspond to its national emission target for non-ETS sectors, change linearly from 58,955.03 kt CO₂ eq in 2013 to 60,049.19 kt CO₂ eq for 2020. According to the projections under the WEM scenario, emissions from non-ETS sectors are estimated to reach 48,926 kt CO₂ eq by 2020. This is 11,123 kt CO₂, or 18.5 per cent, below the AEA amount in 2020. The ERT noted that this suggests that Greece expects to meet its target under the WEM scenario (see para. 86 above). The ERT also noted that Greece has improved the transparency of its reporting by including information on its AEAs that facilitates the assessment of the progress made towards its ESD target.

108. Greece presented the WEM scenario by sector for 2020 and 2030, as summarized in table 8.

Table 8

Summary of greenhouse gas emission projections for Greece presented by sector

Sector	GHG emissions and removals (kt CO ₂ eq)			Change (%)	
	1990	2020	2030	1990–2020	1990–2030
		WEM	WEM	WEM	WEM
Energy (not including transport)	62 362.64	47 253.37	41 432.51	–24.2	–33.6
Transport	14 506.98	19 197.16	18 183.27	32.3	25.3

Sector	GHG emissions and removals (kt CO ₂ eq)			Change (%)	
	1990	2020	2030	1990–2020	1990–2030
		WEM	WEM	WEM	WEM
Industry/industrial processes	11 226.96	11 159.47	12 213.01	–0.6	8.8
Agriculture	10 120.79	9 172.28	9 640.08	–9.4	–4.7
LULUCF	–2 178.02	–1 714.10	–745.59	–21.3	–65.8
Waste	4 863.82	4 733.01	4 567.62	–2.7	–6.1
Other					
Total GHG emissions without LULUCF	103 081.19	91 515.29	86 036.49	–9.6	–12.9

Source: Greece's BR3 CTF table 6.

109. The Party did not provide information on factors and activities affecting emissions trends for each sector in tabular format. This includes key PaMs and starting dates affecting sectoral trends, particularly in the non-energy sectors. During the review, Greece provided further information on the factors, activities and PaMs driving emission trends for each sector, including non-energy sectors.

110. According to the projections reported for 2020 under the WEM scenario, the most significant emission reductions are expected to occur in the energy sector, amounting to projected reductions of 15,109.27 kt CO₂ eq (24.2 per cent) between 1990 and 2020 and 20,930.13 kt CO₂ eq (33.6 per cent) between 1990 and 2030. The decrease is driven by assumptions regarding the renewable energy penetration rate, the implementation of energy efficiency measures, and continued trends away from lignite-powered electricity and towards natural gas.

111. The most significant emission increase is expected to occur in the transport sector, amounting to a 32 per cent increase between 1990 and 2020. This trend is driven by factors such as improved standards of living (over the full-time series), resulting in an increase in personal vehicle ownership.

112. Greece presented the WEM scenarios by gas for 2020 and 2030, as summarized in table 9.

Table 9

Summary of greenhouse gas emission projections for Greece presented by gas

Gas	GHG emissions and removals (kt CO ₂ eq)			Change (%)	
	1990	2020	2030	1990–2020	1990–2030
		WEM	WEM	WEM	WEM
CO ₂	83 375.36	70 657.40	65 417.81	–15.3	–21.5
CH ₄	10 906.61	10 675.33	10 621.22	–2.1	–2.6
N ₂ O	7 423.22	5 104.45	5 346.88	–31.2	–28.0
HFCs	1 182.82	4 946.90	4 506.29	318.2	281.0
PFCs	190.26	126.09	138.97	–33.7	–27.0
SF ₆	2.93	5.12	5.32	74.7	81.6
NF ₃	NA, NO	NA, NO	NA, NO	–	–
Total GHG emissions without LULUCF	103 081.20	91 515.29	86 036.49	–11.2	–16.5

Source: Greece's BR3 CTF table 6.

113. For 2020, the most significant reductions compared with the 1990 level are projected for PFCs, N₂O and CO₂, at 33.7, 31.2 and 15.3 per cent, respectively. For 2030, the most significant reductions compared with the 1990 level are projected for N₂O, PFCs, and CO₂, at 28.0, 27.0 and 21.5 per cent, respectively. Both HFC and SF₆ emissions are projected to increase significantly compared with the 1990 level, but decrease compared with the 2015 level over the projection period. HFC emissions are projected to increase by 318.2 per cent by 2020 and 281.0 per cent by 2030 compared with the 1990 level, but the trend from 2015 is downward, with projected reductions of 2.5 per cent (2015–2020) and 11.2 per cent (2015–2030), owing to the implementation of the EU F-gas regulation.

(d) Assessment of adherence to the reporting guidelines

114. The ERT assessed the information reported in the BR3 of Greece and identified issues relating to completeness, transparency and adherence to the UNFCCC reporting guidelines on BRs. The findings are described in table 10.

Table 10
Findings on greenhouse gas emission projections reported in the third biennial report of Greece

No.	<i>Reporting requirement, issue type and assessment</i>	<i>Description of the finding with recommendation or encouragement</i>
1	Reporting requirement ^a specified in paragraph 28 Issue type: completeness Assessment: encouragement	The Party did not report a WAM or WOM scenario. Greece explained that it did not produce a WAM scenario because it expects to meet its 2020 target without further actions. However, the ERT notes that the Party is planning to implement additional measures under the 2030 climate and energy framework which will help Greece move towards fulfilling its longer-term commitments. The ERT reiterates the encouragement set out in the previous review report for Greece to report WOM and WAM scenarios in its next BR.
2	Reporting requirement ^a specified in paragraph 47 Issue type: completeness Assessment: encouragement	The Party did not provide any historical data used to develop projections in CTF table 5. The Party included useful energy demand assumptions within the NC but did not include these in CTF table 5. During the review, Greece explained that factors such as GDP, population and energy prices are not used as inputs in the TIMES-MARKAL model. However, these data are used to influence trends affecting total useful energy demand. The ERT reiterates the encouragement from the technical review of the BR2 to improve the completeness of reporting and provide the historical data used to develop projections in CTF table 5.
3	Reporting requirement ^a specified in paragraph 46 Issue type: completeness Assessment: encouragement	The Party did not discuss the sensitivity of projections to underlying assumptions in either qualitative or quantitative terms in its BR3. During the review, Greece provided additional information regarding the sensitivity of projections to key assumptions, such as renewable energy penetration and energy efficiency directives. The ERT encourages Greece to discuss the sensitivity of projections to underlying assumptions inherent in the final energy demand in its next BR.

Note: The reporting on the requirements not included in this table is considered to be complete, transparent and adhering to the UNFCCC reporting guidelines on NCs and on BRs.

^a Paragraph number listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on NCs.

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

1. Approach and methodologies used to track support provided to non-Annex I Parties

(a) Technical assessment of the reported information

115. In the BR3 Greece referred to chapter 7 of its NC7, which contains information on the provision of financial, technological and capacity-building support required under the Convention.

116. Greece provided details on what “new and additional” support it provided and clarified how this support is “new and additional”. According to Greece’s definition contributions are considered “new and additional” if they were committed after the previous BR. The Party also stated that its budget is determined on an annual basis, and therefore each annual commitment cycle represents “new and additional” resources.

117. Greece reported the financial support it provided to non-Annex I Parties, distinguishing between support for mitigation and adaptation activities. It explained how it tracks finance for adaptation and mitigation using the Rio markers.

118. Greece provided definitions in the methodology section on climate finance, mitigation activities, adaptation activities, climate-relevant technology development and transfer and capacity-building activities. In addition, Greece explained the criteria it uses to identify when support is considered climate-specific. Greece explained that support is considered to target climate-specific finance if it is provided bilaterally by Greece and is related to mitigation and/or adaptation to climate change or is provided to a regional, national or international organization addressing and/or researching climate change issues.

(b) Assessment of adherence to the reporting guidelines

119. The ERT assessed the information reported in the BR3 of Greece and identified issues relating to completeness, transparency and adherence to the UNFCCC reporting guidelines on BRs. The findings are described in table 11.

Table 11

Findings on the approach and methodologies used to track support provided to non-Annex I Parties from the review of the third biennial report of Greece

<i>No.</i>	<i>Reporting requirement, issue type and assessment</i>	<i>Description of the finding with recommendation or encouragement</i>
1	Reporting requirement specified in paragraph 14 Issue type: completeness Assessment: recommendation	Greece did not provide information on the indicators and delivery mechanisms used to track support to non-Annex I Parties. Greece explained in its BR3 that it used the Rio markers to categorize the purpose of the support. During the review, Greece also explained that it uses surveys provided to different units that provide international support to collect data related to climate finance, and that financial support is disbursed to trust funds for some of the projects. The ERT recommends that Greece provide information on indicators and on the delivery mechanisms used to track support to non-Annex I Parties.
2	Reporting requirement specified in paragraph 15 Issue type: transparency Assessment: recommendation	Greece explained in its BR3 the methodology used to track financial support, using the Rio markers to categorize the purpose of the support; however, it did not clearly explain how it translates these markers into climate finance flows. During the review, Greece explained that, from 2018 onward, it uses a set approach to translate the Rio markers into estimated climate finance flows. However, this approach was not used when estimating the climate finance flows in the current BR3 submission. The ERT recommends that Greece in its next BR enhance its description of the methodology used in reporting the provision of financial, technological and capacity-building support to developing countries by providing information on how the share of imputed multilateral contributions together with the Rio markers are used to produce information on finance.

Note: The paragraph number listed under the reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on BRs. Any reporting requirements not included in this table are considered to be have been met in a complete and transparent manner and in adherence to the UNFCCC reporting guidelines on BRs.

2. Financial resources

(a) Technical assessment of the reported information

120. Greece reported information on the provision of financial support required under the Convention and its Kyoto Protocol, including on financial support provided, committed and pledged, allocation channels and annual contributions.

121. Greece indicated what “new and additional” financial resources it provided and clarified how it has determined such resources as being “new and additional”. Greece considers resources to be “new and additional” if they were committed after, and not included in, the previous BR.

122. Greece did not describe how its resources address the adaptation and mitigation needs of non-Annex I Parties. It did not describe how those resources assist non-Annex I Parties in mitigating and adapting to the adverse effects of climate change, facilitate economic and social response measures, and contribute to technology development and transfer and capacity-building related to mitigation and adaptation. Greece did not provide information on the assistance it provided to developing country Parties that are particularly vulnerable to the adverse effects of climate change to help them to meet the costs of adaptation to those adverse effects. Greece did not report whether it contributed to the Adaptation Fund. During the review, Greece explained that it had not contributed to the Adaptation Fund.

123. Greece reported that owing to the difficult fiscal circumstances it faces, its net bilateral and multilateral official development assistance disbursements have been falling since 2008, both in absolute terms and as a percentage of its gross national income, though the ERT noted that data for the latest reported year, 2016, showed an upward trend.

124. With regard to the most recent financial contributions aimed at enhancing the implementation of the Convention by developing countries, Greece reported that its climate finance was allocated to programmes such as the International Union for the Conservation of Nature. Table 12 includes some of the information reported by Greece on its provision of financial support.

Table 12

Summary of information on provision of financial support by Greece in 2015–2016

(Millions of United States dollars)

Allocation channel of public financial support	Year of disbursement	
	2015	2016
Official development assistance ^a	238.70	368.53
Climate-specific contributions through bilateral, regional and other channels	0.252	0.257

Sources: (1) Query Wizard for International Development Statistics, available at <http://stats.oecd.org/qwids/>; (2) BR3 CTF tables.

125. During the review, Greece highlighted the challenges it had faced in allocating climate-related funds. For example, some entities do not include the necessary information related to Rio markers when providing their data, which makes it difficult to categorize such support.

126. Greece reported on its climate-specific public financial support, which totalled USD 0.252 million in 2015 and USD 0.257 million in 2016. The ERT noted that Greece reported in CTF table 7(b) its support allocated through bilateral, regional and other channels to non-Annex I Parties in 2015 and 2016. Information on financial support from the public sector provided through multilateral and bilateral channels and the allocation of that support by priority is presented in table 13.

Table 13
Summary of information on channels of financial support used in 2015–2016 by Greece
(Millions of United States dollars)

Allocation channel of public financial support	Year of disbursement				Share (%)	
	2015	2016	Difference	Change (%)	2015	2016
Support through bilateral and multilateral channels allocated for:						
Mitigation	0	0	–	–	–	–
Adaptation	0.252	0.257	0.005	1.8	100.0	100.0
Cross-cutting	0	0	–	–	–	–
Other	0	0	–	–	–	–
Total	0.252	0.257	0.005	1.8	100.0	100.0
Detailed information by type of channel						
Multilateral channels	0	0	–	–	–	–
Mitigation	0	0	–	–	–	–
Adaptation	0	0	–	–	–	–
Cross-cutting	0	0	–	–	–	–
Other	0	0	–	–	–	–
Total					–	–
Bilateral, regional and other channels						
Mitigation	0	0	–	–	–	–
Adaptation	0.252	0.257	0.005	1.8	100.0	100.0
Cross-cutting	0	0	–	–	–	–
Other	0	0	–	–	–	–
Total	0.252	0.257	0.005	1.8	100.0	100.0
Multilateral compared with bilateral channels						
Multilateral	0	0	–	–	–	–
Bilateral, regional and other	0.252	0.257	0.005	1.8	100.0	100.0
Total	0.252	0.257	0.005	1.8	100.0	100.0

Source: CTF tables 7, 7(a) and 7(b) of the BR3 of Greece.

127. The BR3 includes detailed information on the financial support provided through multilateral, bilateral and regional channels in 2015 and 2016. More specifically, Greece contributed through multilateral channels, as reported in CTF table 7(a), USD 0.41 and 1.25 million for 2015 and 2016, respectively. The contributions were made to the core/general budgets of specialized United Nations bodies, such as the United Nations Development Programme and the United Nations Environment Programme.

128. The CTF table 7(b) in the BR3 also includes detailed information on the total financial support provided through bilateral, regional and other channels, which amounts to USD 0.252 and 0.257 million in 2015 and 2016, respectively.

129. The BR3 provides information on the types of support provided. In terms of the focus of public financial support, as reported in CTF table 7 for 2015, the share of the total public financial support allocated was 100 per cent. In addition, 100 per cent of the total public financial support was allocated through bilateral, regional and other channels. In 2016, the shares of total public financial support allocated for adaptation was 100 per cent.

130. The ERT noted that in 2015 a majority of financial contributions made through bilateral, regional and other channels were allocated to nature conservation projects that included adaptation components, such as projects to preserve biodiversity in the Middle East and North Africa. The corresponding allocations for 2016 were also directed at the same types of projects.

131. CTF tables 7(a) and 7(b) include information on the types of financial instrument used in the provision of assistance to developing countries, which include grants only.

132. Greece explained in its BR3 that it does not have a system in place to track private financial flows.

(b) Assessment of adherence to the reporting guidelines

133. The ERT assessed the information reported in the BR3 of Greece and identified issues relating to completeness and adherence to the UNFCCC reporting guidelines on BRs. The findings are described in table 14.

Table 14

Findings on financial resources from the review of the third biennial report of Greece

<i>No.</i>	<i>Reporting requirement, issue type and assessment</i>	<i>Description of the finding with recommendation or encouragement</i>
1	Reporting requirement specified in paragraph 16 Issue type: completeness Assessment: recommendation	Greece did not describe in its BR3 how it seeks to ensure that the resources it provided effectively address the needs of non-Annex I Parties with regard to climate change adaptation and mitigation. During the review, Greece explained that it used the Rio markers to categorize and better track its support to ensure that it effectively addresses the needs of non-Annex I Parties with regard to climate change adaptation and mitigation. The ERT reiterates the recommendation made in the previous review report that Greece enhance the completeness of its reporting by describing, to the extent possible, how it seeks to ensure that the resources it provides effectively address the needs of non-Annex I Parties with regard to climate change adaptation and mitigation, in its next BR submission.
2	Reporting requirement specified in paragraph 19 Issue type: completeness Assessment: encouragement	In its BR3, Greece did not report on private financial flows leveraged by bilateral climate finance and stated that it does not have a system in place to track private financial flows. During the review the Party confirmed that it does not yet have a system in place to track private financial flows. The ERT encourages Greece to include in its next BR submission, to the extent possible, information on private financial flows leveraged by bilateral climate finance towards mitigation and adaptation activities in non-Annex I Parties.
3	Reporting requirement specified in paragraph 19 Issue type: completeness Assessment: encouragement	In its BR3, Greece did not report on policies that promote the scaling up of private investment in mitigation and adaptation activities in developing country Parties. The ERT encourages Greece to report in its next BR submission on policies that promote the scaling up of private investment in mitigation and adaptation activities in developing country Parties.

Note: Paragraph number listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on BRs. The reporting on the requirements not included in this table is considered to be complete, transparent and adhering to the UNFCCC reporting guidelines on BRs.

3. Technology development and transfer

(a) Technical assessment of the reported information

134. Greece provided information on steps, measures and activities related to technology transfer, access and deployment benefiting developing countries, including information on activities undertaken by the public and private sectors. Greece provided examples of support provided for the deployment and enhancement of the endogenous capacities and technologies of non-Annex I Parties, including activities to promote off-grid solar power in remote areas of Sri Lanka and increasing residential energy efficiency and renewable energy in Lebanon

135. The ERT took note of the information provided in CTF table 8 on recipient regions, target areas, measures and focus sectors of technology transfer programmes. Greece reported on the PROMITHEASnet Energy and Climate Change Policy Network, which provides a forum for scientific entities of the Black Sea Economic Cooperation region to interact, exchange views and cooperate on research issues related to climate change, energy and sustainable development.

136. The ERT noted that Greece reported on several technology transfer projects and programmes, such as SYN-ENERGY, which facilitates regional assessments of renewable energy sources and energy efficiency in several Eastern European non-Annex I Parties and the installation of solar power systems for household use in Sri Lanka.

137. Greece provided information on steps taken to promote, facilitate and finance the transfer of technology to developing countries and to build their capacity in order to facilitate the implementation of Article 10 of the Kyoto Protocol.

(b) Assessment of adherence to the reporting guidelines

138. The ERT assessed the information reported in the BR3 of Greece and identified an issue relating to transparency. The findings are described in table 15.

Table 15

Findings on technology development and transfer from the review of the third biennial report of Greece

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
1	Reporting requirement specified in paragraph 21 Issue type: completeness Assessment: encouragement	While the Party reported on several measures to promote and facilitate the transfer of technology in its BR3, it did not provide information on success and failure stories. During the review, Greece highlighted the technology transfer aspects of some of its projects. The ERT encourages Greece to provide information in its next submission on the success and failure stories related to technology development and transfer.

Note: Paragraph number listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on BRs. The reporting on the requirements not included in this table is considered to be complete, transparent and adhering to the UNFCCC reporting guidelines on BRs.

4. Capacity-building

(a) Technical assessment of the reported information

139. In the BR3 and CTF table 9, Greece supplied information on how it has provided capacity-building support for mitigation, adaptation and technology for non-Annex I Parties. Greece described individual measures and activities related to capacity-building support in textual and tabular format. Examples include the Horizon 2020 initiative, which focuses on reviews, monitoring and research, and the Mediterranean component of the EU Water for Life initiative, which focuses on providing assistance for national water planning activities, including assistance to countries in preparing, implementing and monitoring integrated water resources management plans and linking them with national climate change adaptation strategies and other water-related sectoral plans.

140. Greece reported that it has supported climate-related capacity development activities related to adaptation and mitigation. Such activities include participation in the Horizon 2020 initiative focused on the Mediterranean and a leadership role within the Mediterranean component of the EU Water for Life initiative.

(b) Assessment of adherence to the reporting guidelines

141. The ERT assessed the information reported in the BR3 of Greece and identified an issue relating to completeness and adherence to the UNFCCC reporting guidelines on BRs. The findings are described in table 16.

Table 16

Findings on capacity-building from the review of the third biennial report of Greece

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
1	Reporting requirement specified in paragraph 23 Issue type: completeness Assessment: recommendation	The Party did not report on how it provided capacity-building support that responds to the existing and emerging needs of non-Annex I Parties. During the review, Greece explained how the capacity-building activities within the Black Sea Economic Cooperation address the emerging capacity-building needs of Eastern European non-Annex I Parties during the planning and design of such activities. The ERT recommends that Greece provide, to the extent possible, in its next BR submission, information on how it provides capacity-building support that responds to the existing and emerging capacity-building needs of non-Annex I Parties.

Note: Paragraph number listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on BRs. The reporting on the requirements not included in this table is considered to be complete, transparent and adhering to the UNFCCC reporting guidelines on BRs.

III. Conclusions and recommendations

142. The ERT conducted a technical review of the information reported in the BR3 and CTF tables of Greece in accordance with the UNFCCC reporting guidelines on BRs. The ERT concludes that the reported information mostly adheres to the UNFCCC reporting guidelines on BRs and provides an overview of emissions and removals related to the Party's quantified economy-wide emission reduction target; assumptions, conditions and methodologies related to the attainment of the target; progress made by Greece in achieving its target; and the Party's provision of support to developing country Parties.

143. Greece's total GHG emissions excluding emissions and removals from LULUCF decreased by 11.1 per cent between 1990 and 2016, whereas total GHG emissions including net emissions or removals from LULUCF decreased by 12.6 per cent over the same period. This reflects an increase in total GHG emissions (excluding LULUCF) of 32.2 per cent between 1990 and 2005, followed by a decrease in total emissions by 32.8 per cent between 2005 and 2016.

144. Emission increases between 1990 and 2005 were driven primarily by economic growth leading to increased energy demand and personal vehicle ownership. Between 1990 and 2016, GHG emissions from the energy sector decreased by 13.1 per cent, reflecting the impacts of the economic crisis, which began in 2009, as well as PaMs in the energy sector, such as the decommissioning or refurbishment of lignite-fired power plants, and the shift towards natural gas and renewable energy generating capacity. Those factors outweighed increasing emissions trends in the transport sector, where emissions increased by 20.2 per cent between 1990 and 2016. A significant trend was also observed for HFC emissions, which increased by 417.1 per cent since 1990.

145. Under the Convention, Greece committed to contributing to the achievement of the joint EU quantified economy-wide emission reduction target of 20 per cent below the 1990 level by 2020. The target covers all sectors and CO₂, CH₄, N₂O, HFCs, PFCs and SF₆, expressed using global warming potential values from the AR4. Emissions and removals

from the LULUCF sector are not included. The EU generally allows its member States to use units from the Kyoto Protocol mechanisms and new market mechanisms for compliance purposes up to an established limit and subject to a number of restrictions on the origin and the type of project. Operators can make use of such units to fulfil their requirements under the EU ETS.

146. Under the ESD, Greece has a target of reducing its emissions by 4 per cent below the 2005 level by 2020. The 2015–2020 linear progression in Greece's AEAs (its national emission target for non-ETS sectors) is 59,608.67–60,049.19 kt CO₂ eq.

147. The key overarching cross-sectoral policy in the EU is the 2020 climate and energy package, adopted in 2009, which includes the revised EU ETS and the ESD. The package is supplemented by renewable energy and energy efficiency legislation and the carbon capture and storage directive. Legislative frameworks that support and set the targets for Greece's national policies for restricting GHG emissions include the EU 2030 climate and energy framework; aviation and marine bunker regulations (ICAO, IMO); financing mechanisms (Green Fund, LIFE, European Structural and Investment Funds, etc.); fiscal measures (EU energy taxation directive (directive 2003/96/EC), which covers the taxation of energy products, car registration tax, road tax, etc). The Second National Climate Change Programme continues to be Greece's most important national supporting policy for addressing mitigation. Greece also introduced national-level policies to achieve its targets under the ESD and domestic emission reduction targets

148. The key policies reported are the promotion of natural gas, improvements to the conventional power generation system, the promotion of renewable energy, the implementation of energy efficiency measures, road transport measures, the recovery of organic waste and biogas, reductions of emissions of F-gases and the implementation of the Common Agricultural Policy.

149. PaMs related to the energy sector had the most significant impact on GHG emission reductions, accounting for about 90 per cent of the total estimated impact of implemented and adopted PaMs. The mitigation effects of two PaMs in the energy sector (improvements to the conventional power generation system and the promotion of renewable energy for electricity generation) together represent about 75 per cent of the total estimated impact of implemented and adopted PaMs. The ERT acknowledged Greece's progress in reporting on PaMs, particularly its efforts to quantify the effects of most of the implemented and adopted PaMs.

150. For 2015 Greece reported in CTF table 4 total GHG emissions excluding LULUCF of 95,715.10 kt CO₂ eq. Greece reported that it does not plan to use units from market-based mechanisms to achieve its target under the ESD. The ERT noted that Greece is making progress in reducing its emissions to date.

151. The GHG emission projections provided by Greece in the BR3 correspond to the WEM scenario. Under this scenario, emissions are projected to be 11.2 per cent below the 1990 level by 2020.

152. Greece's target for non-ETS sectors is to reduce its total non-ETS emissions by 4 per cent below the 2005 level by 2020. According to the projections under the WEM scenario, emissions from non-ETS sectors are estimated to reach 48,926 kt CO₂ eq by 2020, which is 11,123 kt CO₂, or 18.5 per cent, below the AEA amount in 2020. On the basis of the reported information, the ERT concludes that Greece expects to meet its target for non-ETS sectors and continue to contribute to the EU target under the Convention.

153. Greece provided climate financing from its official development assistance allocations to non-Annex I Parties to help them implement the Convention. In 2015, Greece provided USD 0.252 million through bilateral, regional and other channels. In 2016, it provided USD 0.257 million through the same channels. The provided support was mainly allocated to nature conservation projects that included adaptation components. Greece reported on several technology transfer projects and programmes, such as SYN-ENERGY, which facilitates regional assessments of renewable energy sources and energy efficiency in several Eastern European non-Annex I Parties and the installation of solar power systems for household use in Sri Lanka. Greece described individual measures and activities related to

capacity-building support, including the Horizon 2020 initiative, which focuses on reviews, monitoring and research, and the Mediterranean component of the EU Water for Life initiative, which focuses on providing assistance for national water planning activities.

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

- (a) To improve the completeness of its reporting by:
 - (i) Providing information on indicators and delivery mechanisms used to track support to non-Annex I Parties (see issue 1 in table 11);
 - (ii) Describing, to the extent possible, how it seeks to ensure that the resources it provides effectively address the needs of non-Annex I Parties with regard to climate change adaptation and mitigation (see issue 1 in table 14);
 - (iii) Including, to the extent possible, in its next BR submission, information on how it provides capacity-building support that responds to the existing and emerging capacity-building needs of non-Annex I Parties (see issue 1 in table 16);
- (b) To improve the transparency of its reporting by:
 - (i) Providing a presentation of PaMs organized by sector and subdivided by gas affected (see issue 1 in table 4);
 - (ii) Improving the description of progress made towards the target by providing, directly or via reference to the relevant EU report, information on the use of market-based mechanisms by ETS operators in its territory (see issue 1 in table 6);
 - (iii) Enhancing its description of the methodology used in reporting the provision of financial, technological and capacity-building support to developing countries by providing information on how the share of imputed multilateral contributions together with the Rio markers are used to produce information on finance (see issue 2 in table 11).

Annex

Documents and information used during the review

A. Reference documents

2017 GHG inventory submission of Greece. Available at https://unfccc.int/files/national_reports/annex_i_ghg_inventories/national_inventories_submissions/application/zip/grc-2017-nir-11apr17.zip.

2018 GHG inventory submission of Greece. Available at <https://unfccc.int/sites/default/files/resource/grc-2018-nir-15apr18.zip>.

BR3 of Greece. Available at http://unfccc.int/files/national_reports/annex_i_natcom/application/pdf/48032915_greece-nc7-br3-1-nc7_greece.pdf.

BR3 CTF tables of Greece. Available at http://unfccc.int/files/national_reports/biennial_reports_and_iar/submitted_biennial_reports/application/vnd.openxmlformats-officedocument.spreadsheetml.sheet/2573491_greece-br3-nc7-1-grc_2018_v1.0.xlsx.

Compilation of economy-wide emission reduction targets to be implemented by Parties included in Annex I to the Convention. Available at <https://unfccc.int/topics/mitigation/workstreams/pre-2020-ambition/compilation-of-economy-wide-emission-reduction-targets-to-be-implemented-by-parties-included-in-annex-i-to-the-convention>.

“Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual greenhouse gas inventories”. Annex to decision 24/CP.19. Available at <http://unfccc.int/resource/docs/2013/cop19/eng/10a03.pdf>.

“Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications”. FCCC/CP/1999/7. Available at <http://unfccc.int/resource/docs/cop5/07.pdf>.

“Guidelines for the technical review of information reported under the Convention related to greenhouse gas inventories, biennial reports and national communications by Parties included in Annex I to the Convention”. Annex to decision 13/CP.20. Available at <http://unfccc.int/resource/docs/2014/cop20/eng/10a03.pdf>.

NC7 of Greece. Available at http://unfccc.int/files/national_reports/annex_i_natcom/application/pdf/48032915_greece-nc7-br3-1-nc7_greece.pdf.

Report on the individual review of the annual submission of Greece submitted in 2016. FCCC/ARR/2016/GRC. Available at <https://unfccc.int/sites/default/files/resource/docs/2017/arr/grc.pdf>.

Report on the review of the report to facilitate the calculation of the assigned amount for the second commitment period of the Kyoto Protocol of Greece. FCCC/IRR/2016/GRC. Available at <https://unfccc.int/resource/docs/2017/irr/grc.pdf>.

Report of the technical review of the second biennial report of Greece. FCCC/TRR.2/GRC. Available at <https://unfccc.int/sites/default/files/resource/docs/2016/trr/grc.pdf>.

Report of the technical review of the sixth national communication of Greece. FCCC/IDR.6/GRC. Available at <https://unfccc.int/sites/default/files/resource/docs/2015/idr/grc06.pdf>.

“UNFCCC biennial reporting guidelines for developed country Parties”. FCCC/SBSTA/2014/INF.6. Annex I to decision 2/CP.17. Available at <http://unfccc.int/resource/docs/2011/cop17/eng/09a01.pdf>.

B. Additional information provided by the Party

Responses to questions during the review were received from Mr. Dimitris Niavis (MEEN), including additional material. The following documents¹ were provided by Greece:

Hellenic Civil Aviation Authority, 2018, *ICAO Action Plan for International Aviation Greenhouse Gas Emissions Reduction*.

MEEN, 2016, *Third Progress Report on the Promotion and Use of Energy from Renewable Sources in Greece*.

MEEN, 2018, *Fourth Progress Report on the Promotion and Use of Energy from Renewable Sources in Greece*.

MEEN, 2016, *Annual Report on the Achievement of National Energy Efficiency Targets*.

Centre for Renewable Energy Sources, 2016, *National Energy Efficiency Action Plan*.

¹ Reproduced as received from the Party.