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

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 Cyprus, conducted by an expert review team in accordance with the "Guidelines for the technical review of information reported under the Convention related to greenhouse gas inventories, biennial reports and national communications by Parties included in Annex I to the Convention".

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Contents

Abbreviations and acronyms

AEA	annual emission allocation
Annex II Party	Party included in Annex II to the Convention
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
ESD	effort-sharing decision
ERT	expert review team
EU	European Union
EU ETS	European Union Emissions Trading System
F-gas	fluorinated gas
GHG	greenhouse gas
HFC	hydrofluorocarbon
ICAO	International Civil Aviation Organization
IMO	International Maritime Organization
IPPU	industrial processes and product use
LNG	liquefied natural gas
LULUCF	land use, land-use change and forestry
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 EU ETS
N_2O	nitrous oxide
PaMs	policies and measures
PFC	perfluorocarbon
RES	renewable energy sources
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 centralized technical review of the BR3[1] of Cyprus. 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 Cyprus, which provided comments that were considered and incorporated, as appropriate, into this final version of the report.

3. The review was conducted from 21 to 26 May 2018 in Bonn by the following team of nominated experts from the UNFCCC roster of experts: Ms. Amrita Narayan Achanta (India), Ms. Damla Dogan (Turkey), Mr. Christopher John Dore (United Kingdom of Great Britain and Northern Ireland), Mr. Sangay Dorji (Bhutan), Mr. A. Ricardo J. Esparta (Brazil), Mr. Sandro Federici (San Marino), Mr. Ross Alexander Hunter (United Kingdom), Mr. Naoki Matsuo (Japan), Ms. Roisin Moriarty (Ireland), Mr. Rostislav Neveceral (Czechia), Ms. Agnieszka Maria Patoka-Janowska (Poland) and Ms. Verica Taseska Gjorgievska (the former Yugoslav Republic of Macedonia). Mr. Dorji, Mr. Federici, Mr. Matsuo and Ms. Patoka-Janowska were the lead reviewers. The review was coordinated by Ms. Sevdalina Todorova, Mr. Davor Vesligaj and Ms. Marion Vieweg (UNFCCC secretariat).

B. Summary

4. The ERT conducted a technical review of the information reported in the BR3 of Cyprus 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 February 2018, after the deadline of 1 January 2018 mandated by decision 2/CP.17. The CTF tables were submitted on 26 February 2018.

6. Cyprus informed the secretariat on 21 November 2018 about its difficulties with making a timely submission in accordance with decision 13/CP.20 and decision 22/CMP.1. The ERT noted with great concern the delay in the submission and recommended that Cyprus make its next submission on time.

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

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

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

Table 1
Summary of completeness and transparency of mandatory information reported by Cyprus in its third biennial report

Section of BR	*Completeness*	*Transparency*	*Reference to description of recommendations*
GHG emissions and trends	Complete	Mostly transparent	Issue 1 in table 3
Assumptions, conditions and methodologies related to the attainment of the quantified economy-wide emission reduction target	Complete	Mostly transparent	Issue 1 in table 4
Progress in achievement of targets	Complete	Transparent	–
Projections	Mostly complete	Transparent	Issues 2 and 3 in table 11
Provision of support to developing country Parties[a]	NA	NA	NA

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

[a] Cyprus is not an Annex II Party and is therefore not obliged to adopt measures and fulfil obligations defined in Article 4, paragraphs 3, 4 and 5, of the Convention.

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

8. Cyprus provided a summary of information on GHG emission trends for the period 1990–2015 in its BR3. This summary information is consistent with the Party's 2017 national GHG inventory submission. Summary tables, including trend tables for emissions (in kt CO_2 eq), are provided in the NC7. During the review, the ERT took note of the recently submitted 2018 annual submission in which the GHG emissions in 2016 were presented. The data from the 2018 annual submission were used for this section of the report and a comparison with the inventory data provided in the BR3 and 2017 annual submission is presented in paragraph 9 below.

9. Total GHG emissions[2] excluding emissions and removals from LULUCF increased by 56.9 per cent between 1990 and 2016, whereas total GHG emissions including net emissions or removals from LULUCF increased by 67.0 per cent over the same period. Table 2 illustrates the emission trends by sector and by gas for Cyprus.

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

	GHG emissions (kt CO_2 eq)					*Change (%)*		*Share (%)*	
	1990	*2000*	*2010*	*2015*	*2016*	*1990–2016*	*2015 –2016*	*1990*	*2016*
Sector									
1. Energy	3 956.17	6 350.92	7 494.30	6 079.98	6 480.42	63.8	6.6	70.8	73.9
A1. Energy industries	1 767.39	2 964.66	3 880.76	3 032.96	3 310.94	87.3	9.2	31.6	37.7
A2. Manufacturing	514.80	821.86	700.03	606.66	602.97	17.1	–0.6	9.2	6.9

[2] In this report, the term "total GHG emissions" refers to the aggregated national GHG emissions expressed in terms of CO_2 eq excluding LULUCF, unless otherwise specified. Values in this paragraph are calculated based on the 2018 annual submission, version 3.

	GHG emissions (kt CO_2 eq)					*Change (%)*		*Share (%)*	
	1990	*2000*	*2010*	*2015*	*2016*	*1990–2016*	*2015 –2016*	*1990*	*2016*
industries and construction									
A3. Transport	1 228.90	1 811.94	2 324.25	1 889.78	2 022.17	64.6	7.0	22.0	23.0
A4. and A5. Other	444.89	752.15	589.03	550.40	544.13	22.3	–1.1	8.0	6.2
B. Fugitive emissions from fuels	0.19	0.31	0.23	0.19	0.20	5.3	5.3	0.0	0.0
C. CO_2 transport and storage	NO	NO	NO	NO	NO	NO	NO	NO	NO
2. IPPU	771.88	899.98	886.95	1 238.78	1 250.13	62.0	0.9	13.8	14.2
3. Agriculture	476.43	559.83	540.15	466.26	490.81	3.0	5.3	8.5	5.6
4. LULUCF	–274.16	75.03	–457.92	–543.66	106.00	–138.7	–119.5	NA	NA
5. Waste	386.73	459.99	498.15	543.81	552.94	43.0	1.7	6.9	6.3
6. Other[b]	–	–	–	–	–	NA	NA	NA	NA
Gas[a]									
CO_2	4 643.06	7 108.86	8 017.88	6 902.87	7 307.80	57.4	5.9	83.0	83.3
CH_4	653.10	781.78	819.43	822.09	851.36	30.4	3.6	11.7	9.7
N_2O	295.03	350.82	370.14	327.10	336.24	14.0	2.8	5.3	3.8
HFCs	NO, NE	29.18	211.96	276.61	278.73	NO, NE	0.8	NO, NE	3.2
PFCs	NO	NO	NO	NO	NO	NO	NO	NO	NO
SF_6	0.03	0.08	0.15	0.16	0.17	541.6	0.8	0.0	0.0
NF_3	NO	NO	NO	NO	NO	NO	NO	NO	NO
Total GHG emissions without LULUCF	**5 591.21**	**8 270.72**	**9 419.55**	**8 328.84**	**8 774.30**	**56.9**	**5.3**	**100.0**	**100.0**
Total GHG emissions with LULUCF	**5 317.05**	**8 345.75**	**8 961.63**	**7 785.18**	**8 880.30**	**67.0**	**14.1**	**NA**	**NA**

Source: GHG emission data: Cyprus's 2018 annual submission, version 3.

[a] Emissions by gas without LULUCF and without indirect CO_2.

[b] Cyprus reported blank cells.

10. The GHG emission trend of Cyprus shows a steady increase (3.3 per cent per year) for the period 1990–2008, driven by high economic growth of about 4 per cent per year, while there was a sharp decline (4.4 per cent per year) for the period 2008–2013 owing to the global financial crisis, and a return to an increasing trend after that, driven by economic recovery. The increase in total emissions was driven mainly by factors such as the increase in the resident population and the booming tourist industry, which caused significant increases in energy consumption, including for transport, in waste production and in the use of F-gases for air conditioning and refrigeration. The current oil-dominated economy has considerable room for energy switch, especially to natural gas and RES, in the future.

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

12. In brief, Cyprus's national inventory arrangements were established in accordance with the Council Minister decision of 15 November 2017, "Structure and operation of the national greenhouse gases inventory system: roles and responsibilities", which constitutes a substantial change in the inventory arrangements compared with the information reported in the BR2. Such changes have been implemented according to the workplan presented during the 2017 in-country review of the national GHG inventory of Cyprus.

2. Assessment of adherence to the reporting guidelines

13. The ERT assessed the information reported in the BR3 of Cyprus and identified an issue relating to completeness and adherence to the UNFCCC reporting guidelines on BRs. The finding is described in table 3.

Table 3
Findings on greenhouse gas emissions and trends from the review of the third biennial report of Cyprus

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 3 Issue type: transparency Assessment: recommendation	Although Cyprus provided summary information on its inventory arrangements, this information does not address the roles and responsibilities of the various agencies and entities involved in the inventory development process, and the institutional, legal and procedural arrangements made for the preparation of the inventory. During the review, Cyprus provided additional information, as contained in the national inventory report of its 2018 annual submission and on the website of the Department of Environment of the Ministry of Agriculture, Rural Development and Environment (http://www.moa.gov.cy/moa/environment/environmentnew.nsf/index_en/index_en?OpenDocument), as well as additional documents (see the annex to this report). The ERT recommends that Cyprus provide summary information on its national inventory arrangements in accordance with the reporting requirements contained in the UNFCCC reporting guidelines on BRs in its next BR.

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.

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

1. Technical assessment of the reported information

14. For Cyprus, the Convention entered into force on 13 January 1998. Under the Convention, Cyprus 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.

15. 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 CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 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. Companies can make use of such units to fulfil their requirements under the EU ETS.

16. The EU 2020 climate and energy package includes the EU ETS and the ESD. The EU ETS covers mainly 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.

17. Under the ESD, Cyprus has a target of reducing its total emissions to 5.0 per cent below the 2005 level by 2020 for non-ETS sectors. National emission targets for non-ETS

sectors for 2020 have been translated into binding quantified AEAs for the period 2013–2020. Cyprus's AEAs change following a linear path from 5,919.07 kt CO_2 eq in 2013 to 3,975.25 kt CO_2 eq in 2020.[3]

2. Assessment of adherence to the reporting guidelines

18. The ERT assessed the information reported in the BR3 of Cyprus and identified an issue relating to transparency and adherence to the UNFCCC reporting guidelines on BRs. The finding is described in table 4.

Table 4
Findings on the quantified economy-wide emission reduction target from the review of the third biennial report of Cyprus

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation*
1	Reporting requirement specified in paragraph 5 Issue type: transparency Assessment: recommendation	The description of the quantified economy-wide emission reduction target, in terms of the base year and the use of credits from flexible mechanisms, was not transparent. Cyprus did not report any information in CTF tables 2(e)I, 2(e)II and 2(f), although during the review it clarified that it will not use credits from flexible mechanisms to meet its ESD target. Cyprus reported the base year for NF_3 in CTF table 2(b) as 1995. However, NF_3 does not form a part of the target and therefore should not be included. During the review, Cyprus clarified that NF_3 is not covered. During the review, Cyprus informed the ERT that a new submission of CTF tables 2(e)I and II has been prepared (v.1.1) containing the relevant information, but the Party did not provide this updated table during the review. Cyprus also clarified CTF table 2(f) should have contained the key information provided in the EU ETS directive (2003/87/EC and respective amendments) and the ESD (decision 406/2009/EC) for the transparency of quantified target-setting of EU member States. The ERT reiterates the recommendation made in the previous review report (FCCC/TRR.2/CYP) that Cyprus enhance its description of the quantified economy-wide emission reduction target by providing information in CTF tables 2(e)I and 2(e)II on the use of market-based mechanisms in achieving the target and in table 2(b) the correct base year for NF_3 in its next BR. The ERT notes that Cyprus could use the notation keys, if applicable, along with a footnote under the relevant tables explaining the meaning of the notation keys applied. Transparency could also be improved by the provision of a description of the EU ETS and the ESD target in CTF table 2(f).

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.

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

19. Cyprus provided information on its package of PaMs implemented, adopted and planned in order to fulfil its commitments under the Convention and its Kyoto Protocol, by sector and, during the review, by gas. Cyprus reported some information 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, namely, by monitoring the status of the GHG inventory as set out in the Council of Ministers' Decision "Structure and

[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.

operation of the national greenhouse gases inventory system: roles and responsibilities" (see para. 12 above).

20. Cyprus provided in the BR3 information on a set of PaMs similar to those previously reported in the BR2, with a few additions, including, notably, the F-gas regulation adopted in 2014. Cyprus also provided some information on changes made since the previous submission 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. During the review, Cyprus informed the ERT that the GHG inventory results are compared with national ESD targets annually, in line with the ESD regulation, and the implementation progress of the PaMs is examined with the responsible authorities (i.e. whether the measures included in the WEM scenario are implemented adequately and are producing the expected results). After the analysis, new projections are prepared. The official projections and the preparation of PaMs are publicized every two years in line with the requirements of the EU Monitoring Mechanism Regulation and the submission of BRs.

21. Cyprus described the EU policy package implementation architecture (see paras. 22–24 below) as well as provided a list of many EU-level PaMs.

22. The key overarching related 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 CO_2 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.

23. 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) that 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 N_2O emissions from chemical industries, PFC emissions from aluminium production and CO_2 emissions from industrial processes (since 2013).

24. 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.

25. Cyprus highlighted its national-level policies introduced to achieve its 2020 target under the ESD, such as the aim to increase the use of RES in electricity production and for heating and cooling, and the promotion of energy efficiency in buildings. Among the mitigation actions that are critical for Cyprus's contribution to attaining the EU-wide 2020 emission reduction target are energy efficiency in new buildings and RES for housing and the tertiary sector. Table 5 provides a summary of the reported information on the PaMs of Cyprus.

Table 5
Summary of information on policies and measures reported by Cyprus

Sector	*Key PaMs*	*Estimate of mitigation impact by 2020 (kt CO_2 eq)*	*Estimate of mitigation impact by 2030 (kt CO_2 eq)*
Energy			
Fuel switch (natural gas)	Introduce and use natural gas in the internal market for electricity production	–	–
Renewable energy	Reduce fossil fuel consumption by increasing biomass and alternative fuel consumption in industry	12.43	33.24
	Increase the share of RES in the internal market for electricity production	1.16	215.33
	Increase the use of RES in the internal market for electricity, heating and cooling in the residential sector	22.09	52.26
Energy efficiency	Reduce energy consumption by promoting energy efficiency measures in the industrial sector	8.44	0.68
	Reduce energy consumption through compulsory energy saving measures in new residential buildings	185.44	112.27
	Reduce energy consumption by promoting voluntary energy upgrades of existing residential buildings	7.44	32.52
	Reduce energy consumption through compulsory energy saving measures in new tertiary buildings	20.47	12.61
	Reduce energy consumption by promoting voluntary energy upgrades of existing tertiary buildings	8.67	8.38
Waste			
Organics to landfill	Limit waste sent to landfill	0.00	145.67
Biogas recovery	Recover biogas from old and currently operating landfills	0.00	89.24
Sorting	Change the current municipal waste collection scheme	0.00	57.01
IPPU	Recover F-gases from old equipment	1.73	20.06

Note: The estimates of mitigation impact are estimates of emissions of CO_2 eq avoided in a given year as a result of the implementation of mitigation actions.

26. As part of the efforts of the Cypriot Government in the preparation of the Law on Fiscal Responsibility and Budget Systems (implemented in 2014), climate change mitigation and adaptation are included as the first target of the strategic plan of the Department of Environment and as one of the strategic goals of the Ministry of Agriculture, Rural Development and Environment.

27. Cyprus specifies 23 PaMs categorized by type of action, in a well-elaborated manner. For each policy or measure, the estimated emission reductions (annually for the period 2017–2040) are provided, as are details of how the estimation was done (e.g. underlying assumptions, including timing and scale of introduction), the scenario (WEM or WAM) to which it contributes and background information. The key information includes the names of the competent and other authorities concerned, the type of instrument applied (e.g. legislative and compulsory), relevant national and EU legislation, and measures towards attainment. Such information is the same in both CTF table 3 and the projections section of the BR3, and is thus consistently integrated. Some information, however, such as costs of the PaMs, is not provided.

(b) Policies and measures in the energy sector

28. **Energy supply**. The energy system in Cyprus is not connected to the mainland, resulting in a high cost of energy, a high dependence on oil products and limited supply capacity for peak power demand. There has been a high rate of growth in energy demand, together with seasonal variations in energy demand, and there are limitations on the expansion of RES supply owing to strict protection of the island environment. One major measure was reported, which is related to the introduction of natural gas (start of LNG import) for electricity generation. With the start date for operation scheduled for 2021, this measure will have no impact before 2020, and no emission reduction estimate is provided, but a substantial impact is expected (more than 10 per cent total emission reductions in the energy sector) by 2021 (see para. 55 below).

29. **Renewable energy sources**. Cyprus expects to increase the share of RES from 9 per cent in 2015 to 13 per cent in 2020 of gross final energy consumption. A few PaMs are reported. For power generation, photovoltaic and wind parks are expected to make a considerable contribution in 2030, although the contribution will be small in 2020. Heat generation from RES plays a more important role, especially up to 2020 through, for example, the promotion of biomass in industry, with a target of a 10 per cent share and roughly 5 per cent of the total estimated emission reductions in 2020, and the promotion of RES in the residential sector for heating and cooling, with a target of a 35 per cent share and roughly 8 per cent of the total estimated emission reductions in 2020. The ERT noted that Cyprus has a successful model for introducing solar water heaters, having achieved the highest uptake of this technology among the EU member States; namely, in households (over 93 per cent) and hotels (over 52 per cent). Law No. 112(I)/213 on the promotion and encouragement of the use of RES is the overall domestic legal basis for the targets related to RES.

30. **Energy efficiency**. The third National Energy Efficiency Action Plan is the basis for a number of PaMs targeting energy efficiency that are reported in the BR3. The most relevant in terms of estimated impact are those targeting energy efficiency in: (1) new residential buildings, with savings of about 4,000 TJ and roughly 70 per cent of the estimated total emission reductions in 2020; (2) the tertiary sector, with savings of about 550 TJ and roughly 10 per cent of the estimated emission reductions in 2020; and (3) industry, with savings of about 97 TJ and roughly 3 per cent of the estimated emission reductions in 2020. Subsidies and other incentive schemes are applied broadly for energy efficiency investment. For the industrial sector, Law No. 31/2009 on energy end-use efficiency and energy services provides the legal basis for the targets.

31. **Residential and commercial sectors**. No PaMs are reported for this sector, except those related to RES and energy efficiency reported in paragraphs 29 and 30 above, which mainly focus on new buildings. Law No. 142(I)/2006 and its amendments regulating energy efficiency of buildings provide the legal basis for RES and energy efficiency measures in the sector.

32. **Transport sector**. A few PaMs are reported, including the introduction of CO_2 emission-based calculation of circulation taxes, old vehicle scrapping and replacement schemes, energy efficiency measures and bicycle rental systems. Only the introduction of biofuels in the transport sector is included in the projections; however, the total effect of measures is presented as zero in the WEM scenario. Law No. 112(I)2013–2015 (transposition of EU directive 209/28/EC) is the legal basis for the transportation biofuel measure.

33. The BR3 does not include information on how Cyprus promotes and implements the decisions of ICAO and IMO to limit emissions from aviation and marine bunker fuels. During the review, Cyprus clarified that the promotion and implementation of ICAO and IMO decisions is applied through the relevant EU framework.

34. **Industrial sector**. In addition to those PaMs related to renewable energy and energy efficiency reported in paragraphs 29 and 30 above, the F-gas regulation was introduced (see para. 35 below).

(c) Policies and measures in other sectors

35. **Industrial processes**. One policy is described: the recovery of F-gases and their recycling, reclamation and destruction, following the application of EU regulation 517/2014 (Article 9), which will start in 2020 under the Fluorinated Greenhouse Gases Law (No. 62(I)/2016 and 46(I))/2017). This law requires the compulsory setting up of a recovery system for F-gases based on the 'producer responsibility' principle. The targeted F-gases are mainly HFCs.

36. **Agriculture**. Anaerobic digestion for treatment of manure waste with high organic content, mainly at large animal farms, is promoted by the Department of Environment under the control of water pollution measures "Waste water disposal" and "Sensitive areas for urban waste water discharges". Although these are voluntary measures, they are expected to have a large GHG emission reduction potential in Cyprus following further promotion.

37. **LULUCF**. Cyprus reported that no PaMs are in place or planned for the LULUCF sector.

38. **Waste management**. Guided by the EU landfill directive, Cyprus has put in place the National Municipal Waste Management Plan 2015–2021, which contains targets that are quantitative (e.g. restoration of 20 non-sanitary landfills, construction of 22 collection points for selected waste streams) and qualitative (e.g. local waste prevention, separate collection systems, banning disposal of certain waste streams). Waste management, when combined with biogas recovery, has the most important forecasted impact in terms of emission reductions, starting in 2021, with roughly 10 per cent of the projected annual emission reductions. Although these measures will not contribute in 2020, significant emission reductions are expected in 2030.

(d) Response measures

39. Cyprus did not report in the BR3 information on the assessment of the economic and social consequences of response measures. Cyprus in its 2018 annual submission presented several initiatives aimed at minimizing adverse impacts, such as: the progressive reduction or phasing out of market imperfections, fiscal incentives, tax and duty exemptions and subsidies in all GHG-emitting sectors, taking into account the need for energy price reforms to reflect market prices and externalities; cooperation in the development, diffusion and transfer of advanced fossil-fuel technologies that emit less GHGs and/or that capture and store GHGs, and encouraging their wider use; and facilitating the participation of the least developed countries and other non-Annex I Parties in this effort.

(e) Assessment of adherence to the reporting guidelines

40. The ERT assessed the information reported in the BR3 of Cyprus and identified issues related to completeness, transparency and adherence to the UNFCCC reporting guidelines on BRs. The findings are described in table 6.

Table 6
Findings on the mitigation actions and their effects from the review of the third biennial report of Cyprus

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 8 Issue type: completeness Assessment: encouragement	In its BR3, Cyprus did not report information on the assessment of economic and social consequences of response measures. During the review, Cyprus clarified that an EU internal impact assessment system has been established for the development of new policy initiatives through legislative proposals of the European Commission, in which all proposals are examined before any legislation is passed. The assessment is based on an integrated approach that analyses both benefits and costs, and addresses all significant economic, social and environmental impacts of possible new initiatives. Beyond this internal impact assessment system, procedures for assessing the impacts of EU (climate change) policies on external countries have also been established.

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
		The ERT reiterates the encouragement made in the previous review report (FCCC/TRR.2/CYP) that Cyprus improve the completeness of its reporting by including in the next BR information on this matter. The ERT notes that Cyprus may use the information provided by the Party during the review as the basis for this reporting.
2	Reporting requirement specified in paragraph 6 Issue type: completeness Assessment: encouragement	The ERT noted that in the description of the mitigation actions in CTF table 3, no information on costs and relevant timescales is provided as requested in footnote (e). During the review, Cyprus clarified that such information is not available. The ERT encourages Cyprus to improve the completeness of its reporting by including in the CTF tables information on costs and timescales of its mitigation actions or, where relevant, a note that the information is unavailable.

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

41. For 2014 Cyprus reported in CTF table 1 annual total GHG emissions excluding LULUCF of 8,431.78 kt CO_2 eq, which is 50.0 per cent above the 1990 base-year level. In 2014 emissions from non-ETS sectors relating to the target under the ESD amounted to 3,924.86 kt CO_2 eq.

42. For 2015 Cyprus reported in CTF table 1 annual total GHG emissions excluding LULUCF of 8,466.67 kt CO_2 eq, which is 50.6 per cent above the 1990 base-year level. In 2015 emissions from non-ETS sectors relating to the target under the ESD amounted to 4,060.62 kt CO_2 eq.

43. Cyprus did not report on its use of units from LULUCF activities. During the review the Party stated that "KP-LULUCF emissions were not estimated". Cyprus reported that it did not use and does not intend to use units from market-based mechanisms. Table 7 illustrates Cyprus's GHG emissions, the contribution of LULUCF and the use of units from market-based mechanisms.

Table 7
Summary of information on the use of units from market-based mechanisms and land use, land-use change and forestry by Cyprus to achieve its target

Year	Emissions excluding LULUCF (kt CO_2 eq)	Contribution of LULUCF (kt CO_2 eq)[a]	Emissions including contribution of LULUCF (kt CO_2 eq)	Use of units from market-based mechanisms (kt CO_2 eq)
1990	5 621.64	NA	NA	NA
2010	9 574.40	NA	NA	NA
2011	9 275.27	NA	NA	NA
2012	8 768.17	NA	NA	NA
2013	8 048.74	NA	NA	NA
2014	8 431.78	NA	NA	NA
2015	8 466.67	NA	NA	NA
2016	NA	NA	NA	NA

Sources: Cyprus's BR3 and CTF table 1, and information provided by the Party during the review.

[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.

44. In assessing the progress towards the achievement of the 2020 target, the ERT noted that Cyprus's emission reduction target for non-ETS sectors is 5.0 per cent below the 2005 level (see para. 17 above). As discussed above, in 2015, Cyprus's emissions for non-ETS sectors were 31.5 per cent below the AEA of 5,926.04 kt CO_2. The ERT also noted that AEAs were revised after 2017, as illustrated in the figure below. The ERT further noted that in 2015 the contribution of LULUCF was not estimated and market-based mechanisms were not used.

45. The ERT noted that Cyprus faces challenges in implementing mitigation actions that deliver the emission reductions needed to make sufficient progress towards its target. On the basis of the results of the projections (see para. 60 below), the ERT also noted that the Party may face challenges in the achievement of its target under the Convention. However, Cyprus informed the ERT during the review of its intention to use the temporal flexibility provisions under the ESD for the period 2013–2018.

(b) Assessment of adherence to the reporting guidelines

46. The ERT assessed the information reported in the BR3 of Cyprus 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. Projections overview, methodology and results

(a) Technical assessment of the reported information

47. Cyprus reported updated projections for 2020, 2030 and 2040 relative to actual inventory data for 2015 under the WEM scenario. The WEM scenario reported by Cyprus includes implemented and adopted PaMs until 2015.

48. In addition to the WEM scenario, Cyprus reported the WAM and WOM scenarios. The WAM scenario includes planned PaMs, while the WOM scenario includes only the PaMs implemented before 2015. Cyprus provided a definition of its scenarios, explaining that its WEM scenario includes policies such as using RES in electricity generation and diverting organic waste to landfills, which are the two measures with the largest GHG emission reduction effect; while its WAM scenario further strengthens and/or adds new measures, with promotion of new vehicle technologies driven by a tax revision being the measure with the greatest impact. All related measures are transparently summarized in tables and include short descriptions and their effects for 2020, 2030 and 2040 time frames. The definitions indicate that the scenarios were prepared according to the UNFCCC reporting guidelines on NCs.

49. The projections are presented for 2015 to 2040 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 CO_2, CH_4, N_2O and HFCs (collectively for each HFC), while emissions of PFCs, SF_6 and NF_3 are estimated but are negligible. 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. Cyprus does not report any PaMs for the LULUCF sector, so the WEM and WAM scenarios do not include emissions/removals from the LULUCF sector.

50. Cyprus did not report emission projections for indirect GHGs such as carbon monoxide, nitrogen oxides, non-methane volatile organic compounds or sulfur oxides.

51. Emission projections related to fuel sold to ships and aircraft engaged in international transport were not included in the scenarios, and thus were not reported, because no relevant PaMs were included. During the review, Cyprus explained to the ERT that the promotion and implementation of ICAO and IMO decisions in order to limit or reduce emissions of GHGs not controlled by the Montreal Protocol from aviation and marine bunker fuels is applied through the implementation of the relevant EU framework.

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

52. The methodology used for the preparation of the projections is identical to that used for the preparation of the emission projections for the BR2. However, there are differences in the assumptions used, which is the main reason for the differences in the three scenarios when comparing the BR2 with the BR3. In addition, the three scenarios in the BR3 include different measures compared with the BR2. The basic approach applied by Cyprus is to develop the WOM scenario first by summing the assumed activity levels multiplied by the corresponding emission factors. For the WEM and WAM scenarios, the impacts of relevant PaMs are added. The ERT recognizes, on the basis of further information provided by Cyprus during the review, that the bottom-up methodology used combined with expert judgment is a simple and user-friendly approach to understanding the impact of each measure.

53. To prepare its projections, Cyprus relied on the following key underlying assumptions for all scenarios: annual gross domestic product growth rate projected by the Ministry of Finance in 2017 (3.0 per cent (2016), 2.7 per cent (2020), 2.1 per cent (2025), 2.0 per cent (2027 onward)), and the introduction of natural gas in electricity generation. These variables and assumptions were reported in the main text and in annexes III–V of the NC7 and in CTF table 5. The ERT noted that the share of RES is used as an assumption for the scenarios and does not constitute an output of the analysis.

54. The assumption on the introduction of natural gas in electricity generation will have the largest impact on future emissions. This shift from petroleum-based products to natural gas (initially as imported LNG and later also domestically produced) will occur in 2024 in the WOM scenario, but it will occur in 2021 in the WEM and WAM scenarios. The fuel shift itself – causing a sudden drop of CO_2 emissions as shown in the figure below – is included in the WOM scenario, while 'earlier introduction' is the measure taken in the WEM scenario. In addition, Cyprus explained during the review that the possible exploitation of natural gas in the exclusive economic zone could have a significant impact on GHG emissions, although such effects have not been taken into account in the scenarios because of the large uncertainties.

55. Another important assumption is the EuroAsia Interconnector, a new connection between the Greek, Cypriot and Israeli power grids, with commissioning expected in 2019–2022. This project would allow the Cypriot grid more flexibility in introducing intermittent RES (and import of power) without compromising the quality of the power supply. This project could have a large effect on the future CO_2 emission profile of Cyprus; however, the project is not taken into account in the scenarios owing to the large uncertainties.

56. Considering the potential significant effects of the domestic gas production and international power grid connection measures on the GHG emission profile of Cyprus in the future, the ERT notes that including these measures in the scenario analysis of future BRs would greatly enhance the transparency of reporting, even if there remain large uncertainties. Collaboration with relevant authorities and sensitivity analyses could be used for this purpose. The breakdown of the effects of the grid connection project (although new studies are needed), could clarify how it would impact emission reductions.

57. Sensitivity analyses were conducted by changing each measure by 1 per cent and the results were reported in the NC7 and referenced in the BR3. The ERT suggested that, considering the purpose of the sensitivity analysis is to estimate the possible range of outputs by changing an input with uncertainty, this analytical method could be applied to key assumptions that have large uncertainties. The ERT noted that a more detailed consideration of the implications of the results of the sensitivity analyses would substantially enhance the outcome of the analyses.

(c) Results of projections

58. The projected emission levels under different scenarios and information on the Kyoto Protocol targets and the quantified economy-wide emission reduction target are presented in table 8 and the figure below.

Table 8
Summary of greenhouse gas emission projections for Cyprus

	GHG emissions (kt CO_2 eq per year)	*Changes in relation to base-year[a] level (%)*	*Changes in relation to 1990 level (%)*
Quantified economy-wide emission reduction target under the Convention[b]	NA	NA	NA
Inventory data 1990[c]	5 621.65	–0.1	NA
Inventory data 2015[c]	8 466.67	50.5	50.6
WOM projections for 2020[c]	9 683.64	72.1	72.3
WEM projections for 2020[c]	9 425.21	67.5	67.7
WAM projections for 2020[c]	9 350.72	66.2	66.3
WOM projections for 2030[c]	10 212.52	81.5	81.7
WEM projections for 2030[c]	9 402.33	67.1	67.3
WAM projections for 2030[c]	7 906.10	40.5	40.6

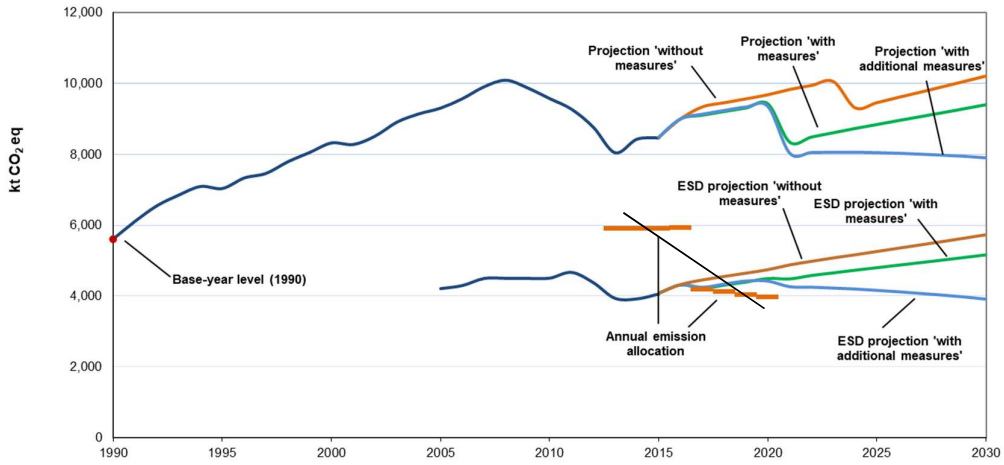
Note: The projections are for GHG emissions without LULUCF.

[a] "Base year" in this column refers to the base year used for that target under the Convention.

[b] 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.

[c] From Cyprus's BR3 CTF table 6.

Greenhouse gas emission projections reported by Cyprus



Sources: (1) data for the years 1990–2015: Cyprus's CTF table 1; total GHG emissions excluding LULUCF; (2) data for the years 2016–2030: annual projection data for all scenarios and the ESD projections were provided by Cyprus during the review; (3) ESD review data from the European Environment Agency (2005–2015); (4) EU transaction log (AEA).

59. Cyprus's total GHG emissions excluding LULUCF in 2020 and 2030 are projected to be 9,425.21 and 9,402.33 kt CO_2 eq, respectively, under the WEM scenario, which represents an increase of 67.7 and 67.3 per cent, respectively, above the 1990 level. Under the WAM scenario, emissions in 2020 and 2030 are projected to be higher than those in 1990 by 66.3 and 40.6 per cent and amount to about 9,350.72 and 7,906.10 kt CO_2 eq, respectively. The 2020 projections suggest that Cyprus should strive to contribute to the achievement of the EU target under the Convention (see paras. 16 and 45 above).

60. Cyprus's target for non-ETS sectors is to reduce its total emissions by 5.0 per cent below the 2005 level by 2020 (see para. 16 above). Cyprus's AEAs, which correspond to its annual national emission target for non-ETS sectors, change linearly from 5,919.07 kt CO_2 eq in 2013 to 3,975.25 kt CO_2 eq for 2020. According to the projections under the WEM scenario, emissions from non-ETS sectors are estimated to reach 4,500.51 kt CO_2 eq by

2020. Under the WAM scenario, Cyprus's emissions from non-ETS sectors in 2020 are projected to be 4,427.00 kt CO_2 eq. The projected levels of emissions under the WEM and WAM scenarios are 13.2 and 11.4 per cent above the AEAs, respectively, for 2020. Cyprus intends to use the flexibility mechanism under the ESD to cover the shortage of allowances in years to come (see para. 45 above), in addition to the implementation of a new climate change and energy national plan for the period 2021–2030, which is expected to be ready by the end of 2018.

61. The effort sharing regulation (regulation (EU) 2018/842), adopted by the EU on 30 May 2018, after the submission of Cyprus's BR3, specifies the non-ETS targets of each EU member State for 2021–2030. In this regulation, Cyprus shall meet the target of emissions 24 per cent below the 2005 level in 2030 even though there are several flexibilities. The ERT's preliminary calculation shows that the target level in 2030 is about 3,200 kt CO_2 eq, which is much lower than the projected emissions of the WEM (5,171 kt CO_2 eq) and WAM (3,916 kt CO_2 eq) scenarios. The ERT noted that this implies that Cyprus will need to introduce measures with an impact of about 2,000 kt CO_2 eq in addition to the WEM scenario or about 700 kt CO_2 eq in addition to the WAM scenario. During the review, Cyprus explained that the new climate change and energy national plan is expected to fill this gap (see para. 67 below).

62. Cyprus presented the WEM and WAM scenarios by sector for 2020 and 2030, as summarized in table 9.

Table 9
Summary of greenhouse gas emission projections for Cyprus presented by sector

	GHG emissions and removals (kt CO_2 eq)					*Change (%)*			
		2020		*2030*		*1990–2020*		*1990–2030*	
Sector	*1990*	*WEM*	*WAM*	*WEM*	*WAM*	*WEM*	*WAM*	*WEM*	*WAM*
Energy (not including transport)	2 740.08	4 330.52	4 357.94	3 810.94	3 472.63	58.0	59.0	39.1	26.7
Transport	1 200.40	2 247.01	2 174.91	2 787.77	1 757.10	87.2	81.2	132.2	46.4
Industry/industrial processes	764.89	1 546.02	1 528.76	1 555.17	1 535.12	102.1	99.9	103.3	100.7
Agriculture	543.25	681.92	681.41	716.85	713.04	25.5	25.4	32.0	31.3
LULUCF[a]	–100.32	-	-	-	-	NA	NA	NA	NA
Waste	385.06	620.01	607.69	533.21	428.22	61.0	57.8	38.5	11.2
Other (specify)[b]	-	4 330.52	4 357.94	3 810.94	3 472.63	NA	NA	NA	NA
Total GHG emissions without LULUCF	**5 621.65**	**9 425.21**	**9 350.72**	**9 402.33**	**7 906.10**	**67.7**	**66.3**	**67.3**	**40.6**

Source: Cyprus's BR3 CTF table 6.
[a] For LULUCF Cyprus reported blank cells for 2020 and 2030 projections.
[b] Cyprus reported blank cells.

63. Because Cyprus has experienced a significant increase in emissions since 1990 (50.6 per cent by 2015) driven by its economic growth, the ERT considers that the emission reduction contribution should be assessed in comparison with the WOM ('business as usual') scenario starting from 2015, not with the level of 1990.

64. According to the projections reported for 2020 under the WEM scenario, the most significant emission reductions compared with the WOM scenario are expected to occur in the energy sector (not including transport), with the energy efficiency measure for new residential buildings having the greatest effect, amounting to projected emission reductions of 185 kt CO_2 eq (about 69 per cent of the total emission reductions and equivalent to 2 per cent of the total GHG emissions, excluding LULUCF, by 2020). In 2030, the measures with the greatest impact are RES in the energy sector (215 kt CO_2 eq), organic waste to landfill

(146 kt CO_2 eq), energy efficiency for new residential buildings (112 kt CO_2 eq) and biogas recovery in the waste sector (89 kt CO_2 eq), amounting to 26, 18, 14 and 11 per cent of the total emission reductions (817 kt CO_2 eq), respectively, and equivalent to 2.3, 1.5, 1.2 and 0.9 per cent of total GHG emissions, excluding LULUCF, respectively. The ERT noted that the measures in the waste sector contribute significantly in 2030 although almost no measures are in place in 2020. Further, the shift to natural gas from oil products in electricity generation has a much larger effect (900–995 kt CO_2 eq per year, information provided by Cyprus during the review), but Cyprus categorized it as the 'business as usual' practice and therefore included this measure in the WOM scenario (except for the effect of earlier introduction, which is counted for three years only; not for 2020 or 2030 as shown in the figure above).

65. According to the projections reported for 2020 under the WAM scenario, the most significant emission reductions compared with the WOM scenario are also expected to occur as a result of the energy efficiency measure for new residential buildings, amounting to projected emission reductions of 185 kt CO_2 eq (the same as under the WEM scenario, about 54 per cent of the total emission reductions (342 kt CO_2 eq) and equivalent to 2.0 per cent of the total GHG emissions, excluding LULUCF, in 2020). Additional significant measures under the WAM scenario include renewable energies in the commercial sector (81 kt CO_2 eq) and new transportation technologies (51 kt CO_2 eq), about 24 and 15 per cent of the total emission reductions, respectively.

66. In 2030, the measures with the greatest impact are new transportation technologies (697 kt CO_2 eq), RES in the energy sector (430 kt CO_2 eq), RES in the transportation sector (287 kt CO_2 eq), energy efficiency for new buildings (201 kt CO_2 eq), organic waste to landfill (162 kt CO_2 eq), biogas recovery in the waste sector (134 kt CO_2 eq) and sorting of waste (106 kt CO_2 eq), amounting to 30, 19, 12, 9, 7, 6 and 5 per cent of the total reductions (2,315 kt CO_2 eq), respectively. Measures in the transportation and waste sectors are expected to play a more significant role than the energy-related measures. The ERT noted that the effects of energy efficiency in the industrial and commercial sectors are relatively small, and there are almost no existing measures. However, Cyprus considers the energy efficiency measures will play a much more important role in meeting the strengthened 2030 EU national ESD target.

67. Cyprus informed the ERT during the review that it is preparing a new climate change and energy national plan, as required by the EU climate change and energy governance regulation. The plan is expected to be ready by the end of 2018 and must include the measures Cyprus will use in meeting its targets under the ESD (total and annual) for the period 2021–2030 (–24 per cent in 2030 compared with the 2005 emission level). This plan, although not included in the current scenario analysis, is expected to contain considerable additional PaMs in order to meet Cyprus's commitments.

68. Cyprus presented the WEM and WAM scenarios by gas for 2020 and 2030, as summarized in table 10 below:

Table 10
Summary of greenhouse gas emission projections for Cyprus presented by gas

	GHG emissions and removals (kt CO_2 eq)					*Change (%)*			
		2020		*2020*		*1990–2020*		*1990–2030*	
Gas	*1990*	*WEM*	*WAM*	*WEM*	*WAM*	*WEM*	*WAM*	*WEM*	*WAM*
CO_2	4 620.99	7 594.08	7 551.17	7 605.61	6 269.31	64.3	63.4	64.6	35.7
CH_4	691.71	1 055.98	1 043.57	989.77	876.55	52.7	50.9	43.1	26.7
N_2O	308.92	397.19	395.27	425.84	399.19	28.6	28.0	37.8	29.2
HFCs	NO, NE	377.96	360.71	381.11	361.05	NO, NE	NO, NE	NO, NE	NO, NE
PFCs	NO	NO	NO	NO	NO	NO	NO	NO	NO
SF_6	0.03	NE	NE	NE	NE	NE	NE	NE	NE
NF_3	NO	NO	NO	NO	NO	NO	NO	NO	NO

	GHG emissions and removals (kt CO_2 eq)					Change (%)			
		2020		2020		1990–2020		1990–2030	
Gas	*1990*	*WEM*	*WAM*	*WEM*	*WAM*	*WEM*	*WAM*	*WEM*	*WAM*
Total GHG emissions without LULUCF	**5 621.65**	**9 425.21**	**9 350.72**	**9 402.33**	**7 906.10**	**67.7**	**66.3**	**67.3**	**40.6**

Source: Cyprus's BR3 CTF table 6.

69. For 2020 under the WEM scenario, the most significant reductions are projected for CO_2 emissions: 266.00 kt CO_2 (102.9 per cent) in comparison with the WOM scenario. For 2030, the most significant reductions are projected for CO_2 and CH_4 emissions: 495.16 kt CO_2 (61.1 per cent) and 293.73 kt CO_2 eq (36.3 per cent), respectively, in comparison with the WOM scenario. Although most of the measures by 2020 focus on energy, with a slight increase in CH_4 by the waste measure, more than a third of contributions to GHG emission reductions is expected to be CH_4 reductions in the waste sector for 2030 (see para. 66 above).

70. If additional measures are considered (WAM scenario), the pattern of emission reductions compared with the WOM scenario presented by gas differs slightly for 2020 owing to the introduction of waste sector measures for CH_4, and more significantly for 2030 owing to the much strengthened energy measures for CO_2, while overall emission reductions are expected to be enhanced 1.29 and 2.85 times compared with the difference between the WEM and WOM scenarios for 2020 and 2030, respectively.

(d) Assessment of adherence to the reporting guidelines

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

Table 11
Findings on greenhouse gas emission projections reported in the third biennial report of Cyprus

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement[a] specified in paragraph 43 Issue type: transparency Assessment: encouragement	Explanations of the scenarios, the methodology applied and the assumptions chosen were provided in the NC7; however, the information was insufficient for the ERT to fully understand the scenario analyses, including underlying concepts, steps, starting year, and advantages and disadvantages of the models used. This issue was also raised in the previous review report (FCCC/IDR.6/CYP). During the review, Cyprus provided this information. The ERT recognizes, on the basis of the information provided by Cyprus, that the bottom-up methodology used combined with expert judgment is a simple and user-friendly approach to understanding the impact of each measure. The ERT also recognizes that the scenario setting and analyses and the models or tools used are interrelated, and it is therefore better to explain them in an integrated way. In order to do so, the characteristics of the models must be understood and their appropriate use specified. Paragraphs 29, 32, 42, 45 and 47 of the UNFCCC reporting guidelines on NCs (and paragraph 12 of the UNFCCC reporting guidelines on BRs) are relevant to this point. The ERT reiterates the encouragement made in the previous review report for Cyprus to report on its scenario analysis approach, including the methodology, assumptions used and how they are selected, inputs and outputs (clearly distinguished), and implications of the outcome, in order to enhance the transparency and user-friendliness for the benefit of not only reviewers of future BRs but also domestic users of the scenario analyses, because these analyses are a good tool to use when designing, planning and implementing PaMs.

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
2	Reporting requirement[a] specified in paragraph 48 Issue type: completeness Assessment: recommendation	Cyprus did not provide an analysis of factors and activities for each sector that would help readers gain an understanding of the emission profile for the period 1990–2020. This issue was also specified in the previous review report. During the review, Cyprus explained the factors involved in the historical emission trend in a concise and transparent manner (steady economic growth for 1990–2008, decline for 2008–2013, and a subsequent increasing trend). However, the ERT noted that in the BR3, Cyprus did not provide a factor analysis of the future emissions of the WEM and WAM scenarios, which could be linked to the sensitivity analysis (apart from the sudden drop of emissions in the future owing to the introduction of natural gas) as an 'input' to the analysis. The ERT recommends that, in the next BR, Cyprus provide information on the analysis of past and future emissions by clarifying the associated factors driving developments in each sector.
3	Reporting requirement[a] specified in paragraph 36 Issue type: completeness Assessment: recommendation	Cyprus did not provide information on emission projections related to fuel sold to ships and aircraft engaged in international transport separately and not included in the totals in its BR3. During the review, Cyprus explained to the ERT that the promotion and implementation of ICAO and IMO decisions in order to limit or reduce emissions of GHGs not controlled by the Montreal Protocol from aviation and marine bunker fuels is applied through the implementation of the relevant EU framework. The ERT noted that, based on the latest inventory, emissions related to international bunker fuels are significant (about 10 per cent each for aviation and navigation of total GHG emissions), reflecting Cyprus's geographical isolation. The ERT also noted that the transparency of reporting would be improved by undertaking a scenario analysis for the measures, even if they are EU driven. The ERT recommends that Cyprus report emission projections related to fuel sold to ships and aircraft engaged in international transport, to the extent possible, and report them separately (not included in the totals), in its next BR, in order to improve completeness.

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 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

72. Cyprus is not an Annex II Party and is therefore not obliged to adopt measures and fulfil obligations defined in Article 4, paragraphs 3, 4 and 5, of the Convention. However, Cyprus provided information on its provision of support to developing country Parties for the years 2010 and 2012. The ERT commends Cyprus for reporting this information and suggests that it continue to do so, with updated information, in future BRs.

III. Conclusions and recommendations

73. The ERT conducted a technical review of the information reported in the BR3 and CTF tables of Cyprus 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; and progress made by Cyprus in achieving its target.

74. The ERT recommends an in-country review for Cyprus's next BR because the situation of the Party will have changed significantly by then owing to the start of a new plan for the new ESD target (a 24 per cent reduction in emissions by 2030 compared with the 2005 level) and fewer uncertainties regarding the EuroAsia Interconnector (i.e. it will be possible to assess its impact). In addition, it will be preferable for the ERT to have a deeper discussion on the scenario studies.

75. Cyprus's total GHG emissions excluding LULUCF covered by its quantified economy-wide emission reduction target were estimated to be 56.9 per cent above its 1990 level, whereas total GHG emissions including LULUCF were 67.0 per cent above its 1990 level in 2016. One of the reasons why Cyprus experienced a steady growth of emissions from 1990 to 2008 is that before joining the EU in 2004, Cyprus was a non-Annex I Party with high annual economic growth of about 4 per cent per year. Although Cyprus was affected strongly by the external adverse economic environment, which resulted in a sharp decline in its GHG emissions (4,4 per cent per year for the period 2008–2013), from 2013, GHG emissions have been increasing again, driven by economic recovery.

76. Under the Convention, Cyprus committed to contributing to the achievement of the joint EU quantified economy-wide emission reduction target of a 20 per cent reduction in emissions below the 1990 level by 2020. The target covers all sectors and CO_2, CH_4, N_2O, HFCs, PFCs and SF_6, 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. Companies can make use of such units to fulfil their requirements under the EU ETS.

77. Under the ESD, Cyprus has a target of reducing its emissions by 5.0 per cent below the 2005 level by 2020. The 2015–2020 linear progression in Cyprus's AEAs (its national emission target for non-ETS sectors) is from 5,919.07 kt CO_2 eq in 2013 to 3,975.25 kt CO_2 eq in 2020.

78. Cyprus's main policy framework relating to energy and climate change is the EU 2020 climate and energy package. Key legislation supporting Cyprus's climate change goals includes EU decision 2009/31/EC on the geological storage of carbon dioxide, decision 2009/28/EC on the promotion of the use of energy from renewable sources, decision 406/2009/EC on the effort of each member State to reduce its GHG emissions to meet the EU-wide GHG emission reduction commitments up to 2020 (the ESD), decision 2009/29/EC amending directive 2003/87/EC so as to improve and extend the EU ETS, and decision 2012/27/EU on energy efficiency. Cyprus specifies 23 PaMs categorized by type of action, in a well-elaborated manner. Among these PaMs, the actions with the most significant mitigation impact by 2030 are renewable energy for power generation followed by limitation of waste sent to landfill, as listed in table 13 for the WEM scenario. Most PaMs are backed by EU policies and programmes. A characteristic feature of planned action of Cyprus is the introduction of LNG in 2021, mainly for power generation. This shift from an oil-based power sector to a natural gas-based one could drastically reduce CO_2 emissions. The EuroAsia Interconnector, which will connect the Cypriot grid to the continent, could provide significant impact but has not yet been assessed owing to the remaining large uncertainties.

79. For 2015 Cyprus reported in CTF table 1 total GHG emissions excluding LULUCF of 8,466.67 kt CO_2 eq. Cyprus will not use credits from Kyoto Protocol mechanisms for its target under the ESD. The ERT noted that, in 2015, Cyprus's emissions are 50.6 per cent above the 1990 base-year level.

80. The GHG emission projections provided by Cyprus include those under the WOM, WEM and WAM scenarios. In the three scenarios, emissions are projected to be 72.3, 67.7 and 66.3 per cent above the 1990 level in 2020, respectively.

81. The projections indicate that Cyprus may face challenges in contributing to the EU 2020 target of a 20 per cent emission reduction compared with the 1990 level under both the WEM and WAM scenarios. Cyprus's target for the non-ETS sectors is to reduce its total emissions by 5.0 per cent below the 2005 level by 2020. The reported projected levels

of emissions under the WEM and WAM scenarios are 13.2 and 11.4 per cent above the AEAs, respectively, for 2020. The ERT noted that this suggests that Cyprus may face challenges in meeting its 2020 target under the ESD, even under the WAM scenario. Cyprus, however, informed the ERT during the review of its intension to use the flexibility mechanisms under the ESD to cover the shortage of allowances in years to come to comply with the EU regulation. The ERT also noted that Cyprus will have to meet its new effort-sharing targets (total and annual) for the period 2021–2030 (a 24 per cent emission reduction by 2030 compared with the 2005 level), which implies that considerable additional PaMs will need to be included in its new climate change and energy national plan.

82. Cyprus is not an Annex II Party and is therefore not obliged to adopt measures and fulfil obligations defined in Article 4, paragraphs 3, 4 and 5, of the Convention. However, Cyprus provided information in the BR3 on its provision of support to developing country Parties.

83. In the course of the review, the ERT formulated the following recommendations for Cyprus to improve its adherence to the UNFCCC reporting guidelines on BRs in its next BR:[4]

(a) To improve the completeness of its reporting by:

(i) Providing information on factors and activities for drivers of emission trends in each sector (see issue 2, table 11);

(ii) Providing emission projections related to fuel sold to ships and aircraft engaged in international transport, to the extent possible, and report them separately (not included in the totals) (see issue 3, table 11);

(b) To improve the transparency of its reporting by:

(i) Providing summary information on its national inventory arrangements in accordance with the reporting requirements contained in the UNFCCC reporting guidelines on BRs (see issue 1, table 3);

(ii) Enhancing the description of the quantified economy-wide emission reduction target by providing information in CTF tables 2(e)I and 2(e)II on the use of market-based mechanisms in achieving the target and in table 2(b) on the correct base year for NF_3 (issue 1, table 4);

(c) To improve the timeliness of its reporting by submitting its next BR on time (see para. 6 above).

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

Annex

Documents and information used during the review

A. Reference documents

2017 GHG inventory submission of Cyprus. Available at https://unfccc.int/process/transparency-and-reporting/reporting-and-review-under-the-convention/greenhouse-gas-inventories-annex-i-parties/submissions/national-inventory-submissions-2017.

2018 GHG inventory submission of Cyprus. Available at https://unfccc.int/process-and-meetings/transparency-and-reporting/reporting-and-review-under-the-convention/greenhouse-gas-inventories-annex-i-parties/national-inventory-submissions-2018.

BR3 of Cyprus. Available at https://unfccc.int/process-and-meetings/transparency-and-reporting/reporting-and-review-under-the-convention/national-communications-and-biennial-reports-annex-i-parties/third-biennial-reports-annex-i.

BR3 CTF tables of Cyprus. Available at https://unfccc.int/process-and-meetings/transparency-and-reporting/reporting-and-review-under-the-convention/national-communications-and-biennial-reports-annex-i-parties/third-biennial-reports-annex-i.

"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 Cyprus. Available at https://unfccc.int/process-and-meetings/transparency-and-reporting/reporting-and-review-under-the-convention/national-communications-and-biennial-reports-annex-i-parties/seventh-national-communications-annex-i.

Report on the individual review of the annual submission of Cyprus submitted in 2017. FCCC/ARR/2017/CYP. Available at https://unfccc.int/sites/default/files/resource/2017%20ARR%20of%20CYP_complete.pdf.

Report of the technical review of the second biennial report of Cyprus. FCCC/TRR.2/CYP. Available at https://unfccc.int/process/transparency-and-reporting/reporting-and-review-under-the-convention/national-communications-and-biennial-reports--annex-i-parties/international-assessment-and-review/review-reports.

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

B. Additional information provided by the Party

Responses to questions during the review were received from Ms. Nikoletta Kythreotou (Ministry of Environment), including additional material. The following documents[1] were provided by Cyprus:

Department of Forests, Ministry of Agriculture, Natural Resources and Environment. 2006. *Criteria and Indicators for the Sustainable Forest Management in Cyprus*. Nicosia (Cyprus).

Department of Environment, Ministry of Agriculture, Rural Development and Environment. 2017. *Cyprus' National Inventory Improvement Plan*. Nicosia (Cyprus).

Department of Environment, Ministry of Agriculture, Rural Development and Environment. 2017. *Cyprus' QA/QC and verification system manual*. Nicosia (Cyprus). Available at http://www.moa.gov.cy/moa/environment/environmentnew.nsf/all/8D6EF81F38772607C225829400343871/$file/QA-QCplan2017.pdf?openelement.

Department of Environment, Ministry of Agriculture, Rural Development and Environment. *Work Plan with the aim at enhancing the functionality of its National System* – UPDATE. Nicosia (Cyprus). Available at http://www.moa.gov.cy/moa/environment/environmentnew.nsf/all/8D6EF81F38772607C225829400343871/$file/WorkPlan2017.pdf?openelement.

Department of Environment, Ministry of Agriculture, Rural Development and Environment. 2014. *National Adaptation Plan of Cyprus to climate change. Greek version and English summary.*

Department of Environment, Ministry of Agriculture, Rural Development and Environment. *National Entity Information*. Available at http://www.moa.gov.cy/moa/environment/environmentnew.nsf/All/21395032E3B9BB6CC2257FF0003813DD?OpenDocument.

Initial Questionnaire. Consolidated European National Registries.

JRC, 2017, *Integration of a high share of variable RES in the Cyprus power system, Project summary – version 1.6*. European Commission. Available at http://www.mcit.gov.cy/mcit/energyse.nsf/C1028A7B5996CA7DC22580E2002621E3/$file/Cyprus_RESGRID_summary_v16.pdf.

Prime Minister Cabinet. 2017. *Decision for the national system for the preparation of annual national greenhouse gas inventories*. Nicosia (Cyprus). Available at http://www.moa.gov.cy/moa/environment/environmentnew.nsf/all/8D6EF81F38772607C225829400343871/$file/ApofashNationalSystem2017.pdf?openelement.

The Paris Agreement. Mitigation | European Union | National Targets.

[1] Reproduced as received from the Party.