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Report on the technical review of the eighth national communication and the technical review of the fifth biennial report of Lithuania

Parties included in Annex I to the Convention were requested by decision 6/CP.25 to submit their eighth national communication to the secretariat by no later than 31 December 2022. According to decision 15/CMP.1, Parties included in Annex I to the Convention that are also Parties to the Kyoto Protocol are required to include in their national communications supplementary information under Article 7, paragraph 2, of the Kyoto Protocol. This report presents the results of the technical review of the eighth national communication and relevant supplementary information under the Kyoto Protocol of Lithuania, 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" and the "Guidelines for review under Article 8 of the Kyoto Protocol".

Developed country Parties were requested by decision 6/CP.25 to submit their fifth biennial report to the secretariat by no later than 31 December 2022. This report presents the results of the technical review of the fifth biennial report of Lithuania, 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".

The review of these submissions took place in Bonn from 27 to 31 March 2023.

Contents

Abbreviations and acronyms

AEA	annual emission allocation
Annex II Party	Party included in Annex II to the Convention
AR	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
CORSIA	Carbon Offsetting and Reduction Scheme for International Aviation
CTF	common tabular format
ERT	expert review team
ESD	European Union effort-sharing decision
ESR	European Union effort-sharing regulation
EU	European Union
EU ETS	European Union Emissions Trading System
F-gas	fluorinated gas
GAINS	Greenhouse Gas and Air Pollution Interactions and Synergies
GDP	gross domestic product
GHG	greenhouse gas
GWP	global warming potential
HFC	hydrofluorocarbon
IPCC	Intergovernmental Panel on Climate Change
IPPU	industrial processes and product use
LULUCF	land use, land-use change and forestry
N_2O	nitrous oxide
NA	not applicable
NC	national communication
NE	not estimated
NF_3	nitrogen trifluoride
NO	not occurring
PaMs	policies and measures
PFC	perfluorocarbon
reporting guidelines for supplementary information	“Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol. Part II: Reporting of supplementary information under Article 7, paragraph 2”
RCP	representative concentration pathway
RES	renewable energy source(s)
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’

I. Introduction and summary

A. Introduction

1. This is a report on the centralized technical review of the NC8 and BR5 of Lithuania. 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" and "Part V: UNFCCC guidelines for the technical review of national communications from Parties included in Annex I to the Convention" (annex to decision 13/CP.20), and the "Guidelines for review under Article 8 of the Kyoto Protocol" (annex to decision 22/CMP.1 and annex I to decision 4/CMP.1).

2. In accordance with decision 13/CP.20, a draft version of this report was transmitted to the Government of Lithuania, which provided comments that were considered and incorporated.

3. The review was conducted from 27 to 31 March 2023 in Bonn by the following team of nominated experts from the UNFCCC roster of experts: Irina Atamuradova (Turkmenistan), Bernadett Benkó (Hungary), Chama Bowa (Zambia), Nonhlanhla Fungura (Zimbabwe), Marco Orsini (Belgium), Duška Šaša (Croatia), Rania Seif (Egypt), Dominic Sheldon[1] (EU), Ngoc Tran Thi Bich (Viet Nam), Olivia Tuchten (South Africa), Martijn Verdonk (Kingdom of the Netherlands) and Rasha Yousif (Sudan). Irina Atamuradova, Marco Orsini and Duška Šaša were the lead reviewers. The review was coordinated by Sina Wartmann and Davor Vesligaj (secretariat).

B. Summary

4. The ERT conducted a technical review of the information reported in the NC8 of Lithuania in accordance with the UNFCCC reporting guidelines on NCs,[2] the reporting guidelines for supplementary information, in particular the supplementary information required under Article 7, paragraph 2, and on the minimization of adverse impacts under Article 3, paragraph 14, of the Kyoto Protocol[3] and of the information reported in the BR5 of Lithuania in accordance with the UNFCCC reporting guidelines on BRs.[4]

1. Timeliness

5. The NC8 was submitted on 5 January 2023, after the deadline of 31 December 2022 mandated by decision 6/CP.25.

6. Lithuania did not inform the secretariat about its difficulties with making a timely NC8 submission. In accordance with decision 13/CP.20, a Party should inform the secretariat thereof by the due date of the submission in order to facilitate the arrangement of the review process. The ERT noted with concern the delay in the submission and recommended that Lithuania make its next submission on time.

7. The BR5 was submitted on 5 January 2023, after the deadline of 31 December 2022 mandated by decision 6/CP.25. The CTF tables were also submitted on 5 January 2023.

8. Lithuania did not inform the secretariat about its difficulties with making a timely BR5 submission. In accordance with decision 13/CP.20, a Party should inform the secretariat

[1] Dominic Sheldon's participation in the centralized review was funded by the EU under a research project entitled "Support to the development of monitoring, reporting and verification modalities, procedures and guidelines under the UNFCCC, and to the participation by the EU in UNFCCC technical reviews".

[2] Decision 6/CP.25, annex.

[3] Decision 15/CMP.1, annex, and decision 3/CMP.11, annex III.

[4] Decision 2/CP.17, annex.

thereof by the due date of the submission in order to facilitate the arrangement of the review process. The ERT noted with concern the delay in the submission.

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

9. Issues and gaps identified by the ERT related to the information reported by Lithuania in its NC8 are presented in tables 1–2. The information reported, including the supplementary information under the Kyoto Protocol, mostly adheres to the UNFCCC reporting guidelines on NCs.

10. Lithuania made improvements to the reporting in its NC8 compared with that in its NC7 by addressing recommendations and encouragements from the previous review report. The ERT noted that the Party has improved:

(a) The transparency of the information reported on projections and the total effects of PaMs by using the latest inventory year for which inventory data are available as the starting point for the projections;

(b) The completeness of the information reported on projections and the total effects of PaMs by:

(i) Reporting summary information on the models and/or approaches used;

(ii) Reporting information on the key underlying assumptions and values of the variables (e.g. population growth, international fuel prices) and activity data used for the projections;

(iii) Reporting on the estimated and expected total effect of implemented, adopted and planned PaMs, by gas;

(c) The completeness of the information reported on education, training and public awareness by providing more detailed information on activities related to public participation in the review of the NC;

(d) The transparency of the supplementary information related to the Kyoto Protocol by including information on the provisions in place to make information on the legislative arrangements and enforcement and administrative procedures established pursuant to the implementation of the Kyoto Protocol publicly accessible.

Table 1
Assessment of completeness and transparency of mandatory information reported by Lithuania in its eighth national communication

Section of NC	*Completeness*	*Transparency*	*Reference to description of recommendations*
Executive summary	Complete	Transparent	–
National circumstances relevant to GHG emissions and removals	Complete	Transparent	–
GHG inventory	Complete	Mostly transparent	Issue 1 in table I.2
PaMs	Complete	Transparent	
Projections and the total effect of PaMs	Mostly complete	Mostly transparent	Issues 3–6 in table I.4
Vulnerability assessment, climate change impacts and adaptation measures	Complete	Mostly transparent	Issue 1 in table I.5
Financial resources and transfer of technology[a]	NA	NA	NA
Research and systematic observation	Complete	Transparent	–
Education, training and public awareness	Complete	Transparent	–

Note: A list of recommendations pertaining to the completeness and transparency issues identified in this table is included in annex I. The assessment of completeness and transparency by the ERT in this table is based only on the "shall" reporting requirements.

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

Table 2

Assessment of completeness and transparency of mandatory supplementary information under the Kyoto Protocol reported by Lithuania in its eighth national communication

Supplementary information under the Kyoto Protocol	*Completeness*	*Transparency*	*Reference to description of finding(s)*
National system	Complete	Transparent	–
National registry	Mostly complete	Transparent	Issue 1 in table I.6
Supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17	Complete	Transparent	–
PaMs in accordance with Article 2	Mostly complete	Transparent	Issue 2 in table I.6
Domestic and regional programmes and/or arrangements and procedures	Complete	Transparent	–
Information under Article 10[a]	Complete	Transparent	–
Financial resources[b]	NA	NA	NA
Minimization of adverse impacts in accordance with Article 3, paragraph 14	Complete	Transparent	–

Note: A list of findings pertaining to the completeness and transparency issues identified in this table is included in annex I. The assessment of completeness and transparency by the ERT in this table is based only on the "shall" reporting requirements.

[a] The assessment refers to information provided by the Party on the provisions contained in Article 4, paras. 3, 5 and 7, of the Convention, as reported under Article 10 of the Kyoto Protocol, which is relevant to Annex II Parties only. An assessment of the information on the other provisions of Article 10 of the Kyoto Protocol is provided under the relevant substantive headings under the Convention, for example research and systematic observation.

[b] Lithuania is not an Annex II Party and is therefore not obliged to provide information on financial resources under Article 11 of the Kyoto Protocol, including on "new and additional" resources.

11. Issues and gaps identified by the ERT related to the information reported by Lithuania in its BR5 are presented in table 3. The information reported mostly adheres to the UNFCCC reporting guidelines on BRs.

12. Lithuania made improvements to the reporting in its BR5 compared with that in its BR4 by addressing the recommendations and encouragements from the previous review report. The ERT noted that the Party has improved:

(a) The transparency of the information reported on GHG emissions and trends by reporting in CTF tables 4 and 4(b) that it does not intend to use units from other market-based mechanisms to achieve its emission reduction target (reported as "NA");

(b) The completeness of the information reported on its quantified economy-wide emission reduction target and related assumptions, conditions and methodologies (including mitigation actions and their effects) by:

(i) Including a reference to the section of the most recent NC where information on the assessment of the economic and social consequences of response measures is provided;

(ii) Providing explanations as to why estimates of the mitigation impacts of individual PaMs were not estimated;

(iii) Providing information on the domestic arrangements established for the self-assessment of its emission reductions compared with its commitments;

(c) The transparency and completeness of the information reported on projections by:

(i) Providing information on the projections of indirect GHG emissions through a weblink in the BR5 to information on the projections of indirect GHG emissions

submitted under the EU directive on national emission ceilings for certain atmospheric pollutants;

(ii) Providing diagrams of the projections on a gas-by-gas basis;

(d) The transparency and completeness of the information reported on projections by reporting detailed information that describes each model and approach used for the projections.

Table 3
Summary of completeness and transparency of mandatory information reported by Lithuania in its fifth biennial report

Section of BR	*Completeness*	*Transparency*	*Reference to description of finding(s)*
GHG emissions and removals	Complete	Mostly transparent	Issue 1 in table II.1
Quantified economy-wide emission reduction target and related assumptions, conditions and methodologies	Complete	Transparent	–
Progress in achievement of targets	Mostly complete	Mostly transparent	Issue 1 in table II.2 Issue 1 in table II.3 Issues 3–5 in table II.4
Provision of support to developing country Parties[a]	NA	NA	NA

Note: A list of findings pertaining to the completeness and transparency issues identified in this table is included in annex II. The assessment of completeness and transparency by the ERT in this table is based only on the "shall" reporting requirements.

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

II. Technical review of the information reported in the eighth national communication and fifth biennial report

A. National circumstances relevant to greenhouse gas emissions and removals

1. Technical assessment of the reported information

13. The NC8 contains key data on legislation, population trends, geography and land use, climate and climate change, economic developments, energy, transport, the buildings sector, industry, trade, the services sector, agriculture, forestry, resource efficiency and wastewater. In the NC8 the Party provided information on its national circumstances, including on its National Climate Change Management Agenda, which lays down the targets and objectives for climate change mitigation and adaptation by 2050. Lithuania has experienced significant political and economic changes since regaining its political independence in 1990. The country's economy and macroeconomic indicators have generally increased steadily since 1990 owing to the transition to a market economy and Lithuania's accession to the EU in 2004. Lithuania's main economic activity is the services sector, followed by industry.

14. Lithuania has succeeded in decoupling emissions from economic growth as a result of implementing various economic and climate-related interventions over the past decade. Between 1990 and 2020, GDP increased by 76.0 per cent and GHG emissions decreased by 57.8 per cent. Notably, total primary energy consumption in Lithuania decreased by about 53.0 per cent over the same period. The energy sector continues to be the country's main emissions source. Natural gas remains the most important fuel in Lithuania's primary energy balance, replacing oil and oil products, resulting in their decrease in their use over the past decade. Since 2022 Lithuania no longer imports oil, natural gas and electricity from the Russian Federation, which is a change since the NC7. Activities in the transport sector, particularly road transport and associated fossil fuel consumption, remain important

economic drivers and have an impact on the country's GHG emissions. In 2019 the transport and logistics sector accounted for about 14 per cent of Lithuania's GDP. Lithuania continues to increase the contribution of RES in the national energy mix. Primary energy supplies from renewables increased by 5.8 times during 1990–2021, with an average annual growth of 5.7 per cent.

15. Activities in the agriculture sector influence both the development of Lithuania's rural areas (32.6 per cent of residents live in the countryside) and the country's GHG emissions (the agriculture sector is the second largest emissions source reported in the country's national GHG inventory for 2020 as presented in the NC8 and BR5). In 2021, crop and animal production accounted for 67.4 and 32.6 per cent of total agricultural production respectively. These proportions are similar to the values for 2016 reported in the NC7.

16. The industrial sector continues to account for a significant share (24.5 per cent) of gross value added in Lithuania's economy and is the third largest emissions source in 2020, according to the NC8 and BR5. Manufacturing constituted 85 per cent of total industrial production excluding construction in 2021. The amount of waste generated in Lithuania has remained stable since the NC7, at about 5.0 Mt/year. Notable changes since the NC7 include a reduction in the amount of waste disposed of in landfills, to 17 per cent in 2020 (compared with 55 per cent in 2015), and an increase in waste incineration and energy recovery, to 26 per cent in 2020 (compared with 12 per cent in 2015), and in waste composting, to 21 per cent in 2020 (compared with 10 per cent in 2015). The country's recycling rate has remained similar to the previously reported level, with an increase of 1 per cent in 2020 compared to the 2015 level.

2. Assessment of adherence to the reporting guidelines

17. The ERT assessed the information reported in the NC8 of Lithuania and identified an issue relating to completeness, and thus adherence to the UNFCCC reporting guidelines on NCs. The finding is described in table I.1.

B. Greenhouse gas inventory information[5]

1. Technical assessment of the reported information

18. Lithuania reported information in its BR5 and NC8 on its historical GHG emissions and inventory arrangements. Total GHG emissions[6] excluding emissions and removals from LULUCF decreased by 57.8 per cent between 1990 and 2020, while total GHG emissions including net emissions or removals from LULUCF decreased by 65.1 per cent over the same period. Emissions peaked in 1991 (49,843.90 kt CO_2 eq) and decreased thereafter. The changes in total emissions were driven mainly by factors such as the transition from a centrally planned economy to a market-based economy through a restructuring of manufacturing industries, energy industries and the agriculture sector. National GHG emissions excluding LULUCF have stabilized at approximately 20,000 kt CO_2 eq/year over the past decade.

19. Table 4 illustrates the emission trends by sector and by gas for Lithuania. The emissions reported in the 2022 annual inventory submission are the same as those reported in CTF table 1.

[5] GHG emission data in this section are based on Lithuania's 2022 annual inventory submission, version 2. All emission data in subsequent chapters are based on Lithuania's BR5 CTF tables unless otherwise noted.

[6] 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.

Table 4
Greenhouse gas emissions by sector and by gas for Lithuania for 1990–2020

	GHG emissions (kt CO_2 eq)					*Change (%)*		*Share (%)*	
	1990	*2000*	*2010*	*2019*	*2020*	*1990–2020*	*2019–2020*	*1990*	*2020*
Sector									
1. Energy	33 122.49	10 916.16	13 094.72	11 890.34	11 816.75	–64.3	–0.6	69.2	58.5
A1. Energy industries	13 552.63	5 055.97	5 329.66	2 279.10	2 647.70	–80.5	16.2	28.3	13.1
A2. Manufacturing industries and construction	6 164.93	1 091.49	1 290.68	1 299.88	1 186.66	–80.8	–8.7	12.9	5.9
A3. Transport	5 815.97	3 221.59	4 387.00	6 292.56	6 145.25	5.7	–2.3	12.2	30.4
A4. and A5. Other	7 300.01	1 243.46	1 589.93	1 491.65	1 404.04	–80.8	–5.9	15.3	7.0
B. Fugitive emissions from fuels	288.94	303.64	497.45	527.15	433.10	49.9	–17.8	0.6	2.1
C. CO_2 transport and storage	NO	NO	NO	NO	NO	NA	NA	NA	NA
2. IPPU	4 460.24	3 068.31	2 235.37	3 375.15	3 093.50	–30.6	–8.3	9.3	15.3
3. Agriculture	8 756.04	3 936.11	4 156.71	4 256.50	4 450.72	–49.2	4.6	18.3	22.1
4. LULUCF	–5 531.28	–9 432.15	–10 423.14	–5 302.10	–5 407.39	2.2	–2.0	NA	NA
5. Waste	1 522.13	1 520.43	1 263.35	838.60	821.58	–46.0	–2.0	3.2	4.1
6. Other[a]	NO	NO	NO	NO	NO	NA	NA	NA	NA
Gas[b]									
CO_2	35 767.73	11 876.40	13 946.61	13 923.31	13 653.15	–61.8	–1.9	74.7	67.6
CH_4	6 945.49	3 842.69	3 605.06	2 956.64	2 863.69	–58.8	–3.1	14.5	14.2
N_2O	5 147.67	3 699.19	2 936.28	2 941.71	3 147.86	–38.8	7.0	10.8	15.6
HFCs	NO	22.00	256.29	533.93	508.10	NA	–4.8	NA	2.5
PFCs	NO	NO	NO	NO	NO	NA	NA	NA	NA
SF_6	NO	0.72	5.91	5.01	9.75	NA	94.5	NA	0.0
NF_3	NO	NO	NO	NO	NO	NA	NA	NA	NA
Total GHG emissions excluding LULUCF	**47 860.90**	**19 441.01**	**20 750.16**	**20 360.59**	**20 182.55**	**–57.8**	**–0.9**	**100.0**	**100.0**
Total GHG emissions including LULUCF	**42 329.61**	**10 008.86**	**10 327.02**	**15 058.49**	**14 775.16**	**–65.1**	**–1.9**	**NA**	**NA**
Total GHG emissions excluding LULUCF, including indirect CO_2	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Total GHG emissions including LULUCF, including indirect CO_2	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Source: GHG emission data: Lithuania's 2022 annual inventory submission, version 2.

[a] Emissions and removals reported under the sector other (sector 6) are not included in total GHG emissions. Lithuania reported that emissions under the sector other are not applicable.

[b] Emissions by gas without LULUCF and including indirect CO_2. During the review, the Party stated that the emission totals reported in its 2022 annual inventory submission as being without indirect emissions do in fact include indirect CO_2, as these emissions were reported under category 2.D.3 (other) in Lithuania's 2022 national GHG inventory submission. See also issue 1 in table I.2.

20. In brief, Lithuania's national inventory arrangements were established in accordance with Article 5, paragraph 2, of the Kyoto Protocol. There have been no changes in these arrangements since the BR4. The Ministry of Environment has overall responsibility for the national GHG inventory system and is in charge of the related legal, institutional and procedural arrangements, in line with its responsibilities as the national focal point to the UNFCCC and designation as the single national entity responsible for the national GHG inventory. The Lithuanian Environmental Protection Agency, under the Ministry of Environment, is the assigned institution responsible for compiling the GHG inventory and the GHG inventory report. The Environmental Protection Agency also manages quality

assurance and quality control related to the inventory and the report. The Environmental Protection Agency compiles the GHG inventory and report on the basis of the sectoral information provided by experts. The Environmental Protection Agency is supported in its duties by a permanent expert working group for GHG inventory preparation consisting of experts from the Lithuanian Energy Institute, the Center for Physical Sciences and Technology, the Institute of Animal Science of the Lithuanian University of Health Sciences, the Center for Environmental Policy, the Lithuanian State Forest Service and the Aleksandras Stulginskis University. The Environmental Protection Agency is also responsible for the collection and provision of information on the IPPU sector and is responsible for calculating emissions and removals related to agricultural soils.

2. Assessment of adherence to the reporting guidelines

21. The ERT assessed the information reported in the NC8 and BR5 of Lithuania and identified an issue relating to transparency and thus adherence to the UNFCCC reporting guidelines on NCs and the UNFCCC reporting guidelines on BRs. The finding is described in table I.2.

3. National system for the estimation of anthropogenic emissions by sources and removals by sinks

(a) Technical assessment of the reported information

22. Lithuania provided in the NC8 a description of how its national system for the estimation of anthropogenic emissions by sources and removals by sinks of all GHGs not controlled by the Montreal Protocol is performing the general and specific functions defined in the annex to decision 19/CMP.1 in conjunction with decisions 3/CMP.11 and 4/CMP.11. The description includes all the elements mandated by paragraph 30 of the annex to decision 15/CMP.1. The NC8 also contains a reference to the description of the national system provided in the national inventory report of the 2022 annual submission, submitted in 2022.[7] The ERT took note of the review of the changes to the national system reflected in the report on the individual review of the 2022 annual submission of Lithuania.

(b) Assessment of adherence to the reporting guidelines

23. The ERT assessed the information reported in the NC8 of Lithuania and recognized that the reporting is complete and transparent, and thus adheres to the reporting guidelines for supplementary information. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

4. National registry

(a) Technical assessment of the reported information

24. In its NC8 Lithuania provided information on how its national registry performs the functions in accordance with the annex to decision 13/CMP.1 in conjunction with decision 3/CMP.11 and the annex to decision 5/CMP.1 and complies with the requirements of the technical standards for data exchange between registry systems. The ERT took note of the review of the changes to the national registry reflected in the report on the individual review of the 2022 annual submission of Lithuania.

(b) Assessment of adherence to the reporting guidelines

25. The ERT assessed the information reported in the NC8 of Lithuania and identified an issue relating to completeness and thus adherence to the reporting guidelines for supplementary information. The finding is described in table I.6.

[7] Available at https://unfccc.int/process-and-meetings/transparency-and-reporting/reporting-and-review-under-the-convention/national-inventory-submissions-2022.

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

1. Technical assessment of the reported information

26. Lithuania reported information on its economy-wide emission reduction target in its BR5. For Lithuania the Convention entered into force on 22 June 1995. Under the Convention Lithuania 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.

27. 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 GWP 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.

28. The EU-wide targets are primarily implemented through the EU ETS and ESD. The EU ETS covers mainly point emissions sources in the energy, industry and aviation sectors. An EU-wide emission cap was put in place for 2013–2020 for the EU ETS with the goal of reducing emissions by 21 per cent below the 2005 level by 2020. For 2030, a reduction target of 63 per cent below the 2005 level has been set for emissions covered by the EU ETS. The ESD became operational in 2013 and covers sectors outside the EU ETS, including transport (excluding international aviation and international maritime transport), residential and commercial buildings, agriculture, small industry and waste. The ESD is regulated through targets for each member State that add up to a reduction at the EU level of 10 per cent below the 2005 level by 2020. The ESR, the successor to the ESD, was adopted in 2018 and amended in 2023 with the target of reducing emissions covered under the ESR by 40 per cent below the 2005 level by 2030. This target is also based on the European Green Deal.

29. The EU generally allows its member States to use units from the Kyoto Protocol 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 and airline operators can use such units to fulfil their requirements under the EU ETS, and member States can use such units for their national ESD targets, within specific limitations.

30. The European Commission set out its vision for a climate-neutral EU in November 2018, and in December 2019 presented the European Green Deal as a road map with actions for making the EU economy sustainable. The European Council endorsed in December 2019 the objective of making the EU climate-neutral by 2050. As part of the European Green Deal, the 2050 climate-neutrality target was made binding in the first European Climate Law, adopted in 2021. It also increased the ambition of the 2030 emission reduction target to at least 55 per cent below the 1990 level. Member States will set out any increased ambition in the update of their national energy and climate plans.

31. Lithuania has a national target of limiting its emission growth to 15 per cent above the 2005 level by 2020 for ESD sectors. This target has been translated into binding quantified AEAs for 2013–2020. Lithuania's AEAs change following a linear path from 12,936.66 kt CO_2 eq in 2013 to 15,240.05 kt CO_2 eq in 2020.[8] Under the ESR, Lithuania has a national target of reducing emissions from covered sectors to 9 per cent below the 2005 level by 2030. According to the National Climate Change Management Agenda, Lithuania has also set a national target for the sectors covered by the ESR of reducing emissions including LULUCF by at least 25 per cent below the 2005 level by 2030.

32. In addition to its national EU ETS and ESR target, Lithuania has set a national target of reducing emissions including LULUCF by 30 per cent below the 2005 level by 2030.

33. In order to achieve the 2020 targets, Lithuania has committed to increasing the country's consumption of RES by 23 per cent by 2020 compared with the 2005 level. Lithuania's final target is to achieve savings of 740 ktoe in total final energy consumption by 2020.

[8] According to the EU transaction log.

34. Lithuania has additional emission reduction commitments beyond 2020. For example, Lithuania has committed to a midterm domestic target of an 85 per cent reduction in emissions below the 1990 level by 2040, as well as a longer-term target of reaching net zero emissions by 2050.

2. Assessment of adherence to the reporting guidelines

35. The ERT assessed the information reported in the BR5 of Lithuania and recognized that the reporting is complete and transparent, and thus adheres 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.

D. Information on policies and measures

1. Technical assessment of the reported information

36. Lithuania provided in its NC8 and BR5 information on its PaMs[9] implemented, adopted and planned to fulfil its commitments under the Convention. Lithuania's set of PaMs is similar to that previously reported, except for the PaMs reported as new or revised, such as the National Climate Change Management Agenda adopted in 2021, which replaced the National Strategy for Climate Change Management Policy for 2013–2050. In the NC8 the Party referred to implemented and adopted measures as "existing" measures.

37. Lithuania reported on its policy context and legal and institutional arrangements in place for implementing its commitments and monitoring and evaluating the effectiveness of its PaMs. During the review, Lithuania indicated that there have been no changes to its institutional, legal, administrative and procedural arrangements used for domestic compliance, monitoring, reporting, archiving of information and evaluation of progress towards its target. State and municipal institutions that were engaged in the implementation of the main climate change management policies until 2020 (i.e. the National Strategy for Climate Change Management Policy for 2013–2050 and the Inter-institutional Action Plan on the Implementation of the Goals and Objectives for 2013-2020) reported to the Government through the monitoring information system and by submitting annual activity reports. The progress of the strategy's implementation was evaluated by the set of criteria established in the Inter-institutional Action Plan. Lithuania also provided information on an ongoing project aimed at developing a new system for monitoring progress towards its target.

38. The Ministry of Environment is the main responsible and coordinating institution for the development of climate change policy and its implementation in Lithuania. Given the multisectoral dimensions of climate change, other ministries and national institutions are also involved in implementing climate change policy. The Ministry of Environment also supervises the Environmental Protection Agency, State Forest Service, Lithuanian Hydrometeorological Service and Environmental Projects Management Agency. Responsibility for preparing information on PaMs and projections primarily lies with the Ministry of Environment, Environmental Protection Agency, Lithuanian Energy Agency, State Forest Service and data providers. Lithuania has also established the National Climate Change Committee to coordinate the formulation and implementation of national policy on climate change management.

39. Lithuania's assessment of the economic and social consequences of its response measures includes impact assessments of new policy initiatives at the EU level, which allows their potential adverse social, environmental and economic impacts on various stakeholders, including developing country Parties, to be identified and limited at an early stage within the legislative process. Impact assessment guidelines specifically address impacts on third countries and issues related to international relations.

40. In its reporting on PaMs, Lithuania provided the estimated emission reduction impacts for only two PaMs for 2020, whereas for 2030 the impacts were estimated for most of the

[9] The UNFCCC reporting guidelines on BRs use the term "mitigation actions", whereas the UNFCCC reporting guidelines on NCs use the term "policies and measures". The terms are used interchangeably in this report to refer to the relevant information in either the NC or BR.

PaMs. Lithuania reported that it is currently working on an ex post analysis of the effect of PaMs for 2020. Where estimated impacts were not provided, the Party supplied an explanation (e.g. for measures with no direct impact on GHG reduction but acting in synergy with other PaMs or educational or information measures that require expensive and time-consuming sociological research).

41. The Party described the different methodologies used for estimating the impacts of its individual or groups of PaMs. These methodologies differ per sector. The overall approach entails first assessing the effects of each individual measure, then aggregating those impacts to determine the total effect. Expert groups from relevant national institutions have also been established with the aim of estimating sectoral parameters and projections for use by the Environmental Protection Agency as the basis for estimating the mitigation effects of planned measures in accordance with the *2006 IPCC Guidelines for National Greenhouse Gas Inventories*. Additionally, planned measures were discussed with various stakeholder groups. The mitigation effects of fiscal measures were evaluated by external experts who analysed the results of applying such measures in other countries and adjusted the information to the national circumstances of Lithuania.

42. 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. The 2021 European Climate Law, which forms part of the European Green Deal, made climate neutrality by 2050 legally binding and raised the EU-wide 2030 emission reduction target to at least 55 per cent compared with the 1990 level. In 2023, the European Parliament adopted a series of legislative proposals, collectively referred to as the Fit for 55 package, intended to help achieve the new 2030 target. These new regulations strengthened both the ESR and EU 2030 targets, extended the EU ETS to include maritime shipping in 2024 and established the Social Climate Fund to address equitability of mitigation impacts. The regulations also created the EU ETS 2 to cover at the point of distribution most fuel used in sectors not covered by the EU ETS, beginning in 2027.

43. The 2021–2030 EU-wide policies are operationalized through the national energy and climate plans of EU member States, which should set out national objectives for each of the five dimensions of the Energy Union, namely energy security; the internal energy market; energy efficiency; decarbonization; and research, innovation and competitiveness. The national energy and climate plans are periodically updated to reflect changes to EU policy, such as the implementation of the European Green Deal. Lithuania's National Energy and Climate Plan specifies the following overall targets until 2030: (1) to reduce GHG emissions from all sectors of the economy by at least 40 per cent below the 1990 level; (2) to reduce GHG emissions by 43 per cent below the 2005 level in sectors covered by the EU ETS; and (3) to reduce GHG emissions by 9 per cent below the 2005 level in sectors covered by the ESD.

44. Furthermore, the National Energy and Climate Plan defines more specific 2030 targets of a 45 per cent share of RES in final energy consumption, a 15 per cent share of renewables in energy used for transport and 15 per cent electricity interconnection. The National Energy and Climate Plan also specifies the objective of achieving climate neutrality by 2050. Lithuania reported on the ongoing process of updating its National Energy and Climate Plan, which entails revising targets and PaMs in order to comply with the EU Fit for 55 package of legislative proposals and the REPowerEU plan, which is expected to be finalized in 2024. Lithuania introduced national-level policies to achieve its targets under the ESR and domestic emission reduction targets.

45. The overarching policy in this context is the National Strategy for Climate Change Management Policy for 2013–2050, adopted in 2012, while the key operational policies reported are the National Waste Management Plan for 2014–2020, the environmental requirements for manure management and the programme to minimize water pollution caused by agricultural activities, with the latter two policies established to transpose the EU nitrates directive to the national level. The mitigation effect of these policies is also the most

significant, as the mitigation impact for 2020 was estimated for two measures only, both of which are related to these policies, namely the measure on implementation of the EU nitrates directive and the measure on the reduction of the quantity of waste sent to landfills.

46. Other policies that have delivered significant emission reductions are still to be identified since Lithuania reported that an ex post analysis of the effects of PaMs has recently been initiated. However, for 2030, the total estimated impact of currently implemented measures is around 4,234 kt CO_2 eq, generated mostly from the energy, transport and IPPU sectors. Implementation of the EU regulation on F-gases and the Kigali Amendment to the Montreal Protocol are actions in the IPPU sector that are expected to have the largest mitigation impact, contributing around 20 per cent to the total aggregated impact of implemented PaMs in 2030. The Party also reported on seven adopted mitigation measures, mostly in the transport, agriculture and LULUCF sectors. However, their expected mitigation impact is lower, at around 420.0 kt CO_2 eq, primarily from the measures in the transport and LULUCF sectors.

47. Lithuania identified 47 planned mitigation actions, most of which are in the transport, agriculture and energy sectors. Overall, the measures are expected to have a significant emission reduction impact of about 3,575 kt CO_2 eq in 2030, with actions in the LULUCF sector, where actions with high impacts are found, contributing more than half of this amount. The ERT identified the measure of awarding one-off compensation to farms for long-term obligations relating to climate change mitigation (the ECO experimental impact scheme) as a planned mitigation action of particular interest because of its significant impact potential. The measure includes implementing 'no tillage' agricultural practices covering large areas of land, namely 650,000 ha by 2030 and 800,000 ha by 2040. Additionally, Lithuania is planning to provide economic support for afforestation, reforestation and forest restoration in 2021–2030, during which 8,000 ha is expected to be forested either by planting new forests or by preserving self-grown areas of trees. Each measure is expected to contribute almost 1,000 kt CO_2 eq in emissions avoided. Mitigation actions in the LULUCF sector, namely in forest land, are therefore expected to have a significant impact potential. The transport sector is the second largest contributor to emission reduction impacts in 2030, followed closely by the agriculture and energy sectors. In terms of individual impact, a notable mitigation action is the annual car pollution tax, which imposes higher taxes on more-polluting vehicles, triggering a switch from gasoline and diesel cars to less-polluting vehicles. This particular measure is expected to result in emission reductions of about 400 kt CO_2 eq in 2030. Table 5 provides a summary of the reported information on the PaMs of Lithuania.

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

Sector	*Key PaMs*	*Estimated mitigation impact in 2020 (kt CO_2 eq)*	*Estimated mitigation impact in 2030 (kt CO_2 eq)*
Policy framework and cross-sectoral measures	National Climate Change Management Agenda	NA	NA
	National Energy and Climate Plan	NA	NA
	National Energy Independence Strategy	NA	NA
	Renewable Energy Breakthrough Package	NA	NA
Energy			
Energy supply and renewable energy	Support scheme for electricity generated from RES (auctions)	NE	240.00
	Development of RES in the Baltic Sea	NE	295.50
Transport	Implementation of measures stipulated in plans for sustainable mobility in cities	NE	243.86
	Annual car pollution tax	NA	401.83
	Vehicle re-registration fee by level of pollution	NE	394.86

Sector	*Key PaMs*	*Estimated mitigation impact in 2020 (kt CO_2 eq)*	*Estimated mitigation impact in 2030 (kt CO_2 eq)*
IPPU	Implementation of the EU regulation on F-gases and implementation of the Kigali Amendment to the Montreal Protocol	NE	900.40
Agriculture	Implementation of the EU nitrates directive	100.00	NE
	Balanced use of mineral fertilizers	NA	269.30
LULUCF	Afforestation and restoration of damaged forests	NA	921.28
	Awarding one-off compensation to farms for long-term obligations relating to climate change mitigation (ECO experimental impact scheme)	NA	938.59
Waste	Reduction of the quantity of waste sent to landfills	451.32	NE

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

2. Assessment of adherence to the reporting guidelines

48. The ERT assessed the information reported in the NC8 and BR5 of Lithuania and identified issues relating to completeness and transparency, and thus adherence to the UNFCCC reporting guidelines on NCs and the UNFCCC reporting guidelines on BRs. The findings are described in tables I.3 and II.1

3. Domestic and regional programmes and legislative arrangements and procedures related to the Kyoto Protocol

(a) Technical assessment of the reported information

49. In its NC8 Lithuania reported that the implementation of the Kyoto Protocol is underpinned by the National Strategy for Climate Change Management Policy for 2013–2050, which sets out the targets and objectives for climate change mitigation and adaptation by 2050, and the National Strategy for the Implementation of the UNFCCC. The overall responsibility for climate change policymaking lies with the Ministry of Environment, and a number of national institutions are involved in policy implementation. The Ministry of Environment is also the main coordinating authority. The Environmental Protection Agency is responsible for preparing the GHG inventory and the projections on the basis of activity data received from data providers, in particular for the energy, industrial processes, agriculture and waste sectors. The State Forest Service is responsible for calculating emissions and removals in the LULUCF sector and in relation to activities under Article 3, paragraphs 3–4, of the Kyoto Protocol. Since 2013, the State Forest Service is also responsible for compiling the projections for the LULUCF sector.

50. For the second commitment period of the Kyoto Protocol, from 2013 to 2020, Lithuania committed to contributing to the joint EU effort to reduce GHG emissions by 20 per cent below the base-year level (see paras. 26–34 above). Lithuania has also set a national target for installations and operators participating in the EU ETS of reducing emissions by at least 50 per cent below the 2005 level by 2030. This new target is based on Lithuania's National Climate Change Management Agenda, approved in 2021.

51. The Party reported on its arrangements and enforcement procedures to meet its commitments under the Kyoto Protocol. In this context, the overarching policy is the National Strategy for Climate Change Management Policy for 2013–2050, whose implementation is coordinated by the Ministry of Environment on the basis of the Inter-institutional Action Plan on the Implementation of the Goals and Objectives for 2013–2020. State and municipal institutions, which are engaged in implementation of the Inter-institutional Action Plan, report to the Government through the monitoring information system and to the Ministry of Environment through annual activity reports.

52. Lithuania has provisions in place to make information on legislative arrangements and administrative procedures related to compliance and enforcement publicly accessible, such as publishing all draft legal acts in the Legislative Information System and all approved legal

acts in the Electronic Legislation Register, which are both publicly available, as well as publishing information on the implementation of the provisions of the Kyoto Protocol and other international climate agreements (e.g. legislation adopted, projects and studies carried out, GHG inventory data, events organized) on the official website of the Ministry of Environment. The Legislative Framework Law establishes requirements for public consultation in the process of preparing national legislation, including legislation related to implementation of the provisions of the Kyoto Protocol, the Paris Agreement and other international climate agreements to which Lithuania is a Party.

53. Lithuania has national legislative arrangements and administrative procedures in place that seek to ensure that the implementation of activities under Article 3, paragraph 3, and any elected activities under Article 3, paragraph 4, of the Kyoto Protocol also contributes to the conservation of biodiversity and the sustainable use of natural resources. Activities related to the conservation of biodiversity and the sustainable use of natural resources are primarily defined in the National Forestry Sector Development Programme for 2012–2020 which is aimed, among other things, at increasing the forest coverage of the country to 34.2 per cent by 2020 through afforestation of abandoned land and land that is not suitable for agricultural activities, with financial support provided via the Rural Development Programme for 2007–2013 and 2014–2020. The Forest Law serves this objective and seeks to prevent deforestation. In 2022 the final draft of the National Agreement on the Future of Forests was developed, which also covers the development of forests that are stable and more resilient to climate change and measures to increase afforestation and protect old forests and biodiversity.

(b) Assessment of adherence to the reporting guidelines

54. The ERT assessed the information reported in the NC8 of Lithuania and recognized that the reporting is complete and transparent, and thus adheres to the reporting guidelines for supplementary information. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

4. Policies and measures in accordance with Article 2 and minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol

(a) Technical assessment of the reported information

55. In the NC8 Lithuania reported information on how it strives to implement PaMs under Article 2 of the Kyoto Protocol in such a way as to minimize adverse effects, including the adverse effects of climate change and effects on international trade and social, environmental and economic impacts on other Parties, especially developing country Parties. The Party reported that minimizing adverse effects is largely governed by EU policy on climate change and by national policies and programmes that affect developing countries, describing the aforementioned EU framework (see para. 39 above). Lithuania also provided information on programmes aimed at minimizing the adverse effects of climate change on developing countries, such as the installation of solar power plants in Armenia, Georgia, Malaysia, Mali, Nigeria and the Republic of Moldova.

56. The NC8 includes information on how the EU promotes and implements the decisions of the International Civil Aviation Organization and the International Maritime Organization to limit emissions from aviation and marine bunker fuels. The Party reported that the monitoring, reporting and verification of information, in the context of marine bunker fuels, is conducted in conformity with the EU regulation on the monitoring, reporting and verification of CO_2 emissions from maritime transport and that national implementation measures are outlined in Order D1-56 of the Minister of Environment on the approval of the content and procedures for monitoring, reporting and verification of CO_2 emissions from maritime transport. With regard to addressing CO_2 emissions from international aviation, the Party reported on the International Civil Aviation Organization's adoption of CORSIA, which obliges airlines to offset the growth of their CO_2 emissions post-2020. It was also reported that all EU member States joined CORSIA at the beginning of 2016. Lithuania also provided basic information on the relevant EU ETS scheme applicable in the context of tackling CO_2 emissions from aviation.

57. Further information on how Lithuania strives to implement its commitments under Article 3, paragraph 14, of the Kyoto Protocol in such a way as to minimize adverse social, environmental and economic impacts on developing country Parties was reported in the 2022 annual submission. Lithuania reported on bilateral and multilateral development cooperation projects in the field of climate change developed in accordance with the Law on Development Cooperation and Humanitarian Assistance and the Directions for the Policy of Development Cooperation in 2019–2021.

(b) Assessment of adherence to the reporting guidelines

58. The ERT assessed the information reported in the NC8 of Lithuania and recognized that the reporting is complete and transparent, and thus adheres to the reporting guidelines for supplementary information. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

E. Estimates of emission reductions and removals and the use of units from market-based mechanisms and land use, land-use change and forestry and progress in achieving the quantified economy-wide emission reduction target

1. Technical assessment of the reported information

59. Lithuania reported in its BR5 that it did not use units from market-based mechanisms under the Kyoto Protocol or other market-based mechanisms under the Convention to meet its commitment under the ESD. It reported in CTF tables 4 and 4(b) that it did not use any units from market-based mechanisms in 2019 or 2020. Given that the contribution of LULUCF activities is not included in the joint EU target under the Convention, reporting thereon is not applicable to Lithuania. Table 6 illustrates Lithuania's ESD emissions and use of units from market-based mechanisms for achieving its ESD target.

Table 6
Summary of information on emissions covered by the European Union effort-sharing decision annual emission allocation and use of units from market-based mechanisms by Lithuania
(kt CO_2 eq)

Year	*ESD emissions*	*AEA*	*Use of units from market-based mechanisms*	*AEAs transferred to (–) or from (+) other Parties*	*Annual AEA surplus/deficit*	*Cumulative AEA surplus/deficit*
2013	12 449.46	12 936.66	NA	NA	487.20	487.20
2014	12 922.27	13 297.65	NA	NA	375.38	862.58
2015	13 250.96	13 658.63	NA	NA	407.67	1 270.25
2016	13 921.70	14 019.61	NA	NA	97.91	1 368.16
2017	14 132.50	14 125.63	NA	NA	−6.87	1 361.29
2018	14 283.07	14 497.10	NA	NA	214.03	1 575.32
2019	14 298.99	14 868.58	NA	NA	569.59	2 144.91
2020	14 042.97	15 240.05	NA	NA	1 197.08	3 341.99

Sources: Lithuania's BR5 and BR5 CTF table 4(b) and EU transaction log (AEAs).
Note: For a given year, a positive number (surplus) indicates that annual or cumulative ESD emissions were lower than the corresponding AEA or cumulative AEAs, while a negative number (deficit) indicates that annual or cumulative ESD emissions were higher than the corresponding AEA or cumulative AEAs.

2. Assessment of adherence to the reporting guidelines

60. The ERT assessed the information reported in the BR5 of Lithuania and recognized that the reporting is complete and transparent, and thus adheres 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. Assessment of achievement of the quantified economy-wide emission reduction target

61. In assessing the Party's contribution towards achievement of the 2020 joint EU target on the basis of the information reported in its BR5, the ERT noted that, under the EU 2020 climate and energy package, Lithuania committed to limiting its emission growth under the ESD to 15 per cent above the 2005 level by 2020 (see para. 31 above). This target has been translated into binding quantified AEAs for 2013–2020. In 2020 Lithuania's ESD emissions were 7.9 per cent (1,197.08 kt CO_2 eq) below the AEA. Lithuania has a cumulative surplus of 3,341.99 kt CO_2 eq with respect to its AEAs between 2013 and 2020. The ERT noted that the Party did not make use of units from market-based mechanisms in 2020.

62. The ERT noted that the Party reported that the total GHG emissions excluding LULUCF of the EU and including the use of units from market-based mechanisms do not exceed the emission level corresponding to the target in 2020, and thus that the EU has achieved its joint target. See the review report of the BR5 of the EU for further details. Therefore, the ERT concluded that, on the basis of the information reported in the BR5 and provided during the review, Lithuania has met its 2020 commitment under the Convention through its contribution to achieving the joint EU target. The ERT noted that the Party's ESD emissions in 2020 do not exceed the AEA for 2020.

63. Furthermore, Lithuania also exceeded the economy-wide target, as the country reduced its total GHG emissions (excluding LULUCF) by 57.8 per cent below the 1990 level in 2020.

64. With regard to the 2020 EU ETS target, Lithuania committed to reducing GHG emissions by 21 per cent below the 2005 level. Lithuania exceeded this target by reducing emissions in the sectors covered by the EU ETS by 37 per cent below the 2005 level in 2020.

65. Lithuania also met the quantified AEA targets for 2013–2020. During 2017 the shortage was covered with the surplus of AEAs from previous years.

66. In addition, Lithuania exceeded its national renewable energy target of a 23 per cent share by 2020, as the proportion of renewable energy in the country's total energy balance accounted for 27.3 per cent in 2020.

F. Projections

1. Projections overview, methodology and results

(a) Technical assessment of the reported information

67. Lithuania reported in its BR5 and NC8 updated projections for 2025–2040 relative to actual inventory data for 2020 under the WEM scenario. The WEM scenario reported by Lithuania includes PaMs implemented and adopted until 2021.

68. In addition to the WEM scenario, Lithuania reported the WAM scenario. The WAM scenario includes planned PaMs. Lithuania provided a definition of its scenarios, explaining that its WEM scenario includes policies such as the Climate Change Programme, National Energy Independence Strategy and Law on Energy from Renewable Sources, while its WAM scenario includes planned PaMs such as energy efficiency subsidies for non-industrial enterprises and an annual car pollution tax. The definitions indicate that the scenarios were prepared in accordance with the UNFCCC reporting guidelines on BRs.

69. 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 CO_2, CH_4, N_2O, HFCs and SF_6 for 2025–2040. PFC and NF_3 emissions were not reported as these gases do not occur in Lithuania. The projections are also provided in an aggregated format for each sector. During the review, the Party confirmed that GWP values from the AR4 were used. Lithuania also clarified that indirect CO_2 emissions from non-methane volatile organic compounds were included in the projections under the "2.D.3 other" subcategory (emissions from solvent use, road paving with asphalt, asphalt roofing). The Party reported on factors and activities affecting emissions for each sector.

70. Emission projections related to fuel sold to ships and aircraft engaged in international transport were reported separately and were not included in the totals in the NC8. Emission projections related to international aviation and navigation were reported separately in BR5 CTF tables 6(a) and 6(b).

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

71. The methodology used for the preparation of the projections is almost identical to that used for the preparation of the emission projections for the NC7. Lithuania provided information on changes since the submission of its BR4 in the assumptions, methodologies, models and approaches used for the projection scenarios. During the review, Lithuania also provided information on changes compared with the NC7.

72. The main changes in the assumptions and methodologies used for the projection scenarios in the NC8 compared with the NC7 relate to the use of a more recent base year, an extended time-horizon, updated GDP and population growth rates, a new model for the energy sector that incorporates a more systematic modelling of the types of energy and fuels consumed in Lithuania, updated data and assumptions for passenger cars, updated CO_2 emission factors, an updated methodology for the LULUCF sector that takes into account more detailed activity data on carbon stock (changes) in forests and the inclusion of a WAM scenario and a sensitivity analysis covering all sectors.

73. To prepare its projections, Lithuania relied on key underlying assumptions relating to population growth, household size and economic development (GDP growth rate). During the review, Lithuania also provided information on the assumptions relating to the number of households and heating degree days. The assumptions were updated on the basis of the most recent economic developments known at the time of the preparation of the projections. The Party clarified during the review that no assumptions were reported on international fuel prices as these were not used in the projections.

74. Sensitivity analyses were conducted for a number of important assumptions, such as using higher CO_2 prices under the EU ETS and using alternative activity data as applied by the European Commission in the EU Reference Scenario 2020. The sensitivity analysis showed considerable differences in the projection results. For example, a higher CO_2 price in the energy sector would result in a switch to less CO_2-intensive fuels. The sensitivity analysis also showed the impact on GHG emissions in the IPPU, agriculture, waste and LULUCF sectors when the alternative activity data applied by the European Commission was used.

(c) Results of projections

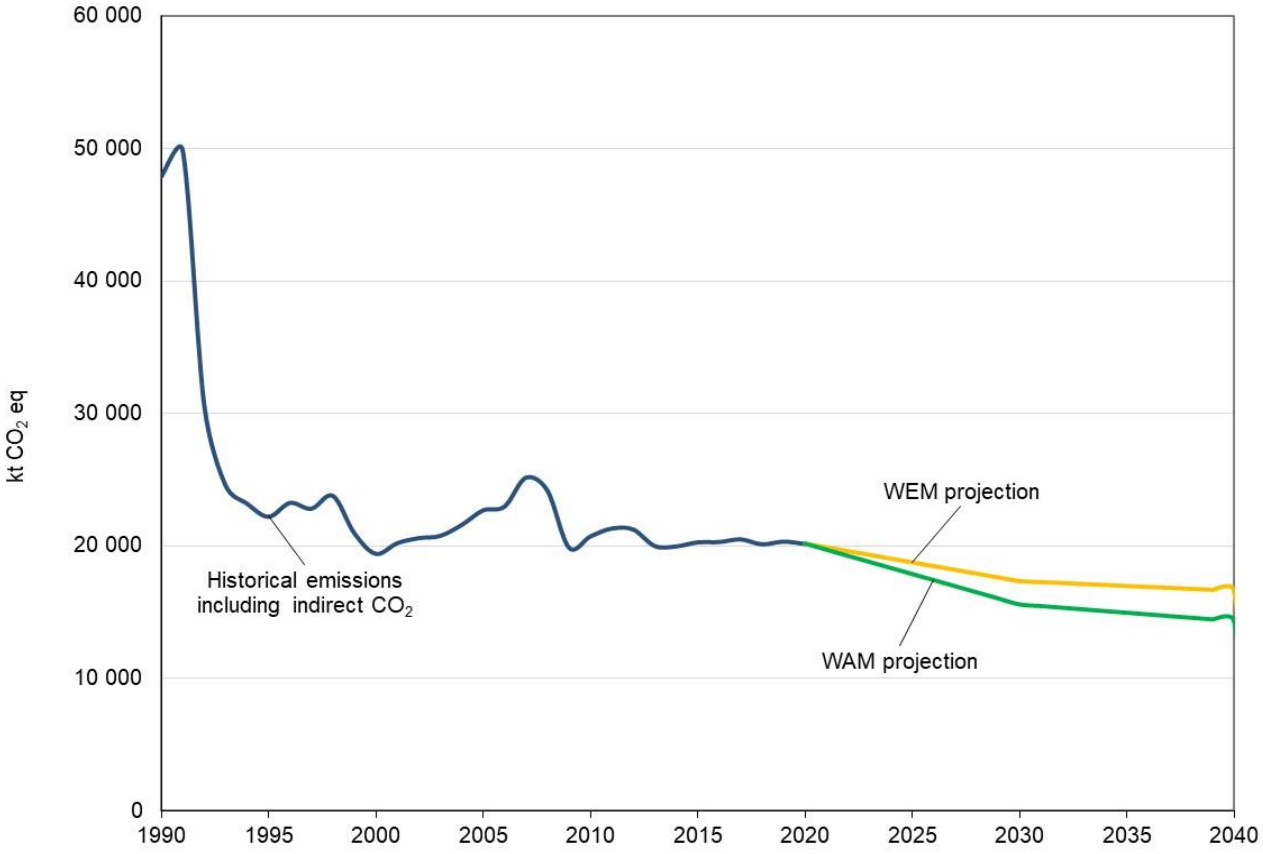
75. The projected emission levels under different scenarios and information on the quantified economy-wide emission reduction target are presented in table 7 and figure 1.

Table 7
Summary of greenhouse gas emission projections for Lithuania

	GHG emissions (kt CO_2 eq/year)	*Change in relation to 1990 level (%)*	*Change in relation to 2020 level (%)*
Inventory data 1990	47 860.89	NA	NA
Inventory data 2020	20 182.55	–57.8	NA
WEM projections for 2030	17 350.52	–63.7	–14.0
WAM projections for 2030	15 596.81	–67.4	–22.7
WEM projections for 2040	16 625.00	–65.3	–17.6
WAM projections for 2040	14 340.00	–70.0	–28.9

Sources: Lithuania's BR5 and BR5 CTF table 6.
Note: The projections are of GHG emissions excluding LULUCF and including indirect CO_2.

Figure 1
Greenhouse gas emission projections reported by Lithuania

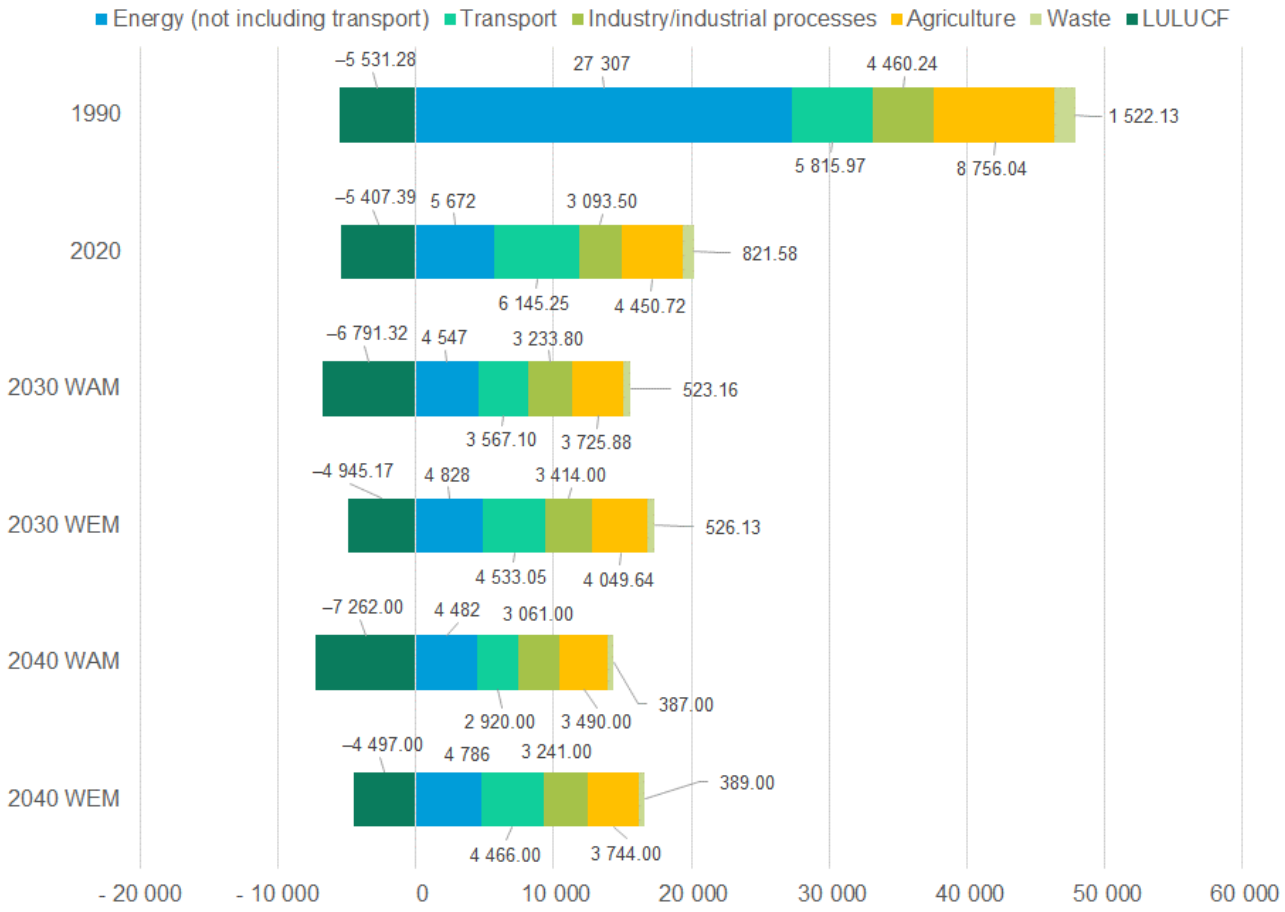


Sources: Lithuania's BR5 and BR5 CTF tables 1 and 6 (total GHG emissions excluding LULUCF and including indirect CO_2).

76. Lithuania's total GHG emissions excluding LULUCF and including indirect CO_2 are projected under the WEM scenario to decrease by 63.7 and 65.3 per cent respectively below the 1990 level in 2030 and 2040. Under the WAM scenario, emissions in 2030 and 2040 are projected to be lower than those in 1990 by 67.4 and 70.0 per cent respectively. When including LULUCF, total GHG emissions including indirect CO_2 are projected under the WEM scenario to decrease by 70.7 and 71.3 per cent respectively below the 1990 level in 2030 and 2040. Under the WAM scenario, emissions in 2030 and 2040 are projected to be lower than those in 1990 by 79.2 and 83.3 per cent respectively.

77. Lithuania presented the WEM and WAM scenarios by sector for 2030 and 2040, as summarized in figure 2 and table 8.

Figure 2
Greenhouse gas emission projections for Lithuania presented by sector
(kt CO_2 eq)



Source: Lithuania's BR5 CTF table 6 (including indirect CO_2).

Table 8
Summary of greenhouse gas emission projections for Lithuania presented by sector

	GHG emissions and removals (kt CO_2 eq)					*Change (%)*			
		2030		*2040*		*1990–2030*		*1990–2040*	
Sector	*1990*	*WEM*	*WAM*	*WEM*	*WAM*	*WEM*	*WAM*	*WEM*	*WAM*
Energy (not including transport)	27 306.52	4 827.73	4 546.91	4 786.00	4 482.00	–82.3	–83.3	–82.5	–83.6
Transport	5 815.97	4 533.05	3 567.10	4 466.00	2 920.00	–22.1	–38.7	–23.2	–49.8
Industry/industrial processes	4 460.24	3 414.00	3 233.80	3 241.00	3 061.00	–23.5	–27.5	–27.3	–31.4
Agriculture	8 756.04	4 049.64	3 725.88	3 744.00	3 490.00	–53.8	–57.4	–57.2	–60.1
LULUCF	–5 531.28	–4 945.17	–6 791.32	–4 497.00	–7 262.00	10.6	–22.8	18.7	–31.3
Waste	1 522.13	526.13	523.16	389.00	387.00	–65.4	–65.6	–74.4	–74.6
Other[a]	707.50	1 010.20	1 010.20	0.00	0.00	42.8	42.8	0.0	0.0
Total GHG emissions excluding LULUCF and including indirect CO_2	**47 860.89**	**17 350.52**	**15 596.81**	**16 625.00**	**14 340.00**	**–63.7**	**–67.4**	**–65.3**	**–70.0**

Source: Lithuania's BR5 CTF table 6.
[a] International aviation and navigation bunkers (not included in the national totals).

78. According to the projections reported for 2030 under the WEM scenario, the most significant absolute emission reductions are expected to occur in the energy sector (including transport) and agriculture, amounting to projected reductions of 82.3 and 53.8 per cent respectively between 1990 and 2030. The pattern of projected emissions reported for 2040 under the same scenario remains the same. According to the projections reported for 2030 under the WAM scenario, the most significant absolute emission reductions are expected to occur in the energy sector (including transport) and agriculture, amounting to projected reductions of 83.3 and 57.4 per cent respectively between 1990 and 2030.

79. The main drivers for the expected emission reductions in the WEM scenario for the energy sector (excluding transport) are the fuel switch to biomass and the increase in electricity production from wind and solar power. Energy efficiency improvements due to the renovation of buildings are also projected to contribute to lower emissions. Additional emission reductions in the WAM scenario result from the renovation of multi-apartment and public buildings, energy efficiency gains made by enterprises, additional support provided for renewable energy production by consumers and the promotion of renewable energy in public heat production.

80. The expected emission reductions in the WEM scenario for the transport sector are mainly due to the improved energy efficiency of vehicles and a decreasing population. In the WAM scenario, additional emission reductions are mainly expected from the annual car pollution tax.

81. In the agriculture sector, the expected emission reductions in the WEM scenario are mostly driven by the decreasing number of dairy cattle, leading to lower CH_4 emissions from enteric fermentation. In the WAM scenario, additional emission reductions are projected from a decreasing use of inorganic nitrogen fertilizers and the application of environmentally friendly technologies and air pollution taxes.

82. Lithuania presented the WEM and WAM scenarios by gas for 2030 and 2040, as summarized in table 9. The pattern of projected emissions reported for 2030 by gas under the WEM scenario is the same as for the projections reported for the sectors that contribute the most to emission reductions. Under the WAM scenario, the pattern of projected emission reductions reported for 2030 and 2040 by gas remains the same.

Table 9
Summary of greenhouse gas emission projections for Lithuania presented by gas

	GHG emissions and removals (kt CO_2 eq)					*Change (%)*			
		2030		*2040*		*1990–2030*		*1990–2040*	
Gas[a]	*1990*	*WEM*	*WAM*	*WEM*	*WAM*	*WEM*	*WAM*	*WEM*	*WAM*
CO_2	35 767.73	11 780.69	10 398.00	11 590.00	9 610.00	–67.1	–70.9	–67.6	–73.1
CH_4	6 945.49	2 540.63	2 501.60	2 289.00	2 249.00	–63.4	–64.0	–67.0	–67.6
N_2O	5 147.67	2 814.45	2 507.19	2 603.00	2 362.00	–45.3	–51.3	–49.4	–54.1
HFCs	NO	208.04	183.31	144.00	120.00	NA	NA	NA	NA
PFCs	NO	NO	NO	NO	NO	NA	NA	NA	NA
SF_6	NO	6.71	6.71	IE[b]	IE[b]	NA	NA	NA	NA
NF_3	NO	NO	NO	NO	NO	NA	NA	NA	NA
Total GHG emissions without LULUCF	**47 860.89**	**17 350.52**	**15 596.81**	**16 672.00**	**14 341.00**	**–63.7**	**–67.4**	**–65.3**	**–70.0**

Sources: Lithuania's BR5 CTF table 6 and BR5 chap. 5.
[a] Lithuania included indirect CO_2 emissions in its projections.
[b] In its BR5 Lithuania reported emissions in 2040 for F-gases at an aggregated level and not by gas/group of gases.

83. The projected emissions reported in the NC8 for 2030 and 2040 are broadly similar to those reported in the BR4 for most sectors under the WEM and WAM scenarios, except for the LULUCF sector. A significant increase in emission reductions is projected for the LULUCF sector in the NC8, but no clarification for this increase was provided in the NC8. Annex V to the NC8 presents a comparison of the key projection parameters used in the WEM scenario for 2030 and 2040 with those used for the projections in the BR4. The main

differences reported are the lower population size (a decrease of 10 and 14 per cent in 2030 and 2040 respectively) and a higher GDP (an increase of 6 per cent in constant prices in 2030 and 2040). Consumption of coal and peat is estimated to be between 23 and 24 per cent lower in 2030 and 2040 respectively, while final energy consumption in agriculture and forestry is projected to increase by 45 per cent in 2030 as well as 2040. In the NC8 the Party also reported on the discontinuation of lime and photovoltaic production after 2019. Generation of municipal solid waste reported in the NC8 is assumed to be much lower owing to a lower population size (a decrease of 14 and 30 per cent in the generation of municipal solid waste in 2030 and 2040 respectively).

(d) Assessment of adherence to the reporting guidelines

84. The ERT assessed the information reported in the NC8 and BR5 of Lithuania and identified issues relating to completeness and transparency, and thus adherence to the UNFCCC reporting guidelines on NCs and the UNFCCC reporting guidelines on BRs. The findings are described in tables I.4 and II.4.

2. Assessment of the total effect of policies and measures

(a) Technical assessment of the reported information

85. In its NC8 Lithuania presented the estimated and expected total effect of implemented, adopted and planned PaMs. Information is presented in terms of GHG emissions avoided or sequestered, by gas (on a CO_2 eq basis), in 2030, compared with a measure-specific baseline scenario or compared with a base year (mostly 2019) for other measures. During the review, Lithuania provided the total effect of PaMs for 2025, 2035 and 2040. It also presented relevant information on factors and activities for each sector for 1990–2030. It also indicated which mitigation actions are projected to contribute the most to the estimated and expected total effect of PaMs in 2030.

86. Lithuania reported that the total estimated effect of its implemented and adopted PaMs in 2030 is 4,652.60 kt CO_2 eq. When including planned PaMs, the total estimated effect is 8,227.10 kt CO_2 eq. According to the information reported in its NC8, PaMs implemented and planned in the energy, transport and LULUCF sectors will deliver the largest emission reductions. Table 10 provides an overview of the total effect of PaMs as reported by Lithuania.

Table 10
Projected effects of Lithuania's planned, implemented and adopted policies and measures in 2030 and 2040
(kt CO_2 eq)

	2030		*2040*	
Sector	*Effect of implemented and adopted measures*	*Effect of planned measures*	*Effect of implemented and adopted measures*	*Effect of planned measures*
Energy (without transport)	1 606.50	496.90	1 606.50	496.90
Transport	1 774.60	564.40	1 774.60	564.40
Industry/industrial processes	1 089.60	58.80	1 089.60	58.80
Agriculture	56.40	527.90	57.80	353.80
Land-use change and forestry[a]	105.90	1 923.50	–	–
Waste management	19.60	3.00	15.20	2.10
Total	**4 652.60**	**3 574.50**	**4 543.70**	**1 476.00**

Source: Lithuania's NC8 (data for 2040 were provided to the ERT during the review).
[a] The Party did not report on the projected effects of PaMs in the land-use change and forestry sector for 2040.

(b) Assessment of adherence to the reporting guidelines

87. The ERT assessed the information reported in the NC8 of Lithuania and identified an issue relating to completeness and thus adherence to the UNFCCC reporting guidelines on NCs. The finding is described in table I.4.

3. Supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17 of the Kyoto Protocol

(a) Technical assessment of the reported information

88. In the NC8 Lithuania provided information on how its use of the mechanisms under Articles 6, 12 and 17 of the Kyoto Protocol is supplemental to domestic action, although it did not elaborate on supplementarity as such. The ERT noted that Lithuania does not plan to use market-based mechanisms to meet its Kyoto Protocol target. Lithuania's 2020 Kyoto Protocol target for the second commitment period was met entirely by domestic action.

89. For the second commitment period of the Kyoto Protocol, Lithuania implemented 11 joint implementation projects.

(b) Assessment of adherence to the reporting guidelines

90. The ERT assessed the information reported in the NC8 of Lithuania and recognized that the reporting is complete and transparent, and thus adheres to the reporting guidelines for supplementary information. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

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

91. Lithuania is not an Annex II Party and is therefore not obliged to adopt measures and fulfil obligations defined in Article 4, paragraphs 3–5, of the Convention. However, Lithuania provided information in its NC8 and BR5 on its provision of support to developing country Parties. The ERT commends Lithuania for reporting this information and suggests that it continue to do so in future NCs. Lithuania reported that the Law on Development Cooperation and Humanitarian Assistance, which was updated in 2022, provides the overarching framework and goals for development cooperation. Mitigation and adaptation measures are one of the Party's priority areas of development cooperation. The recent updates to the Law include the establishment of a new fund aimed at building capacity for implementing larger-scale projects and programmes in collaboration with key partners.

92. In its NC8 Lithuania provided information on financial resources related to the implementation of the Convention through bilateral, regional and multilateral channels in 2019 and 2020. Since 2018 Lithuania has voluntarily doubled its climate finance to developing countries, with the intention to mobilize EUR 1 million for climate financing from public and private sources annually until 2020. Multilateral support was provided through the World Bank, the European Bank for Reconstruction and Development and the Eastern Partnership Technical Assistance Trust Fund. Bilateral and regional support was focused on increasing the use of renewable energy in the energy sector, for example by constructing solar power plants and biomass boilers. Financial support was provided to Armenia, Georgia, Malaysia, Mali, Nigeria and the Republic of Moldova.

93. Lithuania also provided information on its capacity-building activities, including support provided to strengthen hydrometeorological and climate services in Azerbaijan and improve waste management practices in Serbia.

H. Vulnerability assessment, climate change impacts and adaptation measures

1. Technical assessment of the reported information

94. In its NC8 Lithuania provided information on the expected impacts of climate change in the country; the adaptation policies covering regional, sectoral and cross-sectoral vulnerabilities and considerations; and an outline of the action taken to implement Article 4, paragraph 1(b) and (e), of the Convention regarding adaptation. Lithuania provided a description of climate change vulnerability and impacts in relation to agriculture, public health, energy, industry, transport, communications infrastructure, forestry, ecosystems,

biodiversity, landscape, water resources and coastal zones and highlighted the adaptation response actions taken and planned at different levels of government.

95. Impetus has been given to addressing adaptation matters with the adoption of the National Climate Change Agenda (until 2050) and the National Energy and Climate Plan for 2021–2030, which were adopted in 2021 and 2019 respectively. The National Climate Change Management Agenda was set up with the aim of addressing short-, medium- and long-term mitigation and adaptation targets. The goal of Lithuania's policy on adaptation to climate change is to reduce the current and foreseeable vulnerability of the country's natural ecosystems and economic sectors and to strengthen adaptive capacity. Research on climate projections was carried out within the framework of the Environment, Energy and Climate Change programme, which includes activities to strengthen the capacity of municipalities to adapt to climate change as part of the ClimAdapt-LT project. The research found that the average annual temperature in Lithuania could increase by almost 7.3 °C by 2100. Rising temperatures will increase the risk of heatwaves. The vegetation growing season is projected to become longer owing to climate change and is projected to increase the most in western Lithuania, to between 260 and 270 days per year. The number of heating days is projected to decrease as the climate changes, with longer warming periods in the hilly eastern and mid-western regions of Lithuania and shorter periods in the coastal and central/southern lowlands until the end of the twenty-first century.

96. In the same time frame, average annual precipitation in Lithuania is projected to increase by 6–14 per cent, with the largest increase in precipitation projected for October to May, while July–August is characterized by a decrease in precipitation. The number of days with snow cover will decrease markedly from eight weeks to between one and five weeks per year. By the end of the twenty-first century, snow cover in south-western and central Lithuania is projected to almost disappear. Climate change is projected to lead to an average sea level rise in the Baltic Sea of between 22 to 35 cm. The existing seasonality of sea level rise, with higher sea levels observed during the storm season (October–January) and lower sea levels observed during the spring (April–May), is projected to continue throughout the twenty-first century, with slightly higher sea level rise expected during the storm season.

97. According to Lithuania's NC8, the changing climate parameters, including rising temperatures, an increase in heatwaves, extreme weather events, hurricane-force winds, thunderstorms, floods and the length of the vegetation growing season, as well as snow cover variability and a rising river level, are expected to have an impact on all sectors of society. The Party reported that the Ministry of Environment is the main coordinating institution responsible for developing climate change mitigation and adaptation policy and its implementation, transposing EU climate policy legislation into national legislation and advising other institutions on integrating climate policy objectives and concerns into sectors that are not under the responsibility of the Ministry of Environment.

98. Table 11 summarizes the information on vulnerability and adaptation to climate change presented in the NC8 of Lithuania.

Table 11
Summary of information on vulnerability and adaptation to climate change reported by Lithuania

Vulnerable area	*Examples/comments/adaptation measures reported*
Agriculture and food security	Vulnerability: Risk of air temperature rises, heatwaves, high water temperatures in summer and temperature rises in winter, storms, hurricane-force winds, thunderstorms and hail, heavy and increased annual precipitation, floods, droughts, snow cover variability and increased length of the vegetation growing season; adverse impacts of extreme weather events on the pattern and productivity of crops/pasture, livestock and forests resulting in reduced crop yields and loss of biodiversity.
	Adaptation: Flood protection measures; building flood barriers and raising the height of embankments to protect areas from sea level rise; cultivating drought-tolerant crop varieties; selecting storm- and fire-resistant tree species and forestry methods.
Biodiversity and natural ecosystems	Vulnerability: Risk of sea level rise, warming of lakes and rivers, air temperature rises, heatwaves, storm and hurricane-force winds, hail and droughts; increasing heat islands in cities causing displacement, loss of species and land degradation.

Vulnerable area	*Examples/comments/adaptation measures reported*
	Adaptation: Protective or recovery actions; environmental management plans.
Coastal zones	Vulnerability: Risk of frequent floods in coastal regions owing to sea level rise and winter storms; adverse impacts on fish resources owing to water mineralization (Curonian Lagoon).
	Adaptation: Applying coastal management measures based on natural analogues.
Energy	Vulnerability: Risk of extreme weather events causing energy supply disruptions; increase in electricity demand for cooling because of higher summer temperatures; damage to electric power lines caused by extreme weather events.
	Adaptation: Ensuring sufficient energy reserves; management and technical measures; technological and structural measures; training and education; innovation and research.
Fisheries	Vulnerability: Risk of declining river flow and extreme water level fluctuation causing changes in fish distribution and disappearance of local species.
	Adaptation: Increasing resilience to climate change with a view to ensuring a favourable environment for public life and sustainable economic activity to ensure food production is not endangered.
Forests	Vulnerability: Elevated risk for young forests owing to an increase in extreme events (floods and heatwaves); destruction of plant species owing to frost and ice.
	Adaptation: Selecting storm- and fire-resistant tree species and forestry methods.
Human health	Vulnerability: Risk of direct public health threats (injury and illness) as a result of extreme weather events, such as heatwaves, and daily temperature variations that cause migraines.
	Adaptation: Implementing cost-effective mitigation measures; increasing awareness of resilience to and preparedness for climate-related hazards and emergencies.
Infrastructure and economy	Vulnerability: Risk of extreme weather conditions disrupting air, water, rail and road traffic, including rail buckling and damage to road surfaces due to temperature fluctuations; traffic delays, interruptions and diversions caused by extreme weather events; failure to impose road traffic restrictions during hot weather resulting in damage to road surfaces, which is costly to repair.
	Adaptation: Ensuring the resilience of engineering infrastructure; implementing cost-effective mitigation measures; increasing awareness; ensuring planning for disaster risk management.
Water resources	Vulnerability: Risk of reduced groundwater supplies and greater variability in river flows over time, with increased frequency of extreme floods and droughts
	Adaptation: Flood risk management; drainage system optimization.

99. Lithuania provided a description of regional adaptation activities, including information on national adaptation planning, strategies and actions reported to the European Environment Information and Observation Network. Lithuania also provided information on bilateral cooperation with developing countries on adaptation, such as the Climate Change Programme administered by the Ministry of Environment, which is the primary instrument to support climate-related activities in developing countries. As explained in the NC8 (chap. 7), Lithuania's decision to focus on bilateral support was due to recent legislation and policy adopted by the Government. National legislation such as the Law on Climate Change Management also states that the funds for the Climate Change Programme may be used for climate change mitigation and adaptation measures in developing countries in accordance with EU legislation and international agreements. The ERT noted that providing a cross reference in the chapter on vulnerability and adaptation to the relevant sections of the NC where this information is reported would further improve the transparency of the Party's reporting in the NC.

2. Assessment of adherence to the reporting guidelines

100. The ERT assessed the information reported in the NC8 of Lithuania and identified issues relating to transparency and thus adherence to the UNFCCC reporting guidelines on NCs. The findings are described in table I.5.

I. Research and systematic observation

1. Technical assessment of the reported information

101. In its NC8 Lithuania provided information on its general policy and funding relating to research and systematic observation and both domestic and international activities, including contributions to the European Social Fund Agency and the EU Horizon 2020 research and innovation programme. Lithuania also provided information on the identification of opportunities for and barriers to free and open international exchange of data and information and on action taken to overcome such barriers.

102. Lithuania has implemented international and domestic policies and programmes on climate change research, systematic observation and climate modelling that aim to advance capabilities to predict and observe the physical, chemical, biological and human components of the Earth's system over space and time. The Research Council of Lithuania is the main national institution that provides funding for research and development in the country. It oversees research and knowledge exchange functions in relation to universities and research institutes, which includes providing block grant funding. The Research Council of Lithuania approved a list of national research programmes in 2013, namely Modernity in Lithuania, Welfare Society, Towards Future Technologies, Healthy Ageing and Sustainability of Agro-forest and Aquatic Ecosystem, which finance large-scale research and continue the work conducted under previous national research programmes. In its NC8 Lithuania reported on a large number of research institutes and universities that carry out research on climate-smart sustainable management of agricultural soils, ecosystem-based adaptation of forests, management of GHG emissions, modelling of compound climate and weather events, decarbonization of the Baltic states, and impacts of climate change on the sustainability of aquatic vegetation.

103. In terms of activities related to systematic observation, Lithuania reported on national plans, programmes and support for ground- and space-based climate observing systems, including satellite and non-satellite climate observation. Lithuania also reported on challenges related to the maintenance of a consistent and comprehensive observation system. In the NC8 the Party reported that national activities related to the Global Climate Observing System are coordinated by the Lithuanian Hydrometeorological Service under the Ministry of Environment, which conducts climate observations, analyses climate change, shares relevant findings from the previously mentioned activities and actively participates in the activities of Northern European working groups. The Vilnius meteorological station is included in the Global Climate Observing System Surface Network, thereby contributing to studying the surface-based atmospheric essential climate variables, which are continuously observed (i.e. precipitation, surface pressure, surface radiation, surface wind speed and direction, surface temperature and surface water vapour). The Lithuanian Hydrometeorological Service continues to have bilateral agreements with institutions in Latvia (the Latvian Environment, Geology and Meteorology Centre) and Poland (the Institute of Meteorology and Water Management), which facilitates an improvement in the quality and timeliness of information provided by all sides, enabling partnerships to be formed, and stimulates the sustainable development of those countries and decision-making related to the ecological economy and climate change.

104. The NC8 reflects actions taken to support capacity-building and the establishment and maintenance of observation systems and related data and monitoring systems in developing countries. Lithuania provided funding for scientists from developing countries working on global climate change research. In the NC8 (chap. 7) Lithuania referred to the support provided for capacity-building projects. Lithuania's climate-related development cooperation has steadily increased over recent years. In addition, Lithuania shares its expertise through EU instruments, including the EU-funded Twinning programme, which supports cross-border cooperation between institutions, strengthens the administrative capacity of beneficiary countries and helps them implement the necessary reforms. The ERT noted that providing a cross reference in the chapter on research and systematic observation to the relevant sections of the NC where this information is reported would further improve the transparency of the Party's reporting in the NC.

2. Assessment of adherence to the reporting guidelines

105. The ERT assessed the information reported in the NC8 of Lithuania and recognized that the reporting is complete and transparent, and thus adheres to the UNFCCC reporting guidelines on NCs. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

J. Education, training and public awareness

1. Technical assessment of the reported information

106. In its NC8 Lithuania provided information on its actions relating to education, training and public awareness at the domestic and international level. The Party provided information on the general policy on education, training and public awareness; primary, secondary and higher education; public information campaigns; training programmes; education materials; resource or information centres; the involvement of the public and non-governmental organizations; and its participation in international activities. According to the NC8, the Ministry of Education, Science and Sport is responsible for implementing the national system of formal and informal education, which creates conditions for lifelong learning, implements the State policy on science and studies and coordinates the activity of Lithuanian academic and research institutions.

107. Lithuania's Ministry of Education, Science and Sport funds the National Agency for Education, whose responsibilities include monitoring education; national and international education research; and content development and implementation for various educational levels. The Lithuanian school system is structured to achieve learning outcomes related to climate change themes, environmental sustainability and sustainable development. Sustainable development topics have been integrated into the curricula and learning materials of vocational educational institutions, one of which is implementing the international project European Climate Initiative: Together for a Harmonious School. Higher education and research institutions form the framework of the Lithuanian research system. In 2020, Lithuanian universities signed an agreement on climate change in which they committed to reducing GHG emissions and conducting more scientific research on climate change. These institutions are also planning to collaborate in order to raise public awareness and strengthen the role of scientists in policymaking. Lithuania holds an annual Climate Week event initiated by the Ministry of Environment, timed to coincide with the International Day of Climate Action.

108. The Party reported on domestic and international campaigns, programmes and conferences, which bring together an increasing number of scientists, politicians, public figures and the general public. Lithuania reported in its NC8 on implementation of the Environment, Energy and Climate Change programme by the Ministry of Environment. The programme includes activities under the ClimAdapt-LT project to strengthen the capacity of municipalities to adapt to climate change, funded by the European Economic Area and Norwegian Financial Mechanism. Among other things, the project is aimed at raising the awareness of municipalities and the public about the importance of climate change adaptation measures. In 2021 the Lithuanian Children and Youth Centre invited schools with students aged 14–18 to participate in the international sustainable development education project European Climate Initiative: Together for a Sustainable School, with the objective of developing competences that can help people to assess their actions and their social, cultural, economic and ecological impact on the environment and the world.

109. Public awareness campaigns have made use of social media tools as well as live online discussions and presentations. Campaigns held include the European Mobility Week, Mobile Climate Museum, National Reforestation Day, European Week for Waste Reduction, Earth Hour, Ėjimas walking events and Velomarathon. As part of its environmental obligations under EU policy, Lithuania ensures public access to information through online portals that provide information on climate change. Vilnius University operates a blogging platform entitled Climate Change Group, which brings together the university's researchers and students who are interested in climate change, the latest climatological and sociological

research and policy agreements. The ERT noted an improvement in the Party's reporting on the extent of public participation in the preparation of the NC8.

110. Non-governmental organizations in Lithuania participate in climate change actions, organize events on public education, collaboration and sharing of experience related to climate change, participate in the development of national and international legislation, prepare and issue publications on the changing climate, its consequences and preventive measures, and participate in other projects related to raising awareness on climate change.

2. Assessment of adherence to the reporting guidelines

111. The ERT assessed the information reported in the NC8 of Lithuania and recognized that the reporting is complete and transparent, and thus adheres to the UNFCCC reporting guidelines on NCs. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

III. Conclusions and recommendations

112. The ERT conducted a technical review of the information reported in the NC8 of Lithuania in accordance with the UNFCCC reporting guidelines on NCs. The ERT concluded that the reported information mostly adheres to the UNFCCC reporting guidelines on NCs and that the NC8 provides an overview of the national climate policy of Lithuania.

113. The information provided in the NC8 includes most of the elements of the supplementary information under Article 7, paragraph 2, of the Kyoto Protocol. Lithuania reported on the national system, the national registry, supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17 of the Kyoto Protocol, PaMs in accordance with Article 2 of the Kyoto Protocol, domestic and regional programmes and/or legislative arrangements and enforcement and administrative procedures, information under Article 10 of the Kyoto Protocol, and financial resources provided to developing country Parties. Supplementary information under Article 7, paragraph 1, of the Kyoto Protocol on the minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol was provided by Lithuania in its 2022 annual submission.

114. The ERT conducted a technical review of the information reported in the BR5 and BR5 CTF tables of Lithuania in accordance with the UNFCCC reporting guidelines on BRs. The ERT concluded that the reported information mostly adheres to the UNFCCC reporting guidelines on BRs and that the BR5 and its CTF tables provide 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 the progress of Lithuania towards achieving its target.

115. In its NC8 Lithuania reported on its key national circumstances related to GHG emissions and removals, including its National Climate Change Management Agenda, which lays down the targets and objectives for climate change mitigation and adaptation by 2050. Lithuania has experienced significant political and economic changes since regaining its political independence in 1990. The country's economy and macroeconomic indicators have generally increased steadily since 1990 owing to the transition to a market economy and Lithuania's accession to the EU in 2004. In 1990–2020, GDP increased by 76.0 per cent, while GHG emissions decreased by 57.8 per cent.

116. Lithuania's total GHG emissions excluding LULUCF covered by its quantified economy-wide emission reduction target were estimated to be 57.8 per cent below its 1990 level in 2020. Emissions peaked in 1991 (49,843.90 kt CO_2 eq) and decreased thereafter. The changes in total emissions were driven mainly by factors such as the transition from a centrally planned economy to a market-based economy through a restructuring of manufacturing industries, energy industries and the agriculture sector. The restructuring of the economy resulted in a dramatic decrease in Lithuania's emissions from the peak level in 1991. National GHG emissions excluding LULUCF have stabilized at approximately 20,000 kt CO_2 eq/year over the past decade.

117. As reported in the BR5, under the Convention Lithuania committed to contributing to the achievement of the joint EU quantified economy-wide target of a 20 per cent reduction in emissions below the 1990 level by 2020. The target covers all sectors and CO_2, CH_4, N_2O, HFCs, PFCs and SF_6, expressed using GWP values from the AR4. Emissions and removals from the LULUCF sector are not included. Under the ESD Lithuania has a target of limiting its emission growth to 15 per cent above the 2005 level by 2020.

118. In addition to its ESD target, Lithuania committed to increasing the country's consumption of renewable energy by 23 per cent by 2020 compared with 2005. Lithuania's final target is to achieve savings of 740 ktoe in total final energy consumption by 2020. The EU has a joint 2030 emission reduction target of at least 55 per cent below the 1990 level. This will be primarily implemented through the EU ETS and ESR, which have targets to reduce emissions by 2030 by 62 and 40 per cent respectively compared with the 2005 level. Lithuania has also committed to a midterm domestic target of an 85 per cent reduction in emissions below the 1990 level by 2040, as well as a longer-term target of reaching net zero emissions by 2050.

119. The ERT noted that the total GHG emissions of the EU excluding LULUCF do not exceed the emission level corresponding to the target in 2020, and thus that the EU has achieved its joint target. The ERT therefore concluded that Lithuania has met its 2020 commitment under the Convention through its contribution to achieving the joint target of the EU. See the review report of the BR5 of the EU for further details. The ERT noted that the Party met its 2020 ESD target because its ESD emissions in 2020 do not exceed its AEA for 2020.

120. The GHG emission projections provided by Lithuania in its NC8 and BR5 correspond to the WEM and WAM scenarios. Under the WEM scenario, emissions (excluding LULUCF) in 2030 are projected to be 63.7 per cent below the 1990 level and 14.0 per cent below the 2020 level. Under the WAM scenario, emissions in 2030 are projected to be 67.4 per cent below the 1990 level and 22.7 per cent below the 2020 level.

121. Lithuania's main policy framework relating to energy and climate change is the National Strategy for Climate Change Management Policy for 2013–2050 (in 2021, this changed to the National Climate Change Management Agenda), implemented through the Inter-institutional Action Plan. The Party described the mitigation actions that it has implemented to help it achieve its 2020 and longer-term targets, which include 59 PaMs covering the energy, transport, IPPU, agriculture, LULUCF and waste sectors. The total and individual effects of implemented PaMs for 2020 were not estimated, except for two measures, namely implementation of the EU nitrates directive and reduction of the quantity of waste sent to landfills. Lithuania further reported that an ex post analysis of the effects of other PaMs has recently been initiated.

122. Lithuania is not an Annex II Party and is therefore not obliged to adopt measures and fulfil obligations defined in Article 4, paragraphs 3–5, of the Convention. However, it provided information in its BR5 and NC8 on its provision of support to developing country Parties, including through bilateral and multilateral channels. Bilateral support is focused on increasing the use of renewable energy and was provided to countries including Armenia, Georgia, Malaysia, Mali and Nigeria.

123. In its NC8 Lithuania provided information on the expected impacts of climate change in the country; the adaptation policies covering regional, sectoral and cross-sectoral vulnerabilities and considerations; and an outline of the action taken to implement Article 4, paragraph 1(b) and (e), of the Convention with regard to adaptation. Lithuania is investing in efforts to understand climate change impacts and is taking action to reduce vulnerability and adapt to a changing climate. The extreme weather scenarios (heatwaves, storms, extreme cold and floods) projected until 2100 are expected to lead to reduced crop yields and loss of biodiversity and to impact the economy and human health. The National Climate Change Management Agenda is an integrated strategy that describes adaptation targets and objectives for sectors that are most vulnerable to climate change (public health, agriculture, forestry), as well as short-term cross-sectoral climate change adaptation targets and objectives.

124. In its NC8 Lithuania provided information on its activities relating to research and systematic observation. Higher education and research institutions form the framework of

the Lithuanian research system. The Research Council of Lithuania is the main national institution that provides funding for research and development in the country. The national research programmes approved by the Research Council include research on adaptation to the impact of climate change and use of ecosystem resources, and controlling and restoring the sustainability of ecosystems. Lithuania actively participates in many international programmes related to climate change (e.g. ClimAdapt-LT, METHAGENE and CLIMPEAT). Lithuania's activities related to the Global Climate Observing System are coordinated by the Lithuanian Hydrometeorological Service under the Ministry of Environment, which conducts climate observations, analyses climate change, provides information on the findings of such observations and analyses, and actively participates in the activities of Northern European working groups.

125. In its NC8 Lithuania provided information on its actions relating to education, training and public awareness. Lithuania has incorporated into the national curriculum learning outcomes such as developing the values, achievements and capacities of students in relation to climate change themes, environmental sustainability and sustainable development. The annual Climate Week event brings together scientists, politicians, public figures and the general public to discuss the strategic goals and measures of Lithuania's climate change policy, climate challenges and opportunities in the forestry, energy, transport, industry and agriculture sectors. Climate change education is also provided through public awareness campaigns and projects organized by various organizations involved in developing climate change policy in Lithuania, including in developing national and international legislation, preparing and issuing publications on the changing climate, its consequences and preventive measures, and participating in other projects related to raising awareness on climate change.

126. In the course of the review, the ERT formulated the following recommendations for Lithuania to improve its adherence to the UNFCCC reporting guidelines on NCs in its next NC:

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

(i) Reporting summary information on GHG emissions in line with the UNFCCC reporting guidelines on NCs, clearly distinguishing between direct and indirect GHG emissions (see issue 1 in table I.2);

(ii) Providing information on emission projections related to fuel sold to aircraft engaged in international transport and on emissions from international navigation and aviation (see issue 5 in table I.4);

(iii) Providing information on the total effect of PaMs for all subsequent years that end in either a zero or a five, extending at least 15 years from the most recent inventory year (see issue 6 in table I.4);

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

(i) Providing information on the source of the GWP values used for compiling the projections (see issue 4 in table I.4);

(ii) Including information on the relevant unit for the projections reported by gas and reporting F-gas emissions separately for HFCs (treating HFCs collectively as a group), SF_6 and NF_3 (see issue 3 in table I.4);

(iii) Including information on the selection criteria used to identify the most vulnerable municipality and the approaches used to transfer the assessment findings to other municipalities under the ClimAdapt-LT project (see issue 1 in table I.5);

(c) To improve the timeliness of its reporting by submitting its next NC on time (see para. 5 above).

127. In the course of the review of Lithuania's NC8, the ERT noted the following findings relating to adherence to the reporting guidelines for supplementary information: issues with the completeness of its reporting relating to:

(a) Information specified in paragraph 32(a–j) of the reporting guidelines for supplementary information in the next NC (see issue 1 table I.6);

(b) Information on how the impacts of PaMs have led to the achievement of the Party's emission reduction commitment under Article 3 (see issue 2 in table I.6).

128. In the course of the review of Lithuania's BR5, the ERT noted the following findings relating to adherence to the UNFCCC reporting guidelines on BRs:

(a) Issues with the completeness of its reporting relating to emission projections related to fuel sold to aircraft engaged in international transport, as well as emissions from international navigation and aviation (see issue 5 in table II.4)

(b) Issues with the transparency of its reporting relating to:

(i) Information on GHG emissions in line with the UNFCCC reporting guidelines on BRs, clearly distinguishing between direct and indirect GHG emissions (see issue 1 in table II.1);

(ii) Ensuring that the values reported in CTF table 4 correspond to the most recent GHG inventory values available at the time of preparation of the BR (see issue 1 in table II.3);

(iii) Consistently applying the definitions of implemented, adopted and/or planned PaMs in accordance with paragraph 11 of the UNFCCC reporting guidelines on BRs (see issue 1 in table II.2);

(iv) Including the relevant unit used for the projections reported by gas and presenting F-gases as HFCs (treated collectively as a group), SF_6 and NF_3 (see issue 3 in table II.4);

(v) Including information on the source of the GWP values used for compiling the projections (see issue 4 in table II.4);

(c) Issues with the timeliness of its reporting (see para. 7 above).

Annex I

Assessment of adherence to the reporting guidelines for the eighth national communication of Lithuania

Tables I.1–I.6 summarize the ERT assessment of adherence to the UNFCCC reporting guidelines on NCs for Lithuania's NC8.

Table I.1
Findings on national circumstances relevant to greenhouse gas emissions and removals from the review of the eighth national communication of Lithuania

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 3 Issue type: completeness Assessment: encouragement	In chapter 2 of the NC8, Lithuania presented information on economic indicators and trends in order to provide context for the country's national circumstances. However, information on GDP per capita (expressed in domestic currency and purchasing power parity) and on energy prices, taxes and subsidies was not provided. The ERT noted that this is not in line with paragraph 3 of the UNFCCC reporting guidelines on NCs. During the review, Lithuania provided information on the country's GDP per capita, data on national electricity and natural gas prices for households and other end users, as well as information on current and planned taxes applied to fossil fuels. The ERT encourages Lithuania to improve completeness by reporting on the country's GDP per capita, energy prices, taxes and subsidies in the next NC.

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

Table I.2
Findings on greenhouse gas inventory information from the review of the eighth national communication of Lithuania

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 5 Issue type: transparency Assessment: recommendation	In chapter 3 of the NC8, Lithuania provided summary information on GHG emissions for 1990–2020 on the basis of its national inventory report submitted in 2022, which is the most recent inventory submission available. The Party did not report direct and indirect GHG emissions separately when presenting the emission totals and the reason for not distinguishing between direct and indirect GHG emissions was not clear to the ERT. During the review, the Party stated that the emission totals reported as being without indirect emissions do in fact include indirect CO_2, as these emissions were reported under category 2.D.3 (other) in Lithuania's 2022 national GHG inventory submission. However, the Party clarified that, following a recommendation from the review report on the 2021 submission, it will reallocate indirect CO_2 from category 2.D.3 (other) to the national totals including indirect emissions in its forthcoming national GHG inventory submission in 2023. To improve the transparency of its next NC, the ERT recommends that the Party report summary information on GHG emissions in line with the UNFCCC reporting guidelines on NCs, clearly distinguishing between direct and indirect GHG emissions.

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

Table I.3
Findings on policies and measures from the review of the eighth national communication of Lithuania

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: encouragement	In its NC8 Lithuania presented all of its sectoral PaMs, but it was not clear to the ERT whether the Party has given priority to the PaMs with the most significant impact on GHG emissions and removals. In response to a question raised by the ERT during the review, the Party explained that the PaMs were not prioritized and that all PaMs included in the NC8 are considered to have an impact on GHG emission reductions. Lithuania also stated that it will consider prioritizing PaMs, or combinations of PaMs, that have the most significant impact on GHG emissions and removals in its future reporting. The ERT encourages Lithuania to improve the transparency of its reporting by prioritizing PaMs, or combinations of PaMs, that have the most significant impact on GHG emissions and removals in its next NC.
2	Reporting requirement specified in paragraph 11 Issue type: transparency Assessment: encouragement	In chapter 4 of the NC8 Lithuania included summary tables of existing and planned PaMs in each sector, while the textual description pertaining to each sector specifies whether the PaMs are adopted or planned. In CTF table 3, however, the status of the PaMs is reported using the definitions recommended in the UNFCCC reporting guidelines on NCs (implemented, adopted and/or planned). The ERT noted that the Party did not use consistent terms for the status of PaMs in line with the definitions recommended in the UNFCCC reporting guidelines on NCs. In response to a question raised by the ERT during the review, the Party explained that the existing PaMs include adopted and implemented measures. A measure is considered implemented once its implementation period is complete, while an adopted measure is a measure for which an official government decision has been made, there is a clear commitment to proceed with implementation and financial resources have been allocated. The Party also acknowledged that the reporting on the status of PaMs could be made more consistent with the terms recommended in paragraph 11 of the UNFCCC reporting guidelines on NCs. The ERT encourages Lithuania to improve the transparency of its reporting by using the definitions of implemented, adopted and/or planned PaMs contained in paragraph 11 of the UNFCCC reporting guidelines on NCs in its next NC.
3	Reporting requirement specified in paragraph 21 Issue type: completeness Assessment: encouragement	In its NC8 Lithuania did not present information on non-GHG mitigation benefits. In response to a question raised by the ERT during the review, the Party explained that its priority was to provide complete and comprehensive information on the mandatory reporting elements set out in the UNFCCC reporting guidelines on NCs, to the extent feasible. Consequently, it did not provide information in its NC8 on most of the non-mandatory elements, such as non-GHG mitigation benefits. The ERT encourages Lithuania to improve completeness by reporting in its next NC on non-GHG mitigation benefits or by providing a justification as to why this information cannot be reported.

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

Table I.4
Findings on projections including aggregate effects of policies and measures reported in the eighth national communication of Lithuania

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 27 Issue type: transparency	In section 5.3 of the NC8 Lithuania presented a sensitivity analysis of the sectoral projections for certain parameters. The NC8 states that the values of the parameters used for the sensitivity analysis were obtained from the European Commission, but the exact source of the information was not provided. During the review, the Party provided information on the data source for the parameters used in the sensitivity analysis, namely the European Commission GAINS model used in the EU Reference Scenario 2020 for non-CO_2 GHG emissions.

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
	Assessment: encouragement	To improve the transparency of its next NC, the ERT encourages the Party to specify the exact data sources for the parameters used in the sensitivity analysis.
2	Reporting requirement specified in paragraph 29 Issue type: transparency Assessment: encouragement	In the NC8 the Party reported that data for 2019 were used as the base year in the models used for the projections. During the review, it became apparent to the ERT that in some cases data for 2020 were used as the base year instead of data for 2019, for example for the projections for the transport sector, natural gas consumption and the modelling of Lithuania's power plants. The Party explained that this was because 2019 was not considered a suitable base year for projections for these areas owing to changed regulations and the economic conditions in 2020. To improve the transparency of its next NC, the ERT encourages the Party to clearly specify the base year or years used for estimating the projections and to provide an explanation in cases where this differs from the most recent inventory year.
3	Reporting requirement specified in paragraph 32 Issue type: transparency Assessment: recommendation	Projections by gas were reported in NC8 table 5-3. However, it was not clear which unit was used in this table for the gases reported. Furthermore, emissions of F-gases were presented as a total and not by group, as PFCs and HFCs (treated collectively), SF_6 and NF_3. During the review, the Party explained that the unit used in table 5-3 was kt CO_2 eq. The Party also provided additional information on the projections of F-gases split into HFCs, SF_6 and NF_3 and clarified that PFC emissions were reported as "NO" for the most recent inventory year used as the basis for the projections. To improve the transparency of its next NC, the ERT recommends that the Party include the relevant unit used for the gases reported and present F-gases as HFCs (treated collectively as a group), SF_6 and NF_3.
4	Reporting requirement specified in paragraph 32 Issue type: transparency Assessment: recommendation	GHG projections were reported by sector in NC8 tables 5-1 and 5-2 and by gas in table 5-3. However, the ERT could not find information in the NC8 on the source of the GWP values used. During the review, the Party explained that the GWP values from the AR4 were used for the projections. To improve transparency, the ERT recommends that the Party include information on the source of the GWP values used for compiling the projections.
5	Reporting requirement specified in paragraph 33 Issue type: completeness Assessment: recommendation	Section 5.1.2.3 of the NC8 mentions, with regard to the projections, that the national totals exclude emissions related to fuel sold to ships and aircraft engaged in international transport. NC8 table 5-9 presents the estimated fuel consumption for international aviation. Information on emissions from international aviation and navigation and fuel sold to ships engaged in international transport was not reported. During the review, the Party provided information on the estimated fuel sold to ships engaged in international transport and the emission projections related to fuel sold to ships and aircraft engaged in international transport. To improve completeness, the ERT reiterates the recommendation from the previous review report that the Party report emission projections related to fuel sold to aircraft engaged in international transport, as well as emissions from international navigation and aviation in its next NC.
6	Reporting requirement specified in paragraph 37 Issue type: completeness Assessment: recommendation	In section 5.2 of the NC8 Lithuania reported on the total effect of PaMs by sector and on a gas-by-gas basis for 2030. The NC8 also indicates that an ex post evaluation of the impact of the PaMs for 2020 is ongoing. However, the total effect of PaMs for 2025, 2035 and 2040 was not reported in the NC8. During the review, the Party provided information on the total effect of PaMs for 2025, 2030, 2035 and 2040. The ERT recommends that the Party report in its next NC the total effect of PaMs for the latest inventory year and subsequent years that end in either a zero or a five, extending at least 15 years from the most recent inventory year, in order to improve completeness.

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
7	Reporting requirement specified in paragraph 39 Issue type: transparency Assessment: encouragement	Annex IV to the NC8 contains summary information on the models and approaches used for the projections for each sector. The ERT noted that the information provided is general in nature, which makes it difficult to obtain a basic understanding of the models and/or approaches used. In addition, the NC8 does not provide clear information on whether or how the models interact with each other and whether, and if so how, interactions with neighbouring countries and/or international trade is taken into account. During the review, the Party explained that the interactions between sectoral models are limited and, where they do occur, this is specified in annex V to the NC8. The Party also clarified that the international fuel trade is not considered in the modelling of the energy sector. The ERT encourages the Party to improve transparency by providing additional information in its next NC on any interactions between models and on the consideration of international trade in the models.
8	Reporting requirement specified in paragraph 40 Issue type: transparency Assessment: encouragement	Section 5.1 of the NC8 describes in general terms the main strengths and weaknesses of the models and approaches used, specifying that their main weakness is that they do not take overlaps and/or synergies between different PaMs into consideration. Annex IV to the NC8 provides information on the individual models and approaches used. However, no information was presented on model-specific strengths and weaknesses. During the review, the Party provided additional information on the specific strengths and/or weaknesses of most of the models used, namely the energy and transport model, private cars model, waste sector model and IPPU and agriculture models and approaches. No information was provided on the specific strengths and weaknesses of the energy model. The ERT reiterates the encouragement from the previous review report for the Party to improve transparency in its next NC by summarizing the strengths and weaknesses of each model or approach used.
9	Reporting requirement specified in paragraph 42 Issue type: completeness Assessment: encouragement	Section 5.4 of the NC8 describes the main differences in the methodologies, assumptions and results between the BR4 and the NC8 and BR5. However, the Party did not provide a comparison with the changes since the NC7. During the review, the Party provided additional information on the main changes in the methodologies and assumptions between the NC8 and BR5 and the NC7 and BR4. The main changes are the use of a more recent base year, an extended time-horizon, updated GDP and population growth rates, a new modelling approach for the energy sector, updated data and assumptions for passenger cars, updated CO_2 emission factors and an updated methodology for the LULUCF sector, and the inclusion of a WAM scenario and a sensitivity analysis covering all sectors. The changes were also reported in the BR4 by comparing the changes with the BR3. The ERT encourages the Party to improve the completeness of its reporting by including in the next NC information on the main differences in the assumptions and methodologies used for the projections compared with the previous NC.
10	Reporting requirement specified in paragraph 43 Issue type: completeness Assessment: encouragement	In section 5.3 of the NC8 the Party provided quantitative information on the sensitivity analysis for the energy, IPPU, agriculture, waste and LULUCF sectors. Qualitative information on the results was provided for the energy sector only. During the review, the Party confirmed that it will also provide qualitative information on the results of the sensitivity analysis for all sectors in its next NC. The ERT recommends that the Party include qualitative information on the results of the sensitivity analysis of the projections for the underlying assumptions in its next NC.
11	Reporting requirement specified in paragraph 44 Issue type: transparency Assessment: encouragement	The Party reported on the key variables and assumptions used in the projections in annex V to the NC8. Historical values and assumptions used for international fuel prices were reported as “NE”, without providing an explanation for doing so. During the review, the Party explained that it reported international fuel prices as “NE” because the projections were compiled without taking into account historical or projected international fuel prices. The Party indicated that international fuel prices will be reported as “NA” in the next NC.

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
		The ERT encourages Lithuania to increase the transparency of its reporting by including a clear explanation in cases where notation keys are used to report the key underlying assumptions.

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

Table I.5
Findings on vulnerability assessment, climate change impacts and adaptation measures from the review of the eighth national communication of Lithuania

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 46 Issue type: transparency Assessment: recommendation	The Party reported on the expected impacts of climate change in section 6.1 of its NC8. The Party also provided information in section 6.2 of the NC8 on action taken to implement Article 4, including on the ClimAdapt-LT project, which is aimed at identifying past and current climate impacts on Lithuanian municipalities, with a focus on extreme events and future climate change impacts. This will be done by conducting an assessment of the impacts for Lithuania's most vulnerable municipality and applying the insights gained to other municipalities. However, the NC8 does not provide information on how the most vulnerable municipality will be identified and how the insights gained will be applied to other municipalities. During the review, Lithuania provided further detail on the action taken to implement Article 4, indicating that the activities related to the ClimAdapt-LT project include the involvement of the Lithuanian Association of Municipalities in the assessment of the vulnerability of municipalities, the preparation of adaptation plans and the transfer of experience to municipal staff in order to raise the awareness of municipalities and strengthen their capacity to adapt to climate change. The results of the project will be included in a sensitivity analysis for all regions, as well as in climate models and adaptation plan modules. In addition, the Party explained that during the NC8 preparation process the final methodology for assessing the most sensitive municipality was not yet known. During the review Lithuania provided further information on the risk assessment criteria used as the basis for selecting the most vulnerable municipality, which will begin to implement the action plan before it is implemented by all other municipalities. To improve the transparency of the next NC, the ERT recommends that the Party describe the selection criteria used to identify the most vulnerable municipality and the approaches used to transfer the assessment findings to other municipalities under the ClimAdapt-LT project.
2	Reporting requirement specified in paragraph 47 Issue type: transparency Assessment: encouragement	Section 6.1 of the NC8 presents information on the climate models used for vulnerability assessments. However, this information was not presented in accordance with the structure suggested in paragraph 47 of the UNFCCC reporting guidelines on NCs. During the review, the Party indicated that it would consider using the structure suggested in paragraph 47 of the UNFCCC reporting guidelines on NCs in its next NC. To improve transparency, the ERT encourages the Party to apply, to the extent possible, the structure suggested in paragraph 47 of the UNFCCC reporting guidelines on NCs in its next NC.

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

Table I.6
Findings on minimization of adverse impacts and supplementary information related to the Kyoto Protocol reported in the eighth national communication of Lithuania

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation*
1	Reporting requirement specified in paragraph 32 Issue type: completeness Assessment: recommendation	Annex I to the NC8 includes information on how Lithuania's national registry performs the functions defined in the reporting guidelines for supplementary information (annex to decision 15/CMP.1). The ERT noted that the Party reported information on the elements listed in paragraph 32(a) and (f–h) of the reporting guidelines for supplementary information in its NC8, but not on paragraph 32(b–e) and (i–j). During the review, Lithuania provided further information on the elements contained in paragraph 32(b–e) and (i–j), including on how its national registry performs the functions defined in the annex to decision 13/CMP.1 and the annex to decision 5/CMP.1, and complies with the requirements of the technical standards for data exchange between registry systems as adopted by the Conference of the Parties and the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol. The ERT recommends that Lithuania improve the completeness of its reporting by providing information on all elements listed in paragraph 32(a–j) of the reporting guidelines for supplementary information in its next NC. The ERT concludes that this potential problem of a mandatory nature does not influence the Party's ability to fulfil its commitments for the second commitment period of the Kyoto Protocol.
2	Reporting requirement specified in paragraph 34 Issue type: completeness Assessment: recommendation	The ERT noted that no information was provided on how the impacts of PaMs have led to the achievement of the Party's emission reduction commitment under Article 3, in accordance with the reporting guidelines for supplementary information. During the review, Lithuania provided further information on how the impacts of PaMs have led to the achievement of its emission reduction commitment under Article 3, in accordance with the reporting guidelines for supplementary information. In particular, Lithuania shared examples of how its PaMs contribute to the sustainable development agenda. In addition, Lithuania noted that the support provided by Lithuania to developing countries to implement renewable energy measures is reported in section 7.1 of the NC8. The ERT recommends that Lithuania improve the completeness of its reporting by including in its next NC information on how the impacts of PaMs have led to the achievement of its emission reduction commitment under Article 3, in accordance with the reporting guidelines for supplementary information. The ERT concludes that this potential problem of a mandatory nature does not influence the Party's ability to fulfil its commitments for the second commitment period of the Kyoto Protocol.

Note: Item listed under reporting requirement refers to the relevant paragraph of the reporting guidelines for supplementary information. The reporting on the requirements not included in this table is considered to be complete and transparent, and thus adheres to the reporting guidelines for supplementary information.

Annex II

Assessment of adherence to the reporting guidelines for the fifth biennial report of Lithuania

The BR5 of Lithuania is the final BR under the measurement, reporting and verification system established under the Convention.[1] Nevertheless, ERTs continue to provide recommendations and encouragements to Parties on completeness, transparency and adherence to the UNFCCC reporting guidelines on BRs. Parties may find these recommendations and encouragements relevant, as appropriate, when preparing their initial biennial transparency report under the enhanced transparency framework of the Paris Agreement. Tables II.1–II.4 summarize the ERT assessment of adherence to the UNFCCC reporting guidelines on BRs for Lithuania's BR5.

Table II.1
Findings on greenhouse gas emissions and trends from the review of the fifth biennial report of Lithuania

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 2 Issue type: transparency Assessment: recommendation	The BR5 states that summary information on national GHG emissions and trends is provided in the NC8. In chapter 3 of the NC8 Lithuania provided summary information on GHG emissions for 1990–2020 on the basis of its national inventory report submitted in 2022, which is the most recent inventory submission available. The Party did not report direct and indirect GHG emissions separately when presenting the emission totals and the reason for not distinguishing between direct and indirect GHG emissions was not clear to the ERT. During the review, the Party stated that the emission totals reported as being without indirect emissions do in fact include indirect CO_2, as these emissions were reported under category 2.D.3 (other) in Lithuania's 2022 national GHG inventory submission. However, the Party clarified that, following a recommendation from the review report on the 2021 submission, it will reallocate indirect CO_2 from category 2.D.3 (other) to the national totals including indirect emissions in its forthcoming national GHG inventory submission in 2023. The ERT recommends that the Party report summary information on GHG emissions in line with the UNFCCC Annex I reporting guidelines on NCs, clearly distinguishing between direct and indirect GHG emissions.

Note: Item 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 and transparent, and thus adheres to the UNFCCC reporting guidelines on BRs.

[1] The Conference of the Parties, by decision 1/CP.24, decided that the final BRs shall be those submitted to the secretariat no later than 31 December 2022 and reaffirmed that, for Parties to the Paris Agreement, following the submission of the final BR, the modalities, procedures and guidelines contained in the annex to decision 18/CMA.1 will supersede the measurement, reporting and verification system established under decision 1/CP.16, paras. 40–47 and 60–64, and decision 2/CP.17, paras. 12–62.

Table II.2
Findings on mitigation actions and their effects from the review of the fifth biennial report of Lithuania

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 6 Issue type: transparency Assessment: recommendation	The BR5 states that information on mitigation actions, including on the PaMs implemented and planned since the NC7 and BR4 to achieve the Party's emission reduction commitment, is contained in chapter 4 of the NC8. The ERT noted inconsistencies in the reporting of the status of PaMs between the BR5 (which refers to chap. 4 of the NC8) and CTF table 3. Chapter 4 of the NC8 (e.g. summary tables on sectoral PaMs) includes information only on existing and planned PaMs, whereas CTF table 3 contains information on implemented, adopted and planned measures. In response to a question raised by the ERT during the review, the Party explained that the existing PaMs include adopted and implemented measures. Lithuania further explained that a measure is considered implemented once its implementation period is complete, while an adopted measure is a measure for which an official government decision has been made, there is a clear commitment to proceed with implementation and financial resources have been allocated. The Party also acknowledged that the reporting on the status of PaMs could be improved and made consistent with the terms recommended in paragraph 11 of the UNFCCC reporting guidelines on NCs. The Party also noted that the status of PaMs is reported correctly in CTF table 3 using the recommended definitions (implemented, adopted and/or planned). The ERT recommends that Lithuania improve the transparency of its reporting by consistently applying the definitions of implemented, adopted and/or planned PaMs in accordance with paragraph 11 of the UNFCCC reporting guidelines on NCs.

Note: Item 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 and transparent, and thus adheres to the UNFCCC reporting guidelines on BRs.

Table II.3
Findings on estimates of emission reductions and removals and on the use of units from market-based mechanisms and land use, land-use change and forestry from the review of the fifth biennial report of Lithuania

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 9 Issue type: transparency Assessment: recommendation	Chapter 2 of the BR5 indicates that summary information on national GHG emissions and trends, prepared in accordance with the "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual greenhouse gas inventories" (decision 24/CP.19), is presented in section 3.1 of Lithuania's NC8. However, the ERT noted that there are inconsistencies between the reported emission totals (excluding LULUCF) in the NC8 and in CTF table 4 for 1990 and 2010–2017. During the review, Lithuania indicated that the values reported in CTF table 4 for 1990 and 2010–2017 were incorrect, while the values reported in the NC8 for those years are correct. The ERT recommends that Lithuania improve transparency by ensuring that the values reported in CTF table 4 correspond to the most recent GHG inventory values available at the time of preparation of the BR.

Note: Item 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 and transparent, and thus adheres to the UNFCCC reporting guidelines on BRs.

Table II.4
Findings on projections reported in the fifth biennial report of Lithuania

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 27 Issue type:	The BR5 states that information on projections in presented in section 5 of the NC8. In section 5.3 of the NC8 Lithuania presented a sensitivity analysis of the sectoral projections for certain parameters. The NC8 states that the values of the parameters used for the sensitivity analysis were obtained from the European Commission, but the exact source of the information was not provided.

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
	transparency Assessment: encouragement	During the review, the Party provided information on the data source for the parameters used in the sensitivity analysis, namely the European Commission GAINS model used in the EU Reference Scenario 2020 for non-CO_2 GHG emissions. To improve the transparency of its reporting, the ERT encourages the Party to specify the exact data sources for the parameters used in the sensitivity analysis.
2	Reporting requirement specified in paragraph 29 Issue type: transparency Assessment: encouragement	The BR5 states that information on projections in presented in section 5 of the NC8. In the NC8, the Party reported that data for 2019 were used as the base year in the models used for the projections. During the review, it became apparent to the ERT that in some cases data for 2020 were used as the base year instead of data for 2019, for example for the projections for the transport sector, natural gas consumption and the modelling of Lithuania's power plants. The Party explained that this was because 2019 was not considered a suitable base year for projections for these areas owing to changed regulations and the economic conditions in 2020. To improve the transparency of its reporting, the ERT encourages the Party to clearly specify the base year or years used for estimating the projections and to provide an explanation in cases where this differs from the most recent inventory year.
3	Reporting requirement specified in paragraph 32 Issue type: transparency Assessment: recommendation	The BR5 states that information on projections in presented in section 5 of the NC8. Projections by gas were reported in NC8 table 5-3. However, it was not clear which unit was used in this table for the gases reported. Furthermore, emissions of F-gases were presented as a total and not by group, as PFCs and HFCs (treated collectively), SF_6 and NF_3. During the review, the Party explained that the unit used in table 5-3 was kt CO_2 eq. The Party also provided additional information on the projections of F-gases split into HFCs, SF_6 and NF_3 and clarified that PFC emissions were reported as "NO" for the most recent inventory year used as the basis for the projections. To improve the transparency of its reporting, the ERT recommends that the Party include the relevant unit used for the gases reported and present F-gases as HFCs (treated collectively as a group), SF_6 and NF_3.
4	Reporting requirement specified in paragraph 32 Issue type: transparency Assessment: recommendation	The BR5 states that information on projections in presented in section 5 of the NC8. GHG projections were reported by sector in NC8 tables 5-1 and 5-2 and by gas in table 5-3. However, the ERT could not find information in the NC8 on the source of the GWP values used. During the review, the Party explained that the GWP values from the AR4 were used for the projections. To improve transparency, the ERT recommends that the Party include information on the source of the GWP values used for compiling the projections.
5	Reporting requirement specified in paragraph 33 Issue type: completeness Assessment: recommendation	The BR5 states that information on projections in presented in section 5 of the NC8. Section 5.1.2.3 of the NC8 mentions, with regard to the projections, that the national totals exclude emissions related to fuel sold to ships and aircraft engaged in international transport. NC8 table 5-9 presents the estimated fuel consumption for international aviation. Information on emissions from international aviation and navigation and fuel sold to ships engaged in international transport was not reported. During the review, the Party provided information on the estimated fuel sold to ships engaged in international transport and the emission projections related to fuel sold to ships and aircraft engaged in international transport. To improve completeness, the ERT reiterates the recommendation from the previous review report that the Party report emission projections related to fuel sold to aircraft engaged in international transport, as well as emissions from international navigation and aviation.
6	Reporting requirement specified in paragraph 39	The BR5 states that information on projections in presented in section 5 of the NC8. Annex IV to the NC8 contains summary information on the models and approaches used for the projections for each sector. The ERT noted that the information provided is general in nature, which makes it difficult to obtain a basic

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
	Issue type: transparency Assessment: encouragement	understanding of the models and/or approaches used. In addition, the NC8 does not provide clear information on whether or how the models interact with each other and whether, and if so how, interactions with neighbouring countries and/or international trade is taken into account. During the review, the Party explained that the interactions between sectoral models are limited and, where they do occur, this is specified in annex V to the NC8. The Party also clarified that the international fuel trade is not considered in the modelling of the energy sector. The ERT encourages the Party to improve transparency by providing additional information on any interactions between models and on the consideration of international trade in the models.
7	Reporting requirement specified in paragraph 40 Issue type: transparency Assessment: encouragement	The BR5 states that information on projections in presented in section 5 of the NC8. Section 5.1 of the NC8 describes in general terms the main strengths and weaknesses of the models and approaches used, specifying that their main weakness is that they do not take overlaps and/or synergies between different PaMs into consideration. Annex IV to the NC8 provides information on the individual models and approaches used. However, no information was presented on model-specific strengths and weaknesses. During the review, the Party provided additional information on the specific strengths and/or weaknesses of most of the models used, namely the energy and transport model, private cars model, waste sector model and IPPU and agriculture models and approaches. No information was provided on the specific strengths and weaknesses of the energy model. The ERT reiterates the encouragement from the previous review report for the Party to improve transparency by summarizing the strengths and weaknesses of each model or approach used.
8	Reporting requirement specified in paragraph 42 Issue type: completeness Assessment: encouragement	The BR5 states that information on projections in presented in section 5 of the NC8. Section 5.4 of the NC8 describes the main differences in the methodologies, assumptions and results between the BR4 and the NC8 and BR5. However, the Party did not provide a comparison with the changes since the NC7. During the review, the Party provided additional information on the main changes in the methodologies and assumptions between the NC8 and BR5 and the NC7 and BR4. The main changes are the use of a more recent base year, an extended time-horizon, updated GDP and population growth rates, a new modelling approach for the energy sector, updated data and assumptions for passenger cars, updated CO_2 emission factors and an updated methodology for the LULUCF sector, and the inclusion of a WAM scenario and a sensitivity analysis covering all sectors. The changes were also reported in the BR4 by comparing the changes with the BR3. The ERT encourages the Party to improve the completeness of its reporting by including information on the main differences in the assumptions and methodologies used for the projections compared with the previous BR
9	Reporting requirement specified in paragraph 43 Issue type: completeness Assessment: encouragement	The BR5 states that information on projections in presented in section 5 of the NC8. In section 5.3 of the NC8, the Party provided quantitative information on the sensitivity analysis for the energy, IPPU, agriculture, waste and LULUCF sectors. Qualitative information on the results was provided for the energy sector only. During the review, the Party confirmed that it will also provide qualitative information on the results of the sensitivity analysis for all sectors in its next NC. The ERT recommends that the Party include qualitative information on the results of the sensitivity analysis of the projections for the underlying assumptions.
10	Reporting requirement specified in paragraph 44 Issue type: transparency Assessment: encouragement	The BR5 states that information on projections in presented in section 5 of the NC8. The Party reported on the key variables and assumptions used in the projections in annex V to the NC8. Historical values and assumptions used for international fuel prices were reported as “NE”, without providing an explanation for doing so. During the review, the Party explained that it reported international fuel prices as “NE” because the projections were compiled without taking into account historical or projected international fuel prices. The Party indicated that international fuel prices will be reported as “NA” in the next NC.

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
		The ERT encourages Lithuania to increase the transparency of its reporting by including a clear explanation in cases where notation keys are used to report the key underlying assumptions.
11	Reporting requirement specified in paragraph 12 Issue type: completeness Assessment: encouragement	The BR5 states that information on projections in presented in section 5 of the NC8. The BR5 indicates that information on changes in the models or methodologies used for the preparation of the projections since the NC7 is contained in the NC8. Section 5.4 of the NC8 describes the main differences in the methodologies, assumptions and results between the BR4 and the NC8 and BR5. However, the Party did not provide a comparison with the changes since the NC7. During the review, the Party provided additional information on the main changes in the methodologies and assumptions between the NC8 and BR5 and the NC7 and BR4. The main changes are the use of a more recent base year, an extended time-horizon, updated GDP and population growth rates, a new modelling approach for the energy sector, updated data and assumptions for passenger cars, updated CO_2 emission factors and an updated methodology for the LULUCF sector, and the inclusion of a WAM scenario and a sensitivity analysis covering all sectors. The changes were also reported in the BR4 by comparing the changes with the BR3. To improve completeness, the ERT encourages the Party to include information on changes since the most recent NC and provide references to supporting documentation.

Note: Item listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on NCs, as per para. 11 of the UNFCCC reporting guidelines on BRs. The reporting on the requirements not included in this table is considered to be complete and transparent, and thus adheres to the UNFCCC reporting guidelines on NCs and on BRs.

Annex III

Documents and information used during the review

A. Reference documents

2022 GHG inventory submission of Lithuania. Available at https://unfccc.int/ghg-inventories-annex-i-parties/2022.

2023 GHG inventory submission of Lithuania. Available at https://unfccc.int/ghg-inventories-annex-i-parties/2023

BR4 of Lithuania. Available at https://unfccc.int/BR4.

BR5 CTF tables of Lithuania. Available at https://unfccc.int/BR5.

BR5 of Lithuania. Available at https://unfccc.int/BR5.

BR5 of the EU. Available at https://unfccc.int/BR5.

"Common tabular format for 'UNFCCC biennial reporting guidelines for developed country Parties'". Annex to decision 19/CP.18. Available at https://unfccc.int/resource/docs/2012/cop18/eng/08a03.pdf.

"Compilation of economy-wide emission reduction targets to be implemented by Parties included in Annex I to the Convention". FCCC/SBSTA/2014/INF.6. Available at http://unfccc.int/resource/docs/2014/sbsta/eng/inf06.pdf.

European Green Deal. European Commission document COM(2019) 640 final. Available at https://ec.europa.eu/info/files/communication-european-green-deal_en.

"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/2019/13/Add.1. Available at https://unfccc.int/documents/210471.

"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.

IPCC. 2006. *2006 IPCC Guidelines for National Greenhouse Gas Inventories*. S Eggleston, L Buendia, K Miwa, et al. (eds.). Hayama, Japan: Institute for Global Environmental Strategies. Available at http://www.ipcc-nggip.iges.or.jp/public/2006gl.

National Energy and Climate Plan of Lithuania. Available at https://energy.ec.europa.eu/system/files/2022-08/lt_final_necp_main_en.pdf.

NC8 of Lithuania. Available at https://unfccc.int/NC8.

NC8 of the EU. Available at https://unfccc.int/NC8.

Report on the individual review of the annual submission of Lithuania submitted in 2019. FCCC/ARR/2019/LTU. Available at https://unfccc.int/documents/209662.

Report on the technical review of the BR4 of Lithuania. FCCC/TRR.4/LTU. Available at https://unfccc.int/documents/250044.

Report on the technical review of the NC8 and the technical review of the BR5 of the EU. FCCC/IDR.8/EU–FCCC/TRR.5/EU. Available at https://unfccc.int/documents/630393.

"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 Jolanta Merkeliene (Ministry of Environment of Lithuania).