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Report of the technical review of the second biennial report of Lithuania

According to decision 2/CP.17, developed country Parties are requested to submit their second biennial report by 1 January 2016, that is, two years after the due date for submission of a full national communication. This report presents the results of the technical review of the second biennial report of 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".

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Contents

I. Introduction and summary

A. Introduction

1. This report covers the centralized technical review of the second biennial report (BR2)[1] of 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" (annex to decision 13/CP.20). In accordance with the same decision, a draft version of this report was communicated to the Government of Lithuania, which provided comments that were considered and incorporated, as appropriate, into this final version of the report.

2. The review took place from 7 to 12 March 2016 in Bonn, Germany, and was conducted by the following team of nominated experts from the UNFCCC roster of experts: Mr. Amr Abdel-Aziz (Egypt), Mr. John Davies (United States of America), Ms. Claudia do Valle Costa (Brazil), Mr. Takeshi Enoki (Japan), Mr. Sandro Federici (San Marino), Mr. Mikhail Gitarskiy (Russian Federation), Ms. Medea Inashvili (Georgia), Ms. Baasansuren Jamsranjav (Mongolia), Ms. Yu'e Li (China) and Mr. Ioannis Sempos (Greece). Mr. Federici and Mr. Gitarskiy were the lead reviewers. The review was coordinated by Mr. Pedro Torres, Ms. Kyoko Miwa and Ms. Xuehong Wang (UNFCCC secretariat).

B. Summary

3. The expert review team (ERT) conducted a technical review of the information reported in the BR2 of Lithuania in accordance with the "UNFCCC biennial reporting guidelines for developed country Parties" (hereinafter referred to as the UNFCCC reporting guidelines on BRs). During the review, Lithuania provided additional information (see paras. 21, 24 and 27 below).

1. Timeliness

4. The BR2 was submitted on 31 December 2015, before the deadline of 1 January 2016 mandated by decision 2/CP.17. The common tabular format (CTF) tables were submitted on 31 December 2015. A revised version of the BR2 was submitted on 4 February 2016.

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

5. Issues and gaps related to the reported information identified by the ERT are presented in table 1 below. The information reported by Lithuania in its BR2 is mostly in adherence with the UNFCCC reporting guidelines on BRs as per decision 2/CP.17.

[1] The biennial report submission comprises the text of the report and the common tabular format (CTF) tables. Both the text and the CTF tables are subject to the technical review.

Table 1
Summary of completeness and transparency issues related to mandatory reported information in the second biennial report of Lithuania

Section of the biennial report	*Completeness*	*Transparency*	*Paragraphs with recommendations*
Greenhouse gas emissions and trends	Complete	Transparent	
Assumptions, conditions and methodologies related to the attainment of the quantified economy-wide emission reduction target	Complete	Mostly transparent	14
Progress in achievement of targets	Mostly complete	Mostly transparent	21, 22, 37, 44
Provision of support to developing country Parties[a]	NA	NA	NA

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

Abbreviation: NA = not applicable.

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

II. Technical review of the reported information

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

6. Lithuania has provided a summary of information on greenhouse gas (GHG) emission trends for the period 1990–2013 in its BR2 and CTF tables 1(a)–(d). The BR2 makes reference to the national inventory arrangements, which are explained in more detail in the national inventory report included in Lithuania's 2015 annual inventory submission (in chapter 1, section 1.2 of the national inventory report submitted by Lithuania on 6 November 2015).

7. The national inventory arrangements were established in accordance with the reporting requirements related to national inventory arrangements contained in the "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual greenhouse gas inventories" that are required by paragraph 3 of the UNFCCC reporting guidelines on BRs. There are no changes in Lithuania's national inventory arrangements since its first biennial report (BR1).

8. The information reported in the BR2 on emission trends for the period 1990–2013 is complete and consistent with that reported in the 2015 annual inventory submission of Lithuania. However, the ERT considers that providing an explanation of trends in the biennial report (BR) would enhance the transparency of the provided information.

9. The ERT noted that, for some sectors, CTF tables 1(c) and 1(d) include two notation keys in the same cell. The ERT also noted that this was the result of subcategory aggregation made by the common reporting format software as it shows a summary of all sub-sectors under each sector. Therefore, more than one notation key could appear for a certain sector in these tables.

10. Total GHG emissions[2] excluding emissions and removals from land use, land-use change and forestry (LULUCF) decreased by 58.3 per cent between 1990 and 2013, whereas total GHG emissions including net emissions or removals from LULUCF decreased by 77.3 per cent over the same period. Emission decreases took place mainly between 1990 and 1995 and were driven by the transition from a centrally planned to a market-based economy and related restructuring of the manufacturing industries, energy industries and agriculture. The decrease in the total GHG emissions can be attributed mainly to carbon dioxide (CO_2) emissions, which decreased by 63.6 per cent (excluding LULUCF) between 1990 and 2013. Over the same period, emissions of methane (CH_4) decreased by 50 per cent, while emissions of nitrous oxide (N_2O) decreased by 38.1 per cent. The combined fluorinated gases, such as perfluorocarbons (PFCs), hydrofluorocarbons (HFCs) and sulphur hexafluoride (SF_6), increased from 3.34 kt CO_2 eq to 320.56 kt CO_2 eq from 1995 to 2013. Nitrogen trifluoride emissions were reported as 'not occurring' for 1990–2012 and estimated at 0.06 kt CO_2 eq in 2013.

11. The ERT noted that, during the period 1990–2013, Lithuania's gross domestic product (GDP) per capita increased by 56.8 per cent, while GHG emissions per GDP and GHG emissions per capita decreased by 66.7 and 47.8 per cent, respectively. The major reason for the decrease in per capita emissions are the structural changes in the energy sector: Lithuania is currently importing over 65 per cent of its electricity, which was not the case in the 1990s; and there has been an increase in renewable energy sources which have, approximately, quadrupled by 2013 compared with 1990. The ERT also noted that emissions from the agriculture sector have decreased significantly in the period 1990–2013 (–48.6 per cent) as a result of reforms adopted in the early 1990s (after the restoration of independence) that aimed to establish private ownership in the agriculture sector. Table 2 below illustrates the emission trends by sector and some of the economic indicators relevant to GHG emissions for Lithuania.

Table 2
Greenhouse gas emissions by sector and some indicators relevant to greenhouse gas emissions for Lithuania for the period 1990–2013

	GHG emissions (kt CO_2 eq)					*Change (%)*		*Share by sector (%)*	
Sector	*1990*	*2000*	*2010*	*2012*	*2013*	*1990–2013*	*2012–2013*	*1990*	*2013*
1. Energy	33 022.87	10 855.37	12 809.31	11 967.48	11 388.75	–65.5	–4.8	69.1	57.1
A1. Energy industries	13 550.21	5 052.13	5 319.23	4 407.34	3 866.82	–71.5	–12.3	28.3	19.4
A2. Manufacturing industries and construction	5 754.63	989.57	1 122.43	1 270.59	1 245.03	–78.4	–2.0	12.0	6.2
A3. Transport	7 704.48	3 460.75	4 593.55	4 585.79	4 584.12	–40.5	0.0	16.1	23.0
A4.–A5. Other	5 835.91	1 091.69	1 465.58	1 394.90	1 375.54	–76.4	–1.4	12.2	6.9
B. Fugitive emissions from fuels	177.65	261.24	308.51	308.85	317.24	78.6	2.7	0.4	1.6
C. CO_2 transport and storage	NO	NO	NO	NO	NO	NA	NA	NA	NA

[2] In this report, the term "total GHG emissions" refers to the aggregated national GHG emissions expressed in terms of carbon dioxide equivalent excluding land use, land-use change and forestry, unless otherwise specified. Values in this paragraph are calculated based on the 2015 inventory submission, 6 November 2015.

Sector	GHG emissions (kt CO_2 eq)					Change (%)		Share by sector (%)	
	1990	*2000*	*2010*	*2012*	*2013*	*1990–2013*	*2012–2013*	*1990*	*2013*
2. IPPU	4 518.17	3 104.89	2 246.22	3 529.86	2 938.11	–35.0	–16.8	9.4	14.7
3. Agriculture	8 622.28	4 006.46	4 473.41	4 482.30	4 429.44	–48.6	–1.2	18.0	22.2
4. LULUCF	–3 876.39	–9 145.41	–11 208.30	–8 919.70	–9 963.98	157.0	11.7	NA	NA
5. Waste	1 648.30	1 604.56	1 377.40	1 262.13	1 189.80	–27.8	–5.7	3.4	6.0
6. Other	NO	NO	NO	NO	NO	NA	NA	NA	NA
Total GHG emissions without LULUCF	47 811.63	19 571.28	20 906.34	21 241.78	19 946.10	–58.3	–6.1	100.0	100.0
Total GHG emissions with LULUCF	43 935.23	10 425.88	9 698.05	12 322.09	9 982.12	–77.3	–19.0	–	–
Indicators									
GDP per capita (thousand 2005 USD using PPP)	12.56	9.56	16.56	18.87	19.69	56.8	4.3	NA	NA
GHG emissions without LULUCF per capita (t CO_2 eq)	12.93	5.59	6.75	7.11	6.74	–47.8	–5.1	NA	NA
GHG emissions without LULUCF per GDP unit (kg CO_2 eq per 2011 USD using PPP)	1.03	0.58	0.41	0.38	0.34	–66.7	–9.1	NA	NA

Sources: (1) GHG emission data: Lithuania's 2015 annual inventory submission, 6 November 2015; (2) GDP per capita data: International Energy Agency.

Note: The ratios per capita and per GDP unit as well as the changes in emissions and the shares by sector are calculated relative to total GHG emissions without LULUCF using the exact (not rounded) values, and may therefore differ from the ratio calculated with the rounded numbers provided in the table.

Abbreviations: GDP = gross domestic product, GHG = greenhouse gas, IPPU = industrial processes and product use, LULUCF = land use, land-use change and forestry, NA = not applicable, NO = not occurring, PPP = purchasing power parity.

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

12. In its BR2 and CTF tables 2(a)–(f), Lithuania reported a description of its target, including associated conditions and assumptions. CTF tables 2(a)–(f) contain the required information in relation to description of the Party's emission reduction target for 2020 and for the base year, and the global warming potential (GWP) values used. Further information on the target and the assumptions, conditions and methodologies related to the target is provided in chapter 2 of the BR2.

13. The ERT noted that CTF table 2(e) does not include the information required by the UNFCCC reporting guidelines on BRs on the possible scale of contributions from market-based mechanisms under the Convention and other market-based mechanisms in its description of the emission reduction target. During the review, Lithuania explained that the use of units from market-based mechanisms to achieve the joint European Union (EU) economy-wide emission reduction target is allowed under certain restrictions (see paras. 15 and 16 below); however, at the time of the BR2 reporting, the information on the use of

units from market-based mechanisms could not be quantified as the compliance assessment for 2013 under the effort-sharing decision (ESD) (see paras. 17 and 18 below) will be undertaken in 2016.

14. The ERT recommends that Lithuania improve the transparency of its reporting and provide information in its next BR on the possible scale of contributions from market-based mechanisms under the Convention and other market-based mechanisms in its description of the emission reduction target.

15. For Lithuania, the Convention entered into force on 22 June 1995. Under the Convention, Lithuania committed to contributing to the achievement of the joint European Union (EU) economy-wide emission reduction target of 20 per cent below the 1990 level by 2020. The EU offered to move to a 30 per cent reduction on the condition that other developed countries commit to a comparable target and developing countries contribute according to their responsibilities and respective capabilities under a new global climate change agreement.

16. The target for the EU and its member States is formalized in the EU 2020 climate and energy package. This legislative package regulates emissions of CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 using GWP values from the Intergovernmental Panel on Climate Change Fourth Assessment Report (AR4) to aggregate the GHG emissions of the EU up to 2020. Emissions and removals from the LULUCF sector are not included in the quantified economy-wide emission reduction target under the Convention. The EU generally allows its member States to use units from the Kyoto Protocol mechanisms as well as new market mechanisms for compliance purposes, subject to a number of restrictions in terms of origin and type of project and up to an established limit. Installations and airlines can make use of such units to fulfil their requirements under the EU Emissions Trading System (EU ETS).

17. The EU 2020 climate and energy package includes the EU ETS and the ESD (see section C.1 below) adopted in 2009. Further information on this package is provided in chapter 2 of Lithuania's BR2. The EU ETS covers mainly point source emissions from the energy and industry sectors as well as emissions from aviation. For the period 2013–2020, an EU-wide cap has been put in place with the goal of reducing emissions by 21 per cent below the 2005 level by 2020. Emissions from sectors covered by the ESD (i.e. non-ETS sectors) are regulated by targets specific to each member State, which leads to an aggregate reduction at the EU level of 10 per cent below the 2005 level by 2020.

18. Under the ESD, Lithuania has a target to limit its emissions growth to 15 per cent above the 2005 level by 2020 from sectors covered by the ESD. National emission targets for ESD sectors for 2020 have been translated into binding quantified annual emission allocations (AEAs) for the period 2013–2020. Lithuania's AEAs change linearly from 12,936.66 kt CO_2 eq in 2013 to 15,463.54 kt CO_2 eq in 2020.[3]

[3] European Commission decision 2013/162/EU of 26 March 2013 "on determining member States' annual emission allocations for the period from 2013 to 2020 pursuant to Decision No. 406/2009/EC of the European Parliament and of the Council" and European Commission implementing decision 2013/634/EU of 31 October 2013 "on the adjustments to member States' annual emission allocations for the period from 2013 to 2020 pursuant to Decision No. 406/2009/EC of the European Parliament and of the Council".

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

19. This chapter provides information on the review of the reporting by Lithuania on the progress made in reducing emissions in relation to the target, mitigation actions taken to achieve its target, and the use of units from market-based mechanisms and LULUCF.

1. Mitigation actions and their effects

20. In its BR2 and CTF table 3, Lithuania reported on its progress in the achievement of its target and the mitigation actions implemented and planned since its sixth national communication (NC6) and BR1 to achieve its target. Lithuania has provided information on mitigation actions introduced to achieve its target. Most of the significant policies and measures (PaMs) have been ongoing for a number of years. The BR2 includes information on mitigation actions organized by sector, while details regarding the impact on particular gases are included in CTF table 3. The definitions of implemented, planned and adopted measures are in accordance with the "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications". Further information on the mitigation actions related to the Party's target is provided in paragraph 31 below.

21. In its BR2, Lithuania reported on its domestic institutional arrangements, including legal, administrative and procedural arrangements used for domestic compliance, monitoring and reporting of the progress towards its target. However, Lithuania did not explicitly indicate whether there were any changes in these arrangements since the submission of its BR1. During the review, Lithuania indicated that it had not changed any institutional arrangements. The ERT recommends that Lithuania provide in its next BR information on changes in its domestic institutional arrangements.

22. The ERT noted that the BR2 did not provide in textual format the information on mitigation actions organized by gas to reflect information presented in CTF table 3. The ERT recommends that Lithuania improve the transparency of its reporting by organizing, to the appropriate extent, the reporting of its mitigation actions by gas in its next BR, as is currently done in CTF table 3.

23. Both the BR2 and CTF table 3 identify groups of PaMs that are intended to support broader policy goals. The BR2 provides information on the measures that are included under each group of PaMs, including the name of the measure, its description, the period of implementation and the implementing entity. The ERT considers that the information provided is transparent. However, the ERT noted that mitigation actions that impact the transport sector are reported in more than one group, creating a potential double counting of their projected impacts.

24. Furthermore, Lithuania provided additional and clarifying information on the quantitative methods used to evaluate PaMs. Lithuania also provided additional information on estimates of PaMs that had changed significantly since the publication of its BR1, along with additional information on the policy and analytic assumptions related to a number of PaMs. The ERT found that the information provided improved the transparency of Lithuania's reporting.

25. The BR2 indicates that Lithuania addresses the economic and social consequences of response measures as elements of its regulatory impact assessment process, its programme assessment process and the environmental impact analysis covered by its Law on the Impact Assessment on Environment which covers both the impacts of government actions and of planned regulations. The BR2 provides information on the factors (e.g. public finances, administrative burden, economics, etc.) addressed through these processes.

26. In addition, the BR2 reports, to the extent possible, on domestic arrangements established for the process of self-assessment of compliance with emission reductions commitments. The BR2 explains that Lithuania's climate strategy is set out in Lithuania's Strategy for the National Climate Change Management Policy and is coordinated by the Ministry of Environment. The goals and objectives of this strategy are expressed in the Inter-Institutional Action Plan, which identifies agencies and municipal authorities that are tasked to perform the mitigation actions and monitor their implementation. These entities provide annual activity reports on their implementation of the climate strategy. The Ministry of Environment is also responsible for collecting the information and submitting it to the UNFCCC secretariat, while the Lithuanian Environmental Protection Agency is responsible for developing GHG projections that account for the impact of the mitigation actions.

27. During the review, Lithuania provided additional information, elaborating on its domestic arrangements for evaluating the compliance of mitigation actions with its Strategy for Climate Change Management Policy, including the establishment of targets for sectors under the ESD, and information on its institutional processes for using energy consumption data and other data sources to evaluate progress against ESD targets. The ERT noted the usefulness of the information provided.

28. The key overarching cross-sectoral policy in the EU is the 2020 climate and energy package, which includes the revised EU ETS and the ESD. This package is supplemented by renewable energy and energy efficiency legislation and legislative proposals on the 2020 targets for CO_2 emissions from cars and vans, 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 (see table 3 below).

29. In operation since 2005, the EU ETS is a cap-and-trade system that covers all significant energy-intensive installations (mainly large point emissions sources such as power plants and industrial facilities), which produce 40–45 per cent of the GHG emissions of the EU. It is expected that the EU ETS will guarantee that the 2020 target (a 21 per cent emission reduction below the 2005 level) will be achieved for sectors under the scheme. The third phase of the EU ETS started in 2013 and the system now includes aircraft operations (since 2012) as well as N_2O emissions from chemical industries, PFC emissions from aluminium production and CO_2 emissions from industrial processes (since 2013).

30. The ESD became operational in 2013 and covers sectors outside the EU ETS, including transport (excluding domestic and international aviation, and international maritime transport), residential and commercial buildings, agriculture, waste and other sectors, together accounting for 55–60 per cent of the GHG emissions of the EU. The ESD aims to decrease GHG emissions in the EU by 10 per cent below the 2005 level by 2020 and includes binding annual targets for each member State for 2013–2020, which are underpinned by the national policies and actions of the member States.

31. At the national level, Lithuania introduced policies to achieve its targets under the ESD and domestic emission reduction targets. The key policies reported in the BR2 are its National Energy Strategy, the National Renewable Energy Resources Programme, the Strategy on Dwellings of the Republic of Lithuania, the Law on Energy from Renewable Sources and the Energy Efficiency Action Plan. The mitigation effect of landfill biogas extraction and use is estimated to be the most significant. Other policies that are cited as having significant emission reductions potential are: increasing the national forest area; increasing energy efficiency; technology improvements in the chemical industry; and promoting the use of renewable energy sources.

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

Table 3
Summary of information on mitigation actions and their impacts reported by Lithuania

Sector affected	*List of key mitigation actions*	*Estimate of mitigation impact in 2020 (kt CO_2 eq)*
Policy framework and cross-sectoral measures		
Energy		
Transport	Promoting renewable energy sources	423
Renewable energy	Promoting the use of renewable energy sources (except for the transport sector)	747
Energy efficiency	Increasing energy efficiency	1 496
IPPU	Production process change in the cement industry	500
	Technological improvements in the chemical industry	1 467
Agriculture	Implementation of the nitrates directive	100
LULUCF	Increasing the national forest area	1 680
Waste	Promoting the extraction and use of biogas from landfills	1 940
	Decreasing the amount of biodegradable waste in landfills	538

Note: The estimates of mitigation impacts are estimates of emissions of carbon dioxide or carbon dioxide equivalent avoided in a given year as a result of the implementation of mitigation actions.

Abbreviations: IPPU = industrial processes and product use, LULUCF = land use, land-use change and forestry.

33. In response to a question raised by the ERT, Lithuania explained that it calculated the 2020 impacts of mitigation actions by applying the emission reduction target specified in national policies to a 2012 estimate of emissions from relevant sources. For instance, Lithuania's Energy Efficiency Action Plan establishes a goal of reducing energy consumption by an average of 1.5 per cent per year between 2012 and 2020, resulting in a net emission reduction of 12 per cent by 2020. In estimating the 2020 impact of this policy, the Party applied this 12 per cent reduction figure to the 2012 emissions covered by the policy, as opposed to a 2020 'business as usual' projection.

34. The ERT noted that the total impact of the mitigation actions (excluding LULUCF) amounts to total GHG emissions avoided of over 7,200 kt CO_2 eq in 2020 compared with a scenario without measures, representing more than 33 per cent of the average national emissions for the period 2007–2012, when most of these measures were implemented. The ERT also noted that the estimated emission reduction for the waste sector exceeds the total estimated waste emissions in 2013. Emission reductions of this magnitude are not implied by the Party's projections, and Lithuania acknowledged that there were methodological differences in the development of its mitigation estimates and projections.

35. The ERT considers that the implementation of more rigorous quantitative approaches for evaluating mitigation actions would provide a better understanding of the

mitigation potential of PaMs, support ongoing assessment of implemented strategies and help the Party to evaluate compliance with emission reduction commitments, especially for ESD sources.

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

36. Lithuania reported in its BR2 and CTF tables 4, 4(a)I and 4(a)II that it does not intend to use any contribution from LULUCF to achieve its target. However, the ERT noted that CTF table 4 does not include the information required by the UNFCCC reporting guidelines on BRs on the quantity of units from market-based mechanisms under the Convention and other market-based mechanisms used by Lithuania to achieve its the emission reduction target.

37. Under CTF table 4(b), Lithuania included a footnote explaining that the compliance assessment for 2013 under the ESD was delayed owing to delays in the 2015 submission of Lithuania's GHG inventory and that the use of market-based mechanisms for meeting the 2013 ESD target was unknown at the time of BR2 submission. However, this information is not provided in the text of the BR. The ERT recommends that Lithuania improve the transparency of its reporting and provide information in the text of its BR and in CTF table 4 on the quantity of units from market-based mechanisms under the Convention and other market-based mechanisms used by Lithuania on its progress towards achieving the emission reduction target.

38. For 2013, Lithuania reported in CTF table 4 annual total GHG emissions excluding LULUCF of 19,946.10 kt CO_2 eq, or 58.3 per cent below the 1990 level. In the same year, emissions covered by ESD sectors were 12,230 kt CO_2 eq.

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

Table 4
Summary of information on the use of units from market-based mechanisms and land use, land-use change and forestry as part of the reporting on the progress made by Lithuania towards the achievement of its target

Year	*Emissions excluding LULUCF (kt CO_2 eq)*	*Contribution from LULUCF (kt CO_2 eq)*[a]	*Emissions including contribution from LULUCF (kt CO_2 eq)*	*Use of units from market-based mechanisms (kt CO_2 eq)*
1990	47 811.63	NA	NA	0
2010	20 906.34	NA	NA	0
2011	21 418.22	NA	NA	0
2012	21 241.78	NA	NA	0
2013	19 946.10	NA	NA	0

Sources: Lithuania's second biennial report and common tabular format tables 1, 4, 4(a)I, 4(a)II and 4(b).

Abbreviations: LULUCF = land use, land-use change and forestry, NA = not applicable.

[a] The European Union's unconditional commitment to reduce greenhouse gas emissions by 20 per cent below the 1990 level by 2020 does not include emissions/removals from LULUCF.

40. To assess the progress towards the achievement of the 2020 target, the ERT noted that Lithuania's target under the ESD is to limit its emissions growth to 15 per cent above

the 2005 level by 2020 (see para. 18 above). In 2013, Lithuania's emissions under the ESD are 8.7 per cent below the 2005 level.[4]

41. The ERT noted that Lithuania is making progress towards its emission reduction target by implementing mitigation actions, including the promotion of renewable energy, increasing energy efficiency, introducing technological improvements in industry and decreasing the biodegradable fraction of waste.

3. Projections

42. Lithuania reported in its BR2 and CTF table 6(a) updated projections for 2020 and 2030 relative to actual inventory data for 2012 under the 'with measures' (WEM) scenario. Projections are presented on a sectoral basis, using the same sectoral categories as used in the section on mitigation actions, and on a gas-by-gas basis for the following GHG: CO_2, CH_4, N_2O, PFCs, HFCs and SF_6 (treating PFCs and HFCs collectively in each case) as well as nitrogen trifluoride. Projections are also provided in an aggregated format for each sector as well as for a Party total, using GWP values from the AR4.

43. Lithuania reported on factors and activities influencing emissions for each sector. Further information on the projections is provided in chapter 4 of the BR2.

44. In the BR2 and CTF table 6(a), Lithuania did not report separately on the projections of emissions from fuel sold to ships and international aircraft as required by the UNFCCC reporting guidelines on BRs. Furthermore, these emissions were included in the totals. During the review, Lithuania clarified that it is possible to report such projections separately. To improve transparency, the ERT recommends that Lithuania report separately, to the extent possible, its emission projections related to fuel sold to ships and aircraft engaged in international transport in its next BR and not to include them in the totals.

45. In addition to the WEM scenario, Lithuania reported in its BR2 and CTF table 6(c) the 'with additional measures' (WAM) scenario. The projections are presented by sector and by gas in the same way as the WEM scenario for the following years: 1990–2030. Lithuania provided information on the changes since the submission of its NC6/BR1 in the assumptions, methodologies, models and approaches used and on the key variables used in the preparation of the projection scenarios using CTF table 5.

46. The ERT noted that Lithuania did not provide information on the sensitivity analysis. The ERT encourages Lithuania to qualitatively discuss, where possible, the sensitivity of its projections to the underlying assumptions in its next BR.

47. The ERT also noted that Lithuania did not provide separate projections for the sectors covered by the ESD. The ERT considers that the provision of separate projections for EU ETS and ESD sectors would improve transparency, and allow for a more accurate assessment of the Party's progress towards achieving its target. The ERT finally noted that some of the production capacities under the industrial processes and product use sector were assumed to be constant between 2015 and 2030 or between 2020 and 2030. Lithuania clarified during the review that the data was provided by the main installations under the concerned sector.

48. During the review, Lithuania explained that the spreadsheet model used to estimate the WEM and WAM scenarios had been developed locally by the Environmental Protection Agency of Lithuania and that it has not been peer reviewed. The Party also provided

[4] European Environment Agency (EEA). 2015. *Trends and projections in Europe 2015; tracking progress towards Europe's climate and energy targets*. EEA Report No 4/2015. Available at <http://www.eea.europa.eu/publications/trends-and-projections-in-europe-2015>.

information on its efforts to move to more sophisticated models (e.g. LEAP) for the estimation of projections in the future.

49. The ERT commends Lithuania for its efforts to advance to a more sophisticated model for estimating its projections.

Overview of projection scenarios

50. The WEM scenario reported by Lithuania includes implemented and adopted PaMs up to 2015. Lithuania also reported on a WAM scenario, which includes PaMs under consideration but not officially adopted, in addition to the PaMs included in the WEM scenario. The definition indicates that Lithuania's scenarios have been prepared according to the "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications".

Methodology and changes since the previous submission

51. The methodology used in the BR2 is not very different from that used for the preparation of the emission projections for the NC6/BR1. The only difference in the BR2 is that Lithuania did not include a 'without measures' scenario, which was included in its BR1. Lithuania did not use specific models for projections and the calculations were performed using simple spreadsheets.

52. Lithuania recalculated emission projections using the methodologies from the 2006 Intergovernmental Panel on Climate Change Guidelines for National Greenhouse Gas Inventories and using 2012 as the base year. The projections were based on data provided by different ministries, companies, institutes, associations and Eurostat. Emission factors used in the projections were assumed to be the same as in the Party's 2012 GHG inventory.

53. To prepare its projections, Lithuania relied on the following key variables: population trends, GDP growth rates, final energy consumption and other economic development indicators, as reported in CTF table 5. The values for these parameters have been updated on the basis of the most recent economic developments known at the time of the reporting on projections.

Results of projections

54. Lithuania's total GHG emissions excluding LULUCF in 2020 and 2030 are projected to be 22,367.93 kt CO_2 eq and 24,383.14 kt CO_2 eq, respectively, under the WEM scenario, which represents a decrease of 53.2 and 49 per cent, respectively, below the 1990 level. Under the WAM scenario, emissions in 2020 and 2030 are projected to be 21,451.52 kt CO_2 eq and 20,875.20 kt CO_2 eq, respectively, which represents a decrease of 55.1 and 56.3 per cent, respectively, compared with 1990 levels. The reported projections under the WEM and WAM scenarios suggest that Lithuania will continue contributing to the achievement of the EU target under the Convention (see para. 15 above).

55. Under the WAM scenario the sudden decrease of GHG emissions in 2030 (see the figure below) results from the planned start of operation of Visaginas nuclear power plant. Lithuania reported in its BR that the final decision on the construction of this nuclear power plant has not yet been taken.

56. Lithuania's target for the emissions from sectors covered by the ESD (non-ETS sectors) is to limit its emission growth at 15 per cent above the 2005 level by 2020 (see para. 18 above). For Lithuania's AEAs, which correspond to its national emission target under the ESD, change linearly from 12,936.66 kt CO_2 eq in 2013 to 15,463.54 kt CO_2 eq in 2020. According to the projections under the WEM scenario, emissions under the ESD are estimated to increase from 12,705.60 kt CO_2 eq in 2015 to 12,986.07 kt CO_2 eq by 2020.[5] Under the WAM scenario, Lithuania's emissions under the ESD are estimated to decrease from 12,552.13 kt CO_2 in 2015 to 12,520.56 kt CO_2 in 2020. The projected level of emissions under the ESD under the WEM and WAM scenario is 16 and 19 per cent below the AEAs allocated for 2020. This suggests that Lithuania expects to meet its target under the ESD.

57. According to the projections presented by sector, the most significant GHG emission reductions under the WEM scenario from 1990 to 2020 will occur in the energy sector (16,997.14 kt CO_2 eq or 67.1 per cent), followed by the agriculture sector (4,127.15 kt CO_2 eq or 47.9 per cent) and the industrial processes and product use sector (973.18 kt CO_2 eq or 21.5 per cent). GHG emissions from the transport subsector are projected to decrease by 2,453.67 kt CO_2 eq (31.8 per cent) below the 1990 level by 2020 and emissions from the waste sector are expected to decrease by 892.55 kt CO_2 eq (54.1 per cent) in the same period.

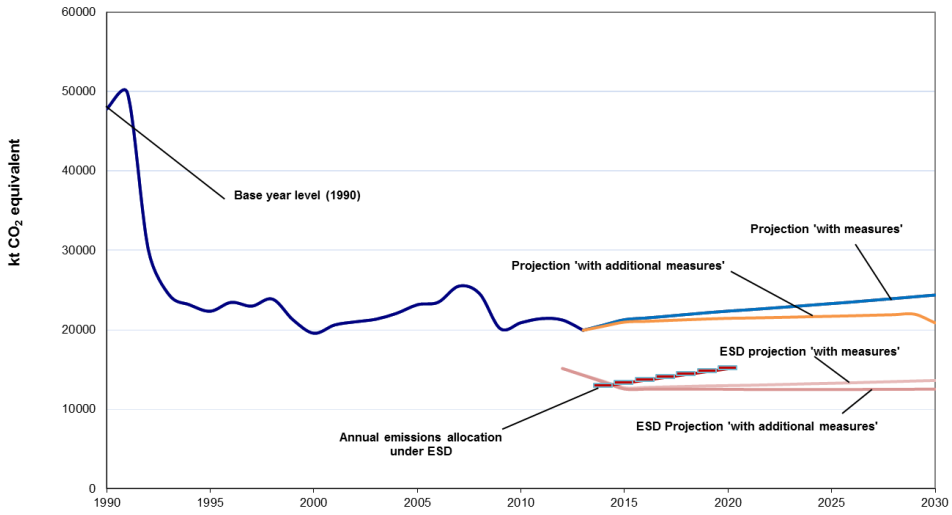
58. If additional measures are considered (i.e. under the WAM scenario), the energy sector remains the most prominent source of reductions (17,686.32 kt CO_2 eq or 69.9 per cent below the 1990 level by 2020) and further reductions are also estimated for the transport sector (2,680.90 kt CO_2 eq or 34.8 per cent below the 1990 level by 2020). In the WAM scenario, emission estimates for the industrial processes and product use, agriculture and waste sectors are the same as in the WEM scenario.

59. According to the projections presented by gas, reductions in CO_2 emissions are expected to contribute the most to the Party's overall emission reductions. Under the WEM scenario, reductions in CO_2 emissions make up approximately 79.7 per cent of the aggregate GHG emission reductions below the 1990 level (20,271.32 kt CO_2 eq) by 2020, followed by CH_4 with 15.4 per cent (3,907.44 kt CO_2 eq) and N_2O with 6.1 per cent (1,555.73 kt CO_2 eq). Under the WAM scenario, reductions in CO_2 emissions will make up approximately 80.3 per cent of the aggregate GHG emission reductions below the 1990 level (21,166.20 kt CO_2 eq) by 2020, followed by CH_4 with 14.9 per cent (3,923.87 kt CO_2 eq) and N_2O with 5.9 per cent (1,560.84 kt CO_2 eq).

60. Lithuania's emission projection scenarios and the AEAs allocated under the ESD are presented in the figure below.

[5] European Environment Agency (EEA). 2015. *LT Projections 2015 updated, Greenhouse Gas Monitoring Mechanism*. Available at <http://cdr.eionet.europa.eu/lt/eu/mmr/art04-13-14_lcds_pams_projections/envvyqemg/MMR_Template_IPArticle23_table_v0.4.xlsm/manage_document>.

Greenhouse gas emission projections by Lithuania



Sources: (1) Data for the years 1990–2013: Lithuania's 2015 annual inventory submission, 6 November 2015; total GHG emissions excluding land use, land-use change and forestry; and Lithuania's BR2 CTF tables. (2) Data for the years 2013–2030: Lithuania's BR2 CTF tables; total GHG emissions excluding land use, land-use change and forestry; European Environment Agency (EEA). 2015. *LT Projections 2015 updated, Greenhouse Gas Monitoring Mechanism*; (3) Data for years 2013–2020: European Commission Decisions 2013/634/EU and 2013/162/EU.

Abbreviations: BR2 = second biennial report, CTF = common tabular format, ESD = effort-sharing decision, GHG = greenhouse gas.

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

61. Lithuania is not a Party included in Annex II to the Convention and is therefore not obliged to adopt measures and fulfil obligations as defined in Article 4, paragraphs 3, 4 and 5, of the Convention. However, as reported in its BR2, Lithuania provided information 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 BRs.

62. In its BR2 and CTF tables 7, 7(a) and 7(b), Lithuania reported information on the provision of financial support required under the Convention. More specifically, Lithuania contributed through multilateral channels with approximately USD 0.11 million and USD 1.00 million for 2013 and 2014, respectively. These contributions were made through the World Bank, the European Bank for Reconstruction and Development and the European Investment Bank. It also provided bilateral and regional support totalling approximately USD 0.01 million and USD 0.16 million in 2013 and 2014, respectively. In 2014, approximately USD 0.01 million of climate finance was provided for regional development projects for mitigation activities in Armenia, Moldova and Ukraine.

III. Conclusions

63. The ERT conducted a technical review of the information reported in the BR2 and CTF tables of Lithuania in accordance with the UNFCCC reporting guidelines on BRs. The ERT concludes that the reported information is mostly in adherence with the UNFCCC reporting guidelines on BRs and provides an overview on: emissions and removals related to the Party's quantified economy-wide emission reduction target; assumptions, conditions and methodologies related to the attainment of the target; progress made by Lithuania in achieving its target; and Lithuania's provision of support to developing country Parties.

64. Lithuania's total GHG emissions excluding LULUCF related to its quantified economy-wide emission reduction target were estimated to be 58.3 per cent below its 1990 level, whereas total GHG emissions including LULUCF are 77.3 per cent below its 1990 level for 2013.

65. The emission decrease was mainly driven by Lithuania's economic changes in the 1990s as well as by the structural change in the energy sector which resulted in an increase in electricity imports (Lithuania is currently importing over 65 per cent of its electricity which was not the case in the 1990s), and the increase in the use of renewable energy sources which had approximately quadrupled by 2013 compared with 1990. Also, emissions from the agriculture sector have decreased significantly as a result of reforms adopted in the early 1990s (after the restoration of independence) that aimed to establish private ownership in the agriculture sector.

66. Under the Convention, Lithuania is 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 the gases CO_2, CH_4, N_2O, HFCs, PFCs and SF_6, expressed using GWP values from the AR4. Emissions and removals from the LULUCF sector are not included in the quantified economy-wide emission reduction target under the Convention. The EU generally allows its member States to use units from the Kyoto Protocol mechanisms as well as new market mechanisms for compliance purposes, subject to a number of restrictions in terms of origin and type of project and up to an established limit.

67. Under the ESD, Lithuania has a target to limit the emission growth to 15 per cent above the 2005 level by 2020. Lithuania's AEAs, which correspond to its national emission target for non-ETS sectors, change linearly from 12,936.66 kt CO_2 eq in 2013 to 15,463.54 kt CO_2 eq in 2020.

68. Lithuania's main policy framework relating to energy and climate change is the Strategy for the National Climate Change Management Policy. Key policies supporting Lithuania's climate change goals include the National Energy Strategy, the National Renewable Energy Resources Programme, the Strategy on Dwellings of the Republic of Lithuania, the Law on Energy from Renewable Sources and the Energy Efficiency Action Plan. Lithuania indicates that mitigation actions with the most significant mitigation impact are: the extraction and use of biogas from landfills; the increase in the national forest area and in energy efficiency; the installation of chemical industry abatement technologies; and the promotion of the use of renewable energy.

69. The GHG emission projections provided by Lithuania in its BR2 include those for the WEM and WAM scenarios. Under these two scenarios, emissions are projected to be 53.2 per cent and 55.1 per cent below the 1990 level in 2020, respectively. On the basis of the reported information, the ERT concluded that Lithuania will continue contributing to the achievement of the EU target under the Convention. Furthermore, in 2013, emissions covered by the ESD were 12,230 kt CO_2 eq, or 8.7 per cent below the 2005 level. The ERT concluded that Lithuania also expects to meet its target under the ESD.

70. Although Lithuania is not a Party included in Annex II to the Convention and is therefore not obliged to adopt measures and fulfil obligations as defined in Article 4, paragraphs 3, 4 and 5, of the Convention, Lithuania provided information on the provision of support to developing country Parties through multilateral as well as bilateral and regional channels.

71. In the course of the review, the ERT formulated the following recommendations for Lithuania to improve its adherence to the UNFCCC reporting guidelines on BRs in its next biennial report:[6]

(a) Improve the completeness of its reporting byExplicitly indicating in its next BR whether there have been changes in its institutional arrangements used for domestic compliance, monitoring, reporting, archiving of information and evaluating progress towards its economy-wide emissions reduction target (see para. 21 above);

(b) Improve the transparency of its reporting by providing information on:

(i) The possible scale of contributions from market-based mechanisms under the Convention, in its description of the emission reduction target (see para. 14 above);

(ii) Mitigation actions organized by gas (see para. 22 above);

(iii) The quantity of units from market-based mechanisms under the Convention and other market-based mechanisms used by Lithuania on its progress towards achieving its emission reduction target (see para. 37 above);

(iv) Providing separate projection of emissions from fuel sold to ships and aircraft engaged in international transport and not including them in the totals (see para. 44 above).

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

Annex

Documents and information used during the review

A. Reference documents

"UNFCCC biennial reporting guidelines for developed country Parties". Annex I to decision 2/CP.17. Available at < http://unfccc.int/resource/docs/2011/cop17/eng/09a01.pdf#page=31>.

"Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual greenhouse gas inventories". Annex I to decision 24/CP.19. Available at <http://unfccc.int/resource/docs/2013/cop19/eng/10a03.pdf#page=2>.

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

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

FCCC/ARR/2014/LTU. Report on the individual review of the annual submission of Lithuania submitted in 2014. Available at <http://unfccc.int/resource/docs/2015/arr/ltu.pdf>.

FCCC/IDR.6/LTU. Report of the technical review of the sixth national communication of Lithuania. Available at <http://unfccc.int/resource/docs/2014/idr/ltu06.pdf>.

FCCC/TRR.1/LTU. Report of the technical review of the first biennial report of Lithuania. Available at <http://unfccc.int/resource/docs/2014/trr/ltu01.pdf>.

2015 greenhouse gas inventory submission of Lithuania. Available at <https://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/8812.php>.

Sixth national communication of Lithuania. Available at <http://unfccc.int/files/national_reports/annex_i_natcom/submitted_natcom/application/pdf/lithuania_6_nc_1br_unfccc_v_0.1%5B1%5D.pdf>.

First biennial report of Lithuania. Available at <http://unfccc.int/files/national_reports/annex_i_natcom/submitted_natcom/application/pdf/lithuania_6_nc_1br_unfccc_v_0.1%5B1%5D.pdf>.

Common tabular format tables of the first biennial report of Lithuania. Available at <http://unfccc.int/files/national_reports/biennial_reports_and_iar/submitted_biennial_reports/application/pdf/ltu_2014_v2.pdf>.

Second biennial report of Lithuania. Available at <http://unfccc.int/files/national_reports/biennial_reports_and_iar/submitted_biennial_reports/application/pdf/final_2nd_br_lt.pdf>.

Common tabular format tables of the second biennial report of Lithuania. Available at <http://unfccc.int/files/national_reports/biennial_reports_and_iar/submitted_biennial_reports/application/pdf/br2ctf_ltu_2016_v1_0_formatted.pdf>.

B. Additional information used during the review

Responses to questions during the review were received from Ms. Dovilė Vaitkutė (Ministry of Environment), including additional material and the following documents[1] provided by Lithuania.

European Environment Agency (EEA). 2015. *LT Projections 2015 Updated, Greenhouse Gas Monitoring Mechanism*. Available at <http://cdr.eionet.europa.eu/lt/eu/mmr/art04-13-14_lcds_pams_projections/envvyqemg/MMR_Template_IPArticle23_table_v0.4.xlsm/manage_document>.

European Environment Agency (EEA). *EEA Report No 4/2015. Trends and Projections in Europe 2015; Tracking Progress towards Europe's Climate and Energy Targets*. Available at <http://www.eea.europa.eu/publications/trends-and-projections-in-europe-2015>.

[1] Reproduced as received from the Party.