United Nations

Framework Convention on Climate Change

FCCC/IDR.8/SVN–FCCC/TRR.5/SVN

Distr.: General
4 July 2023

English only

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

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 Slovenia, 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 Slovenia, 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
CHP	combined heat and power
CO	carbon monoxide
CO_2	carbon dioxide
CO_2 eq	carbon dioxide equivalent
CORINE	Coordination of Information on the Environment (programme)
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
GDP	gross domestic product
GHG	greenhouse gas
GWP	global warming potential
HFC	hydrofluorocarbon
ICAO	International Civil Aviation Organization
IE	included elsewhere
IMO	International Maritime Organization
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
NIR	national inventory report
NMVOC	non-methane volatile organic compound
NO	not occurring
NO_X	nitrogen oxides
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”
RES	renewable energy source(s)
SF_6	sulfur hexafluoride
SO_X	sulfur oxides
UNFCCC Annex I inventory reporting guidelines	“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”
UNFCCC reporting guidelines on BRs	“UNFCCC biennial reporting guidelines for developed country Parties”

UNFCCC reporting guidelines on CTF tables	"Common tabular format for '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'
WMO	World Meteorological Organization
WOM	'without measures'

I. Introduction and summary

A. Introduction

1. This is a report on the centralized technical review of the NC8 and BR5 of Slovenia. 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 Slovenia, which provided comments that were considered and incorporated into this final version of the report.

3. The review was conducted together with the review of three other Parties included in Annex I to the Convention from 27 to 31 March 2023 in Bonn by the following team of nominated experts from the UNFCCC roster of experts: Souhila Bouilouta (Algeria), Yeshiwork Assefa Ejigu (Ethiopia), Dirk Guenther (Germany), Kirsten May (United Kingdom of Great Britain and Northern Ireland), Dzmitry Melekh (Belarus), Irene Papst (Germany), Adam Pogorzelski (Poland), Sirintornthep Towprayoon (Thailand) and Teame Tsegai (Eritrea). Adam Pogorzelski and Sirintornthep Towprayoon were the lead reviewers. The review was coordinated by Agnieszka Patoka-Janowska and Marion Vieweg-Mersmann (secretariat).

B. Summary

4. The ERT conducted a technical review of the information reported in the NC8 of Slovenia in accordance with the UNFCCC reporting guidelines on NCs,[1] 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[2] and of the information reported in the BR5 of Slovenia in accordance with the UNFCCC reporting guidelines on BRs.[3]

1. Timeliness

5. The NC8 was submitted on 16 February 2023, after the deadline of 31 December 2022 mandated by decision 6/CP.25.

6. Slovenia 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 great concern the delay in the submission and recommended that Slovenia make its next submission on time.

7. The BR5 was submitted on 16 February 2023, after the deadline of 31 December 2022 mandated by decision 6/CP.25. The CTF tables were submitted on 20 February 2023. The CTF tables were resubmitted on 14 April 2023 to address issues raised during the review. The resubmission included clarifications on the quantified economy-wide emission reduction target, the impact of PaMs and projections. Detailed information on improvements related to the resubmission is provided in paragraph 13 below. Unless otherwise specified, the information and values from the latest submission are used in this report.

[1] Decision 6/CP.25, annex.
[2] Decision 15/CMP.1, annex, and decision 3/CMP.11, annex III.
[3] Decision 2/CP.17, annex.

8. Slovenia 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 thereof by the due date of the submission in order to facilitate the arrangement of the review process. The ERT noted with great 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 Slovenia 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. The ERT concludes that the issues of a mandatory nature related to supplementary information under the Kyoto Protocol do not influence the Party's ability to fulfil its commitments for the second commitment period of the Kyoto Protocol.

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

(a) The transparency of the information reported on national circumstances relevant to GHG emissions and removals by including information on how national circumstances and changes therein affect GHG emissions and removals over time, together with a description and interpretation of emission trends by gas, and by including in its NC up-to-date information on ground cover when describing the national circumstances and historical trends;

(b) The completeness of the GHG inventory information reported by including a description of factors underlying the emission trends in the agriculture and LULUCF sectors;

(c) The transparency of the information reported on PaMs by including information on the way in which progress in implementing PaMs is monitored, covering, for example, system architecture, relevant indicators and the process of approving findings and by including the reasons why some PaMs are no longer in place;

(d) The completeness of the information reported on projections and the total effects of PaMs by providing a WOM and a WAM scenario, providing projections for the LULUCF sector under the WEM and WAM scenarios, and for the indirect GHGs NO_X, NMVOCs and SO_X;

(e) The transparency of the information reported on projections and the total effects of PaMs by providing more detailed model descriptions covering the model types and their main characteristics, as well as changes compared with the NC7, and by providing a complete time series of key underlying assumptions or clearly explaining the reasons for any missing data;

(f) The completeness of the information reported on vulnerability assessment, climate change impacts and adaptation measures by providing detailed updated information on the steps taken to conduct vulnerability assessments, as well as estimates of the impact of climate change;

(g) The transparency of the information reported on research and systematic observation by providing information on national and international research projects and restructuring the reporting on systematic observation;

(h) The completeness of the supplementary information related to the Kyoto Protocol by reporting information on measures taken to safeguard, maintain and recover data in the event of a disaster, and by including a list of publicly accessible information related to the national registry.

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

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

Table 2
Assessment of completeness and transparency of mandatory supplementary information under the Kyoto Protocol reported by Slovenia 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	Complete	Transparent	
Supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17	Mostly complete	Transparent	Issue 2 in table I.8
PaMs in accordance with Article 2	Complete	Transparent	
Domestic and regional programmes and/or arrangements and procedures	Complete	Mostly transparent	Issue 1 in table I.8
Information under Article 10[a]	NA	NA	NA
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] Slovenia 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 Slovenia in its BR5 are presented in table 3. The information reported mostly adheres to the UNFCCC

reporting guidelines on BRs. The ERT notes that issue 4 in table II.3 and issue 7 in table II.5 have been identified in three or more successive reviews, although the ERT notes improvements in the Party's reporting in both cases.

12. Slovenia 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 progress in achievement of quantified economy-wide emission reduction targets and relevant information by ensuring consistency in the sectors reported for PaMs across CTF table 3 and the BR, and by reporting planned PaMs;

(b) The completeness of the information reported on projections by providing projections for the indirect GHGs NO_X, NMVOCs and SO_X;

(c) The transparency of the information reported on projections by providing more detailed model descriptions covering the model types and their main characteristics, including the gases and/or sectors for which the models were used, the original purpose for which the models were designed and any further modifications, as well as changes compared with the BR4;

(d) The transparency of the information reported on projections by providing a complete time series of key underlying assumptions or clearly explaining the reasons for any missing data.

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

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

13. The resubmitted CTF tables made during the review included improvements to:

(a) The information reported on Slovenia's quantified economy-wide emission reduction target and related assumptions, conditions and methodologies by clarifying the exclusion of LULUCF from the target in table 4 and providing notation keys in CTF tables 2e(I) and 2e(II);

(b) The information reported on PaMs by providing explanations in the custom footnotes for notation keys "NE" and "IE" used in CTF table 3;

(c) The information reported on projections and the total effects of PaMs by correcting the base-year values and providing notation key "NO" for NF_3 in tables 6(a–c) and by explaining the difference between the sum of individual sectors and gases and the reported totals in the custom footnote to the same tables.

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

14. 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 waste. The population of Slovenia increased by 59,000 between 2011 and 2021, mainly as a result of immigration. The coronavirus disease 2019 pandemic led to a decline in GDP of EUR 48.21 million in 2020, but GDP recovered quickly in 2021, exceeding the 2019 level. Overall, GDP increased by around 20 per cent between 2010 and 2019. Despite the impacts of the pandemic and economic uncertainty, the level of employment has improved, with the national employment rate reaching an all-time high of 75.6 per cent in 2020, which is higher than the EU average (72.6 per cent in 2020).

15. Slovenia's NC8 included up-to-date information on ground cover. However, the land-cover categories identified in the NC8 are different from those reported in the NC7. During the review, the Party explained that for the NC7 it used indicators prepared by the Statistical Office of the Republic of Slovenia, while for the NC8 indicators from different sources were used in accordance with the CORINE land-cover methodology.

16. Slovenia has been relatively slow in decoupling economic growth from resource consumption and GHG emissions. Emissions have been decreasing since the global economic and financial crisis in 2008, most notably in 2014 and 2020. The largest share of value added is attributed to industry, predominantly manufacturing industries, accounting for 23 per cent. Trade is the second largest sector, accounting for 12 per cent, with medical and pharmaceutical products and road vehicles being the most important trade products. Gross inland fuel consumption decreased by 12 per cent between 2005 and 2021, driven by the global economic and financial crisis in 2008, energy efficiency measures, mild winters and the pandemic. In 2021, liquid fuels accounted for the largest share, followed by nuclear energy, RES, solid fuels and natural gas. Coal is the only domestic source of fossil fuel. RES (mainly wood and hydroelectric energy) account for 20 per cent of gross inland energy consumption and their share continues to grow. Since 1992, final energy consumption has increased, driven by the growth in the use of electricity, natural gas and liquid fuels.

17. The energy sector remains the largest source of GHG emissions. Considering also its fugitive emissions, the sector accounts for 79 per cent of total GHG emissions. The largest share of energy sector emissions is attributed to the transport sector, in which emissions almost tripled between 1986 and 2019 in parallel with the increase in energy consumption. In 2020, the transport sector was responsible for approximately 47 per cent of total emissions from sectors not covered by the EU ETS and represented the fastest growing sector in terms of energy consumption compared with the other economic sectors, with an increase in emissions of 4 per cent between 2005 and 2020. However, owing to pandemic-related measures, transport sector emissions in 2020 were significantly lower than in 2019 (by 18.7 per cent), but experienced a rebound in 2021.

18. During the review, Slovenia explained that the value added from manufacturing industries grew by 39 per cent between 2005 and 2020. Emissions from households decreased by more than 50 per cent over the same period. This emission reduction can be attributed to the renovation of buildings and the increase in the use of renewables, including the rapid increase in the number of heat pumps installed. Emissions from the agriculture sector remained stable between 2005 and 2020, mainly because the number of cattle remained stable. Emissions from the waste sector have been steadily decreasing and were 46 per cent lower in 2020 compared with 2005 owing to a decrease in the amount of landfilled biodegradable waste and improvements in waste management.

19. Slovenia requested flexibility in accordance with Article 4, paragraphs 6 and 10, of the Convention in relation to the base-year definition. However, the ERT noted that Slovenia did not state the type of special consideration it is seeking and did not provide a full explanation of its circumstances. In accordance with Article 4, paragraph 6, of the Convention and decision 9/CP.2, Slovenia, as a Party with an economy in transition, may use 1986 as its base year.

2. Assessment of adherence to the reporting guidelines

20. The ERT assessed the information reported in the NC8 of Slovenia and identified issues relating to transparency, and thus adherence to the UNFCCC reporting guidelines on NCs. The findings are described in table I.1.

B. Greenhouse gas inventory information[4]

1. Technical assessment of the reported information

21. Slovenia reported information in its BR5 and NC8 on its historical GHG emissions and inventory arrangements. Total GHG emissions[5] excluding emissions and removals from LULUCF decreased by 14.8 per cent between 1990 and 2020, while total GHG emissions including net emissions or removals from LULUCF decreased by 11.7 per cent over the same period. Total GHG emissions excluding LULUCF peaked in 2008 and decreased thereafter. The changes in total emissions were driven mainly by factors such as the 2008 global financial crisis, the political conditions and pandemic-related measures. After Slovenia gained its independence in 1990, total emissions decreased due to significant structural changes resulting in a reduction of emissions from manufacturing industries. Total emissions increased between 1992 and 1997 as a result of an increase in economic growth and significant improvements in industrial production. The increase in emissions was also attributed to 'gasoline tourism', which accounted for 25 per cent of total sales of motor fuels in Slovenia over the same period. In 1998–1999, total emissions decreased as a result of measures implemented by neighbouring countries to curb 'gasoline tourism' and because of the increased supply of electrical energy from the Krško nuclear power plant.

22. In 2000–2002, emissions increased again following the extension of the mandatory export of electrical energy from the Krško nuclear power plant to Croatia. Transport accounted for the largest share of Slovenia's GHG emissions in 2019, which overcompensated for the decrease in emissions in other sectors that occurred as a result of PaMs in manufacturing industries and in the agriculture and waste sectors. The largest emission reduction was recorded between 2008 and 2009 owing to the global financial crisis. Emissions continued to decrease until 2014 and started increasing again up until 2017, mainly due to emissions from the transport sector. In 2020, the large decrease in emissions was due to pandemic-related measures.

23. Table 4 illustrates the emission trends by sector and by gas for Slovenia. The emissions reported in the 2022 annual submission, version 5, are the same as those reported in CTF table 1, except for the forest land category, for which the data reported in CTF table 1 differ in that final data from the national forest inventory were used for the annual submission, while the BR5 estimates were based on preliminary data.

24. In brief, Slovenia's national inventory arrangements were established in accordance with its obligations to international institutions. The Slovenian Environment Agency is responsible for the overall coordination of the activities necessary for preparing the Party's inventories reported to the UNFCCC and the European Commission, and for reporting emissions defined in the Convention on Long-range Transboundary Air Pollution. In preparing these inventories, the Slovenian Environment Agency cooperates with other

[4] GHG emission data in this section are based on Slovenia's 2022 annual submission, version 5, which has been subject to review. All emission data in subsequent chapters are based on Slovenia's BR5 CTF tables unless otherwise noted.

[5] 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.

institutions and administrative bodies, which relay the necessary activity data and other data within the framework of a memorandum of understanding. The main data source for this process is the Statistical Office of the Republic of Slovenia. Statistics compilation is regulated by relevant legislation at the national and EU level and by some agreements concluded at the national level. There have been no significant changes to these arrangements since the BR4. However, owing to the reorganization of the Government, there have been some changes to the names of institutions. For example, the name of the responsible ministry has changed from the Ministry of the Environment and Spatial Planning to the Ministry of the Environment, Climate and Energy.

Table 4
Greenhouse gas emissions by sector and by gas for Slovenia 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	14 646.88	14 831.40	16 406.84	13 691.71	12 538.32	–14.4	–8.4	78.8	79.1
A1. Energy industries	6 376.84	5 595.42	6 349.47	4 581.65	4 516.77	–29.2	–1.4	34.3	28.5
A2. Manufacturing industries and construction	3 097.11	2 295.55	1 933.78	1 756.96	1 714.65	–44.6	–2.4	16.7	10.8
A3. Transport	2 738.12	3 684.38	5 303.47	5 631.53	4 581.05	67.3	–18.7	14.7	28.9
A4. and A5. Other	1 923.16	2 783.77	2 298.36	1 343.28	1 345.19	–30.1	0.1	10.3	8.5
B. Fugitive emissions from fuels	511.65	472.27	521.77	378.29	380.65	–25.6	0.6	2.8	2.4
C. CO_2 transport and storage	NO	NO	NO	NO	NO	NO	NO	NO	NO
2. IPPU	1 392.88	1 162.43	1 015.38	1 227.68	1 174.60	–15.7	–4.3	7.5	7.4
3. Agriculture	1 860.25	1 809.81	1 677.63	1 719.63	1 723.82	–7.3	0.2	10.0	10.9
4. LULUCF	–4 364.20	–6 186.43	–7 158.37	–3 452.37	–3 280.41	–24.8	–5.0	NA	NA
5. Waste	698.83	778.19	543.92	435.16	414.70	–40.7	–4.7	3.8	2.6
6. Other[a]	NO	NO	NO	NO	NO	NO	NO	NO	NO
Gas[b]									
CO_2	15 094.85	15 053.69	16 459.52	14 048.14	12 866.24	–14.8	–8.4	81.2	81.2
CH_4	2 530.13	2 491.38	2 169.95	1 922.69	1 893.63	–25.2	–1.5	13.6	11.9
N_2O	756.45	845.90	728.92	778.90	771.01	1.9	–1.0	4.1	4.9
HFCs	NO	46.10	257.76	296.78	295.03	–	–0.6	–	1.9
PFCs	207.59	129.75	9.64	11.81	9.62	–95.4	–18.5	1.1	0.1
SF_6	9.83	15.01	17.99	15.87	15.93	62.0	0.3	0.1	0.1
NF_3	NO	NO	NO	NO	NO	NO	NO	NO	NO
Total GHG emissions excluding LULUCF	**18 598.85**	**18 581.83**	**19 643.77**	**17 074.18**	**15 851.44**	**–14.8**	**–7.2**	**100.0**	**100.0**
Total GHG emissions including LULUCF	**14 234.66**	**12 395.41**	**12 485.40**	**13 621.82**	**12 571.03**	**–11.7**	**–7.7**	**NA**	**NA**

Source: GHG emission data: Slovenia's 2022 annual submission, version 5.
[a] Emissions and removals reported under the sector other (sector 6) are not included in total GHG emissions.
[b] Emissions by gas without LULUCF. The Party did not report indirect CO_2 emissions.

2. Assessment of adherence to the reporting guidelines

25. The ERT assessed the information reported in the NC8 and BR5 of Slovenia 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.2 and II.1.

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

(a) Technical assessment of the reported information

26. Slovenia 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 NIR of the 2022 annual submission.

(b) Assessment of adherence to the reporting guidelines

27. The ERT assessed the information reported in the NC8 of Slovenia 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

28. In its NC8 Slovenia 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 Slovenia.

(b) Assessment of adherence to the reporting guidelines

29. The ERT assessed the information reported in the NC8 of Slovenia 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.

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

1. Technical assessment of the reported information

30. Slovenia reported information on its economy-wide emission reduction target in its BR5. For Slovenia the Convention entered into force on 29 February 1996. Under the Convention Slovenia 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.

31. 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.

32. 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 62 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 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.

33. 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.

34. 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.

35. Slovenia has a national target of limiting its emission growth to 4 per cent above the 2005 level by 2020 for ESD sectors. This target has been translated into binding quantified AEAs for 2013–2020. Slovenia's AEAs change following a linear path from 12,323.92 kt CO_2 eq in 2013 to 12,307.24 kt CO_2 eq in 2020.[6] Under the ESR, Slovenia has a national target of reducing emissions from covered sectors to 15 per cent below the 2005 level by 2030.

36. In addition to its ESD target, Slovenia committed to achieving a domestic target of a 20 per cent reduction in emissions below the 2005 level by 2030 under its Integrated National Energy and Climate Plan. Slovenia also reported on its longer-term target of reducing emissions by 80–90 per cent below the 2005 level by 2050, which is covered under the Resolution on Slovenia's Long-Term Climate Strategy until 2050, which also identifies sectoral targets for 2050. Slovenia's long-term objective of achieving climate neutrality by 2050 was enacted and defined in 2022 through an amendment to the Environmental Protection Act. The objective of achieving net zero GHG emissions or climate neutrality by 2050 is consistent with the provisions of the Paris Agreement.

2. Assessment of adherence to the reporting guidelines

37. The ERT assessed the information reported in the BR5 of Slovenia and identified issues relating to transparency, and thus adherence to the UNFCCC reporting guidelines on BRs. The findings are described in table II.2.

D. Information on policies and measures

1. Technical assessment of the reported information

38. Slovenia provided in its NC8 and BR5 information on its PaMs implemented, adopted and planned to fulfil its commitments under the Convention. Slovenia's set of PaMs is similar to that previously reported and contains 30 PaMs that were already reported as implemented or adopted in the BR4, 14 new PaMs that are planned for implementation between 2022 and 2023 and one measure implemented in 2011 on green public procurement, which was not reported in CTF table 3 of the BR4.

39. Slovenia reported on its policy context as well as legal and institutional arrangements in place for implementing its commitments and monitoring and evaluating the effectiveness of its PaMs. Slovenia also provided information on 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. The main body responsible for achieving the climate targets and for the national system for monitoring

[6] According to the EU transaction log.

implementation of climate policy is the Ministry of the Environment, Climate and Energy. There is no regional-level climate policy governance in Slovenia because of the small size of municipalities. However, local authorities have an important role in planning and implementing climate policy, as they are active and responsible for measures in the areas of waste management, heat supply, public transport and other sustainable mobility measures, and energy use in buildings owned by municipalities. The legal framework for monitoring implementation of climate policy is based on national and EU law. Several EU acts related to monitoring implementation of climate policy apply directly to Slovenia as an EU member State.

40. Slovenia's assessment of the economic and social consequences of its response measures includes reference to the reporting of the EU, as Slovenia's key climate policies are based on the framework established at the EU level (i.e. the EU ETS and the ESD). Within this framework the EU established an assessment system for all new policy initiatives in order to assess their implications. Through this approach the EU and its member States ensure that the economic and social consequences of response measures are identified. Slovenia reported that its actions to identify and review its own policies and practices that encourage activities that lead to greater levels of emissions are limited to monitoring fossil fuel subsidies.

41. Slovenia reported that its actions to identify and review its own policies and practices that encourage activities that lead to greater levels of emissions are prepared by its Court of Audit. In 2021, the Court's audit report on the effectiveness of actions to meet the GHG emission reduction targets (2013–2020) highlighted the extent to which environmentally harmful subsidies have led to an increase in emissions.

42. In its reporting on PaMs, Slovenia provided the estimated emission reduction impacts for many of its PaMs. Where estimated impacts were not provided, namely for PaMs in the LULUCF and some cross-cutting sectors, the Party reported the impacts as "NE". The Party explained during the review that estimated impacts were not provided for these PaMs because it is difficult to estimate their effect since they are broad or do not directly result in emission reductions, but rather support the implementation of other PaMs. It further explained that the impact of many PaMs was reported as "IE" because the effects of PaMs are overlapping and it is therefore difficult to allocate impacts to each individual measure. Estimated impacts for groups of PaMs were allocated to the measure with the largest impact, while other PaMs contributing to the impact were reported as "IE".

43. 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 Fit for 55, intended to help achieve the new 2030 target. These new regulations strengthened both the ESR and EU ETS 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 regulation also created the EU ETS 2 to cover at the point of distribution most fuel used in non-EU ETS sectors, beginning in 2027.

44. 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. Slovenia's Integrated National Energy and Climate Plan specifies: (1) a national target to reduce GHG emissions by at least 20 per cent below the 2005 level by 2030 for sectors not covered by the EU ETS; (2) sectoral targets for GHG emission reductions by 2030 for sectors not covered by the EU ETS compared with the 2005 level, namely reductions of 65 per cent in the waste sector, 43 per

cent in industry, 34 per cent in energy transformation, 1 per cent in the agriculture sector and 76 per cent in other sectors, and a target to limit growth in GHG emissions in transport to a maximum of 12 per cent by 2030; (3) a target of no net emissions from the LULUCF sector by 2030 (after implementation of accounting rules); and (4) a specific target to reduce GHG emissions from buildings by at least 70 per cent by 2030 compared with the 2005 level. Slovenia has also set a target to phase out coal use for electricity generation by 2033.

45. Slovenia introduced national-level policies to achieve its targets under the ESD and domestic emission reduction targets. The key policies reported are on promotion of cogeneration of electricity and heat from RES and CHP with high efficiency; and increasing the efficiency of vehicles, promoting energy-efficient driving, increasing vehicle occupancy rate and promoting the use of fuels with low CO_2 emissions. The mitigation effect of the policy on promotion of cogeneration of electricity and heat from RES and CHP with high efficiency is the most significant. Other policies that have delivered significant emission reductions are the promotion of efficient energy use in industry and the reduction of landfilled biodegradable waste.

46. Slovenia highlighted the domestic mitigation actions that are under development and that provide a foundation for significant additional action, mostly by intensifying or accelerating existing measures, such as additional activities to increase vehicle efficiency, promote energy-efficient driving, increase vehicle occupancy rate and promote the use of fuels with low CO_2 emissions; additional measures to reduce GHG emissions from thermal power plants; additional measures to promote sustainable transport in general; and additional actions to promote efficient energy use in industry. Table 5 provides a summary of the reported information on the PaMs of Slovenia.

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

Sector	*Key PaMs*	*Estimated mitigation impact in 2020 (kt CO_2 eq)*	*Estimated mitigation impact in 2025 (kt CO_2 eq)*	*Estimated mitigation impact in 2030 (kt CO_2 eq)*
Policy framework and cross-sectoral measures	GHG emission allowance trading (EU ETS)	NA	IE[a]	IE[a]
	Environmental tax on CO_2 emissions	NA	IE[a]	IE[a]
	Taxes and levies on energy that reduce emissions	NA	IE[a]	IE[a]
	Changes to environmental taxes and charges that reduce CO_2 air pollution, and the phasing down and phasing out of incentives for fossil fuels	NA	IE[a]	IE[a]
Energy				
Energy efficiency	Promotion of efficient energy use in industry	NA	500.00	645.00
Energy supply and renewable energy	Promotion of cogeneration of electricity and heat from RES and CHP with high efficiency	NA	715.00	982.00
Transport	Increasing the efficiency of vehicles, promoting energy-efficient driving, increasing vehicle occupancy rate and promoting the use of fuels with low CO_2 emissions	NA	519.00	829.00
IPPU	Reducing F-gas emissions from stationary installations	NA	188.00	287.00
Agriculture	Rational fertilization of agricultural plants with nitrogen	NA	34.00	34.00
LULUCF	Sustainable forest management	NA	NE	NE
Waste	Reducing landfilled biodegradable waste	NA	237.00	448.00

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.

[a] Slovenia reported that the impacts of these cross-cutting PaMs are included under the impacts of sectoral measures, such as energy efficiency and renewable energy.

47. Slovenia described in its NC8 its climate policy framework for 2021–2030, which consists of three umbrella documents for the three main areas of the country's climate policy.

The Resolution on Slovenia's Long-Term Climate Strategy until 2050 describes the overarching target to achieve climate neutrality by 2050 and is the main framework for formulating climate policy strategy. The Integrated National Energy and Climate Plan is the main document for the implementation of mitigation measures, and is in accordance with the EU regulation on the governance of the Energy Union and climate action (regulation 2018/1999/EU) and replaced the Operational Programme to Reduce Greenhouse Gas Emissions by 2020. Lastly, the Climate Action Mirror serves as a comprehensive system for monitoring the progress of climate policy implementation in Slovenia, developed as part of the EU LIFE ClimatePath2050 project by a consortium led by the Jožef Stefan Institute under the responsibility of the Ministry of the Environment, Climate and Energy. The system analyses all emissions sources (including the EU ETS) and all measures that contribute to the achievement of climate targets, including measures approved after the adoption of the Operational Programme to Reduce Greenhouse Gas Emissions by 2020, and is the key source for reporting on GHG emissions to the EU and the UNFCCC.

2. Assessment of adherence to the reporting guidelines

48. The ERT assessed the information reported in the NC8 and BR5 of Slovenia 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.3.

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, Slovenia reported that the implementation of the Kyoto Protocol was underpinned by the Operational Programme to Reduce Greenhouse Gas Emissions by 2020. The related document describes the national climate policy, overarching national target, sectoral targets for reducing GHG emissions, and PaMs for the implementation of targets. The overall responsibility for climate change policymaking lies with the Ministry of the Environment, Climate and Energy, and a number of national institutions are involved in policy implementation. The Slovenian Environment Agency is responsible for preparing and reporting GHG emissions inventories, as well as for monitoring emissions under the EU ETS.

50. For the second commitment period of the Kyoto Protocol, from 2013 to 2020, Slovenia committed to contributing to the joint EU effort to reduce GHG emissions by 20 per cent below the base-year level (see paras. 30–36 above).

51. The Party reported on its arrangements and enforcement procedures to meet its commitments under the Kyoto Protocol, including procedures for addressing non-compliance. These include the Environmental Protection Act, which provides the legal basis for all other environmental legislation that directly or indirectly affects GHG emissions. The Environment and Nature Inspection Service is responsible for monitoring implementation of the Environmental Protection Act and has extensive competences, such as prohibiting the operation of plants and installations in the energy, industry, waste and agriculture sectors and revoking environmental permits. Slovenia monitors the achievement of targets and implementation progress annually, including through the Climate Action Mirror.

52. Slovenia reported that it has provisions in place, such as the Environmental Protection Act, to make information on legislative arrangements and administrative procedures related to compliance and enforcement publicly accessible. On the basis of this information, a report on the state of the environment is prepared by the Slovenian Environment Agency every four years, and environmental data are available on the Agency's website.

53. Slovenia 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. Slovenia has developed a system for managing all Natura 2000 sites, which cover 36 per cent of the

Slovenian territory and more than 50 per cent of the forest area, based on the integration of nature conservation guidelines into all sectoral plans.

(b) Assessment of adherence to the reporting guidelines

54. The ERT assessed the information reported in the NC8 of Slovenia and identified issues relating to completeness and transparency, and thus adherence to the reporting guidelines for supplementary information. The findings are described in table I.8.

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 Slovenia 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 (see para. 39 above).

56. The NC8 includes some information on how Slovenia promotes and implements the decisions of ICAO and IMO to limit emissions from aviation and marine bunker fuels. This is mainly done by supporting EU activities related to the reduction of GHG emissions from international transport. The EU is a key player in the ICAO global market-based measures to reduce emissions from aviation (CORSIA) and has included aviation in the EU ETS since 2012. Furthermore, Slovenia has been one of the participants in CORSIA since the first pilot phase.

57. Further information on how Slovenia 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. Slovenia reported on the assessment of the economic and social consequences of its response measures, adverse effects of climate change, minimization of adverse effects on international trade, and social, environmental and economic impacts on other Parties (i.e. developing country Parties). The Party mainly reported information on the impact assessment system established by the EU for analysing benefits and costs and addressing all significant economic, social and environmental impacts of possible new initiatives on developing countries before the adoption of any national measures.

(b) Assessment of adherence to the reporting guidelines

58. The ERT assessed the information reported in the NC8 of Slovenia and identified an issue relating to transparency, and thus adherence to the reporting guidelines for supplementary information. The finding is described in table I.8.

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. Slovenia reported in its BR5 that it did not use units from market-based mechanisms under the Kyoto Protocol and other market-based mechanisms under the Convention to meet its commitment under the ESD. Given that the contribution of LULUCF activities is not included in the joint EU target under the Convention, reporting thereon is not applicable to Slovenia. The ERT noted that the transparency of Slovenia's reporting could be improved by reporting "NA" in all relevant cells in CTF table 4. Table 6 illustrates Slovenia'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 Slovenia
(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	10 925.25	12 323.92	NA	0.00	1 398.67	1 398.67
2014	10 472.37	12 353.72	NA	0.00	1 881.35	3 280.02
2015	10 719.61	12 383.52	NA	0.00	1 663.91	4 943.93
2016	11 236.89	12 413.32	NA	0.00	1 176.43	6 120.36
2017	10 881.77	12 203.09	NA	0.00	1 321.32	7 441.68
2018	11 033.84	12 237.81	NA	0.00	1 203.96	8 645.65
2019	10 809.90	12 272.53	NA	0.00	1 462.63	10 108.27
2020	9 754.28	12 307.24	NA	0.00	2 552.96	12 661.23

Sources: Slovenia'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 Slovenia and identified issues relating to transparency, and thus adherence to the UNFCCC reporting guidelines on BRs. The findings are described in table II.4.

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, Slovenia committed to limiting its emission growth under the ESD to 4 per cent below the 2005 level by 2020 (see para. 35 above). This target has been translated into binding quantified AEAs for 2013–2020. In 2020 Slovenia's ESD emissions were 20.7 per cent (2,552.96 kt CO_2 eq) below the AEA. 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 report on the review 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, Slovenia has met its 2020 commitment under the Convention through its contribution to achieving the joint EU target.

4. Assessment of adherence to the reporting guidelines

63. The ERT assessed the information reported in the BR5 of Slovenia and identified issues relating to transparency, and thus adherence to the UNFCCC reporting guidelines on BRs. The findings are described in table II.2.

F. Projections

1. Projections overview, methodology and results

(a) Technical assessment of the reported information

64. Slovenia reported in its BR5 and NC8 updated projections for 2030–2040 relative to actual inventory data for 2020 under the WEM scenario. The WEM scenario reported by Slovenia includes PaMs implemented and adopted until 2018.

65. In addition to the WEM scenario, Slovenia reported the WAM and WOM scenarios. The WAM scenario includes planned PaMs, while the WOM scenario excludes all PaMs implemented, adopted or planned after 2005. Slovenia provided no definition of its WEM scenario apart from the statement that it includes PaMs up until 2018, while its WAM scenario includes PaMs designed to lead to net zero emissions by 2050. The definitions indicate that the scenarios were prepared in accordance with the UNFCCC reporting guidelines on BRs.

66. 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, PFCs, HFCs and SF_6 (treating PFCs and HFCs collectively in each case) for 2030–2040. The projections are also provided in an aggregated format for each sector and for a Party total using GWP values from the AR4. Slovenia reported on factors and activities affecting emissions for each sector.

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

67. The methodology used for the preparation of the projections is identical to that used for the preparation of the emission projections for the NC7. Slovenia provided information explaining that trends in reported emissions up until 2018 were included in the projections, while the projections presented in the NC7 were from 2017 onward. The projections are based on six sectoral models that are partly interlinked, three of which are bottom-up models relating to energy, buildings and transport.

68. To prepare its projections, Slovenia relied on 26 key underlying assumptions relating to population, energy prices, economic development indicators, heating and cooling degree days, herd sizes and waste amounts. While the population is assumed to be stable at just below 2.1 million, GDP growth is projected on the basis of historical growth, compensating for the pandemic-induced dip by 2025, and is expected to continue increasing thereafter. The assumptions were updated on the basis of the most recent economic developments known at the time of the preparation of the projections. A few key variables have been added since the BR4, such as the floor area of residences and of buildings in the services sector, as well as nitrogen input from synthetic fertilizers and municipal solid waste generated.

69. Sensitivity analyses were conducted for the development of the transport sector, as it was deemed the most uncertain and represents the most important source of emissions from non-ETS sectors. The WEM scenario was used as the starting point for the analyses, which assessed the impact of transit transport and the effect of the varying energy intensity of the additional measures in the transport sector on emission reductions, such as the share of biofuels and the fuel purchased for foreign vehicles in the context of ‘gasoline tourism’. The results show that the impact of fuel sales for a higher number of foreign vehicles has the greatest impact on projections in 2030, while in 2040 the lower overall carbon footprint of fuel, owing to increased vehicle efficiency and a higher share of electric and alternative fuel vehicles, reduces the impact on emissions. Total emissions under the WAM scenario in 2040 are projected to be 39 per cent lower relative to 2015. The projected impact of the analysed additional PaMs in the transport sector changes this result to between 37 and 51 per cent lower.

(c) Results of projections

70. 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.

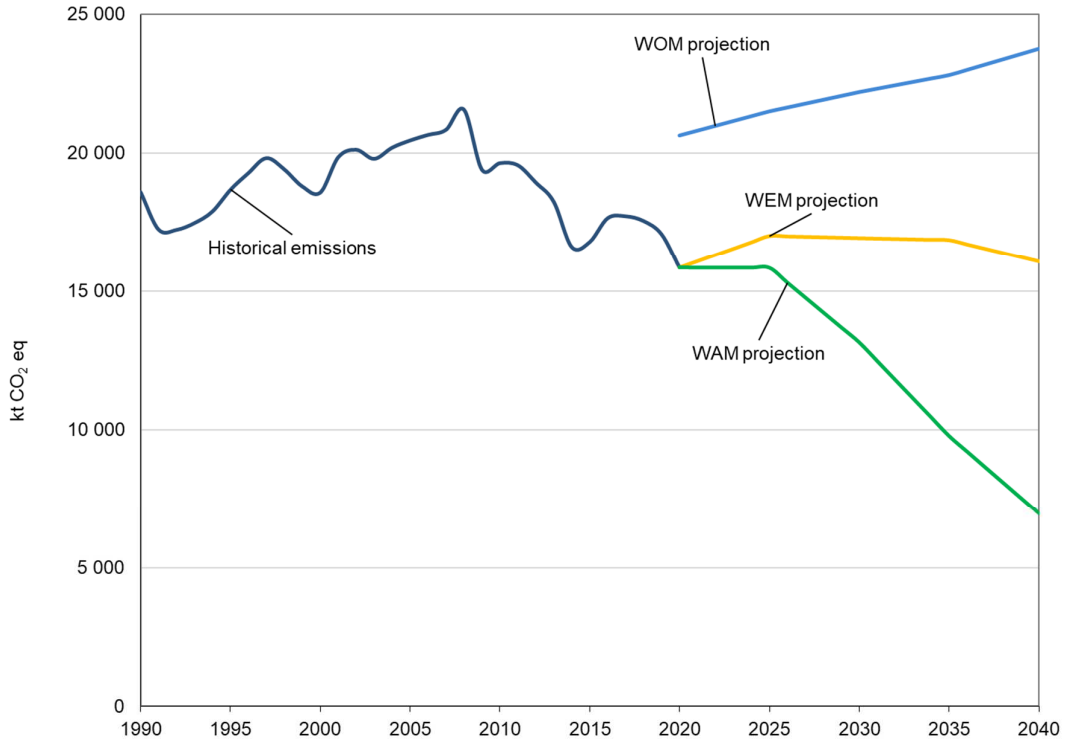
Table 7
Summary of greenhouse gas emission projections for Slovenia

	GHG emissions (kt CO_2 eq/year)	*Change in relation to 1990 level (%)*	*Change in relation to 2020 level (%)*
Inventory data 1990	18 598.85	NA	NA
Inventory data 2020	15 851.46	NA	NA
WOM projections for 2030	22 197.55	19.4	40.0
WEM projections for 2030	16 930.85	–9.0	6.8

	GHG emissions (kt CO_2 eq/year)	*Change in relation to 1990 level (%)*	*Change in relation to 2020 level (%)*
WAM projections for 2030	13 147.87	–29.3	–17.1
WOM projections for 2035	22 807.00	22.6	43.9
WEM projections for 2035	16 857.00	–9.4	6.3
WAM projections for 2035	9 774.00	–47.5	–38.3

Sources: Slovenia's BR5 and BR5 CTF table 6, and annex C to the NC8.
Notes: The projections are of GHG emissions excluding LULUCF and excluding indirect CO_2.

Figure 1
Greenhouse gas emission projections reported by Slovenia

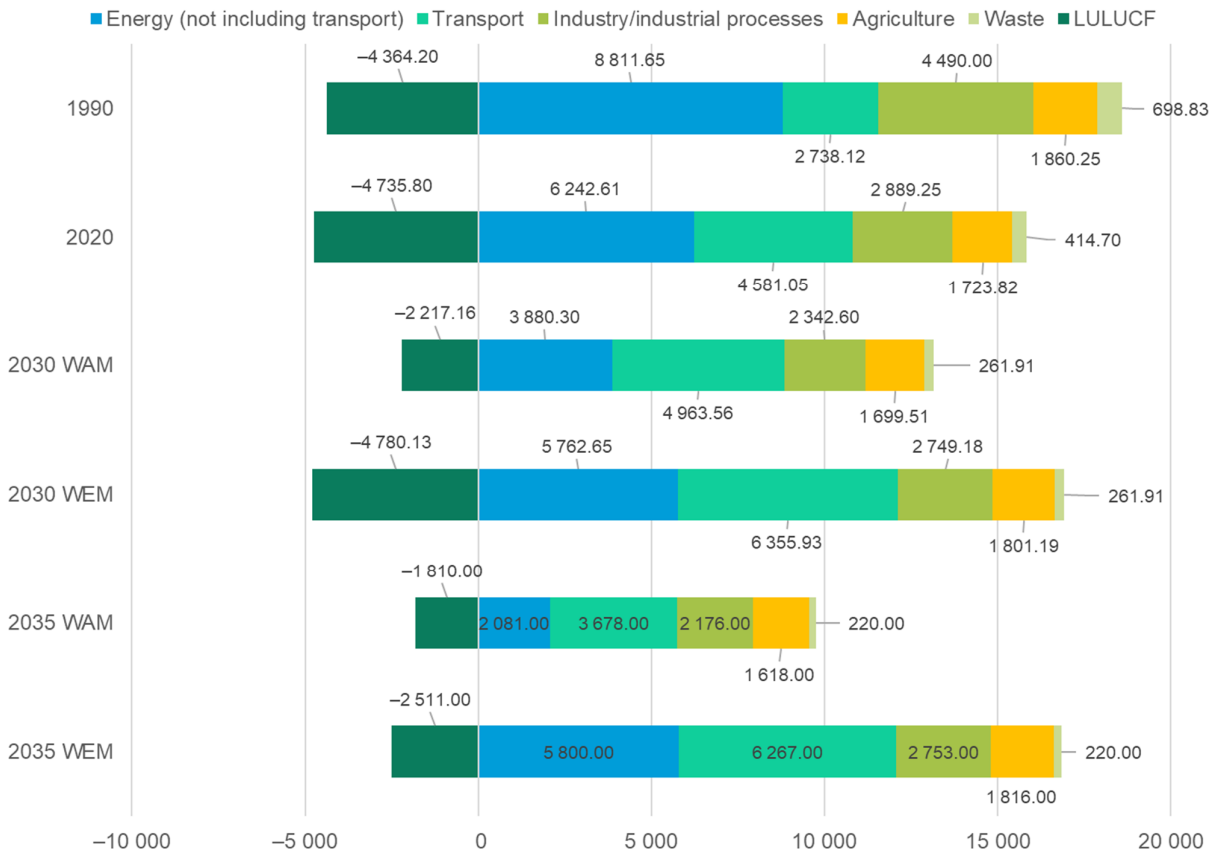


Sources: Slovenia's BR5 CTF tables 1 and 6, and chap. 5.3.1 and annex C to the NC8 (total GHG emissions excluding LULUCF).

71. Slovenia's total GHG emissions excluding LULUCF are projected under the WEM scenario to decrease by 9.0 and 9.4 per cent respectively below the 1990 level in 2030 and 2035. Slovenia used inventory data from 2018 to develop the WEM and WAM scenarios, but reported the results of the projections using actual inventory data for 2020. During the review, Slovenia provided the projected emissions for 2020 for the WEM and WAM scenarios, which are higher than the actual reported emissions, especially for the transport sector. In this context, Slovenia explained that the lower actual emissions for 2020 are mainly a result of lower transport emissions due to pandemic-related restrictions. When including LULUCF, total GHG emissions are projected under the WEM scenario to decrease by 14.6 below and increase by 0.78 per cent above the 1990 level in 2030 and 2035 respectively. Under the WAM scenario, emissions including LULUCF in 2030 and 2035 are projected to be lower than those in 1990 by 23.2 and 44.1 per cent respectively.

72. Slovenia presented the WEM and WAM scenarios by sector for 2030 and 2035, as summarized in figure 2 and table 8.

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



Sources: Slovenia's BR5 CTF table 6 and annex C to the NC8.

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

	GHG emissions and removals (kt CO_2 eq)					*Change (%)*			
		2030		*2035*		*1990–2030*		*1990–2035*	
Sector	*1990*	*WEM*	*WAM*	*WEM*	*WAM*	*WEM*	*WAM*	*WEM*	*WAM*
Energy (not including transport)	8 811.65	5 762.65	3 880.30	5 800.00	2 081.00	–34.6	–56.0	–34.2	–76.4
Transport	2 738.12	6 355.93	4 963.56	6 267.00	3 678.00	132.1	81.3	128.9	34.3
Industry/industrial processes	4 490.00	2 749.18	2 342.60	2 753.00	2 176.00	–38.8	–47.8	–38.0	–51.5
Agriculture	1 860.25	1 801.19	1 699.51	1 816.00	1 618.00	–3.2	–8.6	–2.4	–13.0
LULUCF	–4 364.20	–4 780.13	–2 217.16	–2 511.00	–1 810.00	9.5	–49.2	–42.5	–58.5
Waste	698.83	261.91	261.91	220.00	220.00	–62.5	–62.5	–68.5	–68.5
Other	–	–	–	–	–	–	–	–	–
Total GHG emissions excluding LULUCF	**18 598.85**	**16 930.85**	**13 147.87**	**16 857.00**	**9 774.00**	**–9.0**	**–29.3**	**–9.4**	**–47.5**

Sources: Slovenia's BR5 CTF table 6 and annex C to the NC8.
Note: The sum of the sectors does not add up to the total owing to rounding differences.

73. 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,

amounting to projected reductions of 34.6 per cent between 1990 and 2030. The pattern of projected emissions reported for 2035 under the same scenario remains the same. Under the WAM scenario, the significance of the energy sector increases by 2035, with projected emission reductions of 76.4 per cent below the 1990 level. This decrease is related to enhanced reductions in the energy sector by 2035 due to an accelerated phase-out of coal-based electricity production and a transition to a higher share of solar power. When renewable energy is not sufficient to address energy demand during winter, CO_2 neutral synthetic gas is projected to close the gap. The second largest contributor to emission reductions is the IPPU sector, with projected reductions in 2035 of 38.0 per cent under the WEM scenario and 51.5 per cent under the WAM scenario. The higher reduction results from the projected use of carbon capture and utilization technology at cement production sites.

74. Slovenia presented the WEM and WAM scenarios by gas for 2030 and 2035, as summarized in table 9.

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

	GHG emissions and removals (kt CO_2 eq)					*Change (%)*			
		2030		*2035*		*1990–2030*		*1990–2035*	
Gas	*1990*	*WEM*	*WAM*	*WEM*	*WAM*	*WEM*	*WAM*	*WEM*	*WAM*
CO_2[a]	15 094.85	14 171.15	10 580.68	14 203.00	7 405.00	–6.1	–29.9	–5.9	–50.9
CH_4	2 530.13	1 786.91	1 638.16	1 743.00	1 524.00	–29.4	–35.3	–31.1	–39.8
N_2O	756.45	792.13	748.37	803.00	736.00	4.7	–1.1	6.2	–2.7
HFCs	0.00	149.11	149.11	77.00	77.00	–	–	–	–
PFCs	207.59	15.60	15.60	16.00	16.00	–92.5	–92.5	–92.3	–92.3
SF_6	9.83	15.95	15.95	16.00	16.00	62.3	62.3	62.8	62.8
NF_3	NO	NO	NO	NO	NO	–	–	–	–
Total GHG emissions without LULUCF	**18 598.85**	**16 930.85**	**13 147.87**	**16 857.00**	**9 774.00**	**–9.0**	**–29.3**	**–9.4**	**–47.4**

Sources: Slovenia's BR5 CTF table 6 and annex C to the NC8.
Note: The sum of the gases does not add up to the total owing to rounding differences.
[a] Slovenia did not include indirect CO_2 emissions in its projections.

75. Slovenia provided a comparison of the projections reported in the NC8 and BR5 with those reported in previous NCs and BRs. While the projections under the WEM scenario reported in the NC7 and BR4 and in the NC8 and BR5 are essentially the same, the projections reported in the NC6 were higher, as they were based on a higher emission level for 2015. This projected higher emission level was the result of several assumptions applied in the NC6 that did not evolve as projected: the prolonged economic crisis reduced industrial and transport emissions, and the faster replacement of fuel oil through gas and district heating systems reduced household and services emissions. The relative emission reduction is similar under the WEM scenario across the NC6, NC7 and NC8, at between 6 and 9 per cent by 2030. The projected emissions under the WAM scenario have changed significantly from the NC6 to the NC8 and BR5, as the most recent reported trajectory is much more ambitious and targets net zero emissions by 2050.

76. The ERT noted that the projected sum of the effects of implemented and adopted PaMs in 2030 reported in CTF table 3 is lower than the difference between the WEM and WOM scenarios. Similarly, the projected sum of the effects of planned PaMs in 2030 reported in CTF table 3 is lower than the difference between the WEM and WAM scenarios. During the review, Slovenia explained the difference, which is partly due to an error in CTF table 3 regarding the reported effects of the measure on the technological modernization of the thermal power sector. The remaining difference is attributed to the different methodologies used to estimate the effect of individual PaMs and the overall projections, as well as difficulties in clearly delineating the effect of different degrees of implementation of individual PaMs under the WEM and WAM scenarios.

(d) Assessment of adherence to the reporting guidelines

77. The ERT assessed the information reported in the NC8 and BR5 of Slovenia 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.5.

2. Assessment of the total effect of policies and measures

(a) Technical assessment of the reported information

78. In its NC8 Slovenia presented the estimated and expected total effect of implemented and adopted PaMs and an estimate of the total effect of its PaMs, in accordance with the WEM scenario, compared with a situation without such PaMs. Information is presented in terms of GHG emissions avoided or sequestered, by gas (on a CO_2 eq basis), in 2030 and 2035. It also presented relevant information on factors and activities for each sector for 1990–2030.

79. Slovenia reported that the total estimated effect of its implemented and adopted PaMs is 5,266.70 kt CO_2 eq in 2030. According to the information reported in its NC8, PaMs implemented in the energy sector will deliver the largest emission reductions. Table 10 provides an overview of the total effect of PaMs as reported by Slovenia.

Table 10
Projected effects of Slovenia's planned, implemented and adopted policies and measures in 2030 and 2035
(kt CO_2 eq)

	2030		*2035*	
Sector	*Effect of implemented and adopted measures*	*Effect of planned measures*	*Effect of implemented and adopted measures*	*Effect of planned measures*
Energy (without transport)	–2 256.08	–1 882.35	–2 146.00	–3 719.00
Transport	–862.19	–1 392.37	–1 467.00	–2 589.00
Industry/industrial processes	–1 159.19	–406.58	–1 269.00	–577.00
Agriculture	–69.75	–101.68	–70.00	–198.00
Land-use change and forestry	NE	2 562.97	NE	701.00
Waste management	–919.47	0.00	–999.00	0.00
Total	**–5 266.70**	**–1 220.00**	**–5 951.00**	**–6 382.00**

Source: Slovenia's NC8.
Note: The total effect of implemented and adopted PaMs is defined as the difference between the WOM and the WEM scenarios; the total effect of planned PaMs is defined as the difference between the WEM and the WAM scenarios. The totals are the combined differences between the scenarios. Owing to rounding issues, the sum of the sector differences is not the same as the total difference. Slovenia did not report a WOM scenario for the LULUCF sector.

(b) Assessment of adherence to the reporting guidelines

80. The ERT assessed the information reported in the NC8 of Slovenia and identified issues relating to completeness and transparency, and thus adherence to the UNFCCC reporting guidelines on NCs. The findings are 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

81. In the NC8 Slovenia provided information on how its use of the mechanisms under Articles 6, 12 and 17 of the Kyoto Protocol is supplemental to domestic action. The ERT noted that Slovenia did not use market-based mechanisms to meet its Kyoto Protocol target.

82. The emission reductions due to the EU ETS are considered as domestic action. The ERT noted that the transparency of Slovenia's reporting could be improved by reporting "NA" in the relevant cells in CTF table 4.

(b) Assessment of adherence to the reporting guidelines

83. The ERT assessed the information reported in the NC8 of Slovenia and identified issues relating to transparency, and thus adherence to the UNFCCC reporting guidelines on NCs. The findings are described in table II.4.

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

84. Slovenia 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, Slovenia provided information in its NC8 and BR5 on its provision of support to developing country Parties. The ERT commends Slovenia for reporting this information and suggests that it continue to do so in future NCs.

85. In 2021, the Party allocated EUR 4,938,452 to climate finance or assistance for developing countries, which is a 119 per cent increase compared with 2020 and close to the pre-pandemic level. The contribution consists of EUR 3,380,887 for multilateral assistance in the form of grants and EUR 1,557,564 in grants for bilateral assistance, mostly to the western Balkan countries and countries of sub-Saharan Africa. Support included the transfer of knowledge, technologies or best practices from Slovenia to those countries. The increase in funding is due to the resumption of payments to the Global Environment Facility and the World Bank International Development Association, which were suspended in 2020. Half of the assistance projects were dedicated to adaptation and the other half to mitigation, including cross-cutting projects. There was a notable increase in Slovenia's financial contributions to adaptation projects in 2021 (from EUR 286,644 in 2020 to EUR 568,836 in 2021). Slovenia reported that it plans to continue this trend.

H. Vulnerability assessment, climate change impacts and adaptation measures

1. Technical assessment of the reported information

86. In its NC8 Slovenia provided the required 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. Slovenia provided a description of climate change vulnerability and impacts on agriculture and forestry, biodiversity and natural ecosystems, drought, human health, disaster management and water resources and highlighted the adaptation response actions taken and planned at different levels of government. The most significant vulnerable areas are biodiversity and natural ecosystems, drought and agriculture. As more than 2,000 species are under threat in Slovenia, the country has set up protection areas and established a long-term strategy to protect biodiversity. Slovenia will also face severe agricultural drought, as well as the effects of drought on surface water and underground water. Slovenia accepted the mandate of the Drought Management Centre for Southeastern Europe in 2006 for the Centre to take responsibility for drought risk management in the country, and the development of a national action plan for drought management and soil degradation is under way.

87. During the review, Slovenia provided detailed updated information on the vulnerability assessment for some sectors. Under the Strategic Framework for Climate Change Adaptation, Slovenia has developed a set of indicators to assess the degree of vulnerability at the national and municipality level. While a climate change action plan is under development, climate change impacts have been integrated into spatial planning by the Slovenian Environment Agency. The preparation of information on the impacts of climate change on individual sectors is under way and planned for completion by November 2023.

Slovenia also explained the methodology used to identify vulnerability, which analyses the level of exposure, sensitivity and adaptive capacity. Slovenia provided information on steps taken to select an appropriate methodology for climate risk assessment, including the establishment of the Climate Change Adaptation Centre to provide a tailored climate service generating projections data for stakeholders on request using the AR6.

88. Impetus has been given to addressing adaptation matters with the adoption of the Strategic Framework for Climate Change Adaptation in 2016. The aim of the Framework is to integrate climate change resilience and adaptation into the environmental impact assessment of all programmes and plans. The project run by the Slovenian Environment Agency to assess climate change impacts in the twenty-first century has estimated the effect of climate change and is the starting point for the preparation of the Climate Change Adaptation Plan. Slovenia has adopted policies in specific areas, including the Climate Change Adaptation Strategy for Slovenian Agriculture and Forestry, the Common Agricultural Policy and a new agricultural policy for 2021–2027. The Research and Innovation Strategy of Slovenia adopted in 2022 frames the country's scientific research and innovation policies in the area of adaptation, including resources, biodiversity, agriculture and forestry. These strategies and policies have provided further direction to government agencies on enhancing preparedness for climate change. Table 11 summarizes the information on vulnerability and adaptation to climate change presented in the NC8 of Slovenia.

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

Vulnerable area	*Examples/comments/adaptation measures reported*
Biodiversity and natural ecosystems	Vulnerability: More than 2,000 species are threatened. Adaptation: A total of 355 Natura 2000 sites have been set up to preserve biodiversity. Special protection areas are aimed at preserving rare and endangered animals and plants and their habitats. The Resolution on Slovenia's Long-Term Climate Strategy until 2050 focuses on developing guidelines for protecting biodiversity. Research, education and trainings on biodiversity conservation are being implemented.
Drought	Vulnerability: Changes in the frequency of occurrence, duration and severity are expected for agricultural drought and in relation to drought affecting surface water and underground water. Adaptation: Climate change impact assessments of future drought have been prepared by the Slovenian Environment Agency. The Drought Management Centre for Southeastern Europe is responsible for drought risk management in Slovenia and for the national action plan for drought management and soil degradation.
Agriculture and forestry	Vulnerability: No vulnerability assessment of agriculture and forestry was reported in the NC8. Adaptation: Guidelines for adaptation activities are provided under the Climate Change Adaptation Strategy for Slovenian Agriculture and Forestry within the framework of the Action Plan for Adaptation (2010–2011), the Common Agricultural Policy (2014–2022) and a new agricultural policy for 2021–2027. The Research and Innovation Strategy of Slovenia adopted in 2022 focuses on specific areas, including agriculture and forestry.
Water resources	Vulnerability: No vulnerability assessment of water resources was reported in the NC8. Adaptation: The River Basin Management Plan for the Danube and Adriatic River Basins for 2016–2021 was adopted. Public awareness-raising on adverse effects and hydrology has been conducted by the Slovenian Environment Agency.
Natural disasters	Vulnerability: No vulnerability assessment of natural disasters was reported in the NC8. Adaptation: No information was provided in the NC8 on adaptation plans for natural disasters, although information on the preparation of a National Disaster Risk Assessment in 2016 was reported in the NC7.
Human health	Vulnerability: No vulnerability assessment of human health was reported in the NC8. Adaptation: Environmental reports identify the protection of human health as an important issue. The Eco-Schools programme promotes environmental education and raises awareness of the impact of climate change on human health.

89. Slovenia provided a detailed description of international adaptation activities, including financial, project and research support provided to western Balkan countries such as Bosnia and Herzegovina and Serbia. In Bosnia and Herzegovina, two projects were carried out: the renovation of the phenol plant site in the Lukavac industrial zone, for which an environmental impact assessment was conducted; and a project on supporting women's socially responsible entrepreneurship, aimed at empowering women to ensure their involvement in decision-making. In Serbia, Slovenia collaborated in a project on the development of female entrepreneurs in south-eastern Serbia, aimed at increasing the income of female farmers.

2. Assessment of adherence to the reporting guidelines

90. The ERT assessed the information reported in the NC8 of Slovenia and identified issues relating to completeness and 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

91. In its NC8 Slovenia provided information on its general policy and funding relating to research and systematic observation and both domestic and international activities, including contributions to WMO, the Global Runoff Database, the European Flood Awareness System and the Mediterranean Operational Network for the Global Ocean Observing System. Slovenia also provided information on the identification of opportunities for free and open international exchange of data and information and explained during the review that no barriers have been encountered to date.

92. Slovenia 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. Slovenia adopted the Research and Innovation Strategy of Slovenia in 2022, which frames research policies in specific areas, including sustainable management and conservation of the natural environment, biodiversity, agriculture, forestry, food, and sustainable and rational use of resources. Domestic research includes the EU LIFE ClimatePath2050 project, which focuses on refining and updating the projection of GHG emissions up until 2050 and the Slovenian Research Agency targeted research project focused on climate change and sustainable development of Slovenian tourism. Slovenia also described international research projects in which it has collaborated. Examples include the Interreg Adrion project, involving 11 partners from seven countries, focused on enhancing ecological connectivity for long-term conservation of biodiversity, and three Horizon 2020 projects focused on enhancing local energy systems that support the growth of RES in capacity-constrained grids, new technologies and strategies for fuel cell and hydrogen technologies, and smart, green and integrated transport.

93. In terms of activities related to systematic observation, Slovenia reported on national plans, programmes and support for ground- and space-based climate observation systems, including satellite and non-satellite climate observation. These include a variety of hydrological observation systems, including regular status assessments under the River Basin Management Plan, observations of two glaciers in Slovenia and membership in the European Organisation for the Exploitation of Meteorological Satellites for satellite measurements. The Party's reporting in the NC8 was a significant improvement compared with the NC7, with more detailed monitoring data and information provided on the observation systems, including the atmospheric, ocean, terrestrial, hydrological (for surface water and groundwater) and glacier climate observation systems, as well as space and radar observation systems.

94. In the NC8 Slovenia did not report on actions taken to support capacity-building and the establishment and maintenance of observation systems and related data and monitoring systems in developing countries. During the review, Slovenia confirmed that it is not currently providing direct support to developing countries to establish and maintain

observation systems and related data and monitoring systems. However, Slovenia is contributing to WMO in terms of providing financial support. Slovenia did not provide information in the NC8 on funding for scientists from developing countries working on global climate change research.

2. Assessment of adherence to the reporting guidelines

95. The ERT assessed the information reported in the NC8 of Slovenia and identified issues relating to completeness and transparency, and thus adherence to the UNFCCC reporting guidelines on NCs. The findings are described in table I.6.

J. Education, training and public awareness

1. Technical assessment of the reported information

96. In its NC8 Slovenia 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.

97. The key climate change education policy in Slovenia is the National Programme of Higher Education 2030, adopted in 2022, which prioritizes education and training on social and economic challenges related to climate change, including biodiversity loss, green technologies, agrifood and transition to a sustainable society. The LIFE IP CARE4CLIMATE project promotes good practices for GHG reduction measures and the Eco Fund focuses on public education and awareness-raising. Slovenia clarified during the review that a web portal on sustainable energy[7] serves as a resource or information centre in the field of sustainable energy use. Slovenia also explained that the activities related to the implementation of Article 6 of the Convention are divided between different actors and projects. An overview of information on the monitoring, review and evaluation of the implementation of Article 6 of the Convention in Slovenia is available in the Climate Action Mirror report that is prepared annually (available in Slovenian only).

2. Assessment of adherence to the reporting guidelines

98. The ERT assessed the information reported in the NC8 of Slovenia and identified an issue relating to completeness, and thus adherence to the UNFCCC reporting guidelines on NCs. The finding is described in table I.7.

III. Conclusions and recommendations

99. The ERT conducted a technical review of the information reported in the NC8 of Slovenia 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 Slovenia.

100. The information provided in the NC8 includes most of the elements of the supplementary information under Article 7, paragraph 2, of the Kyoto Protocol. Slovenia reported on the national system, the national registry, supplementarily 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 Slovenia in its 2022 annual submission.

[7] https://www.trajnostnaenergija.si (in Slovenian).

101. The ERT conducted a technical review of the information reported in the BR5 and BR5 CTF tables of Slovenia 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 Slovenia towards achieving its target.

102. In its NC8 Slovenia reported on its key national circumstances related to GHG emissions and removals, including the crisis caused by the pandemic and its impacts on the reduction of emissions from the transport sector. The country experienced a small decline in GDP in 2020. However, Slovenia's economic activity surpassed the pre-pandemic level in 2021, with GDP exceeding the 2019 level. The level of employment has improved, with the national employment rate reaching an all-time high of 75.6 per cent in 2020. Slovenia is slowly decoupling economic growth from GHG emissions, with GDP increasing by almost 20 per cent between 2010 and 2019 while GHG emissions decreased by 13 per cent over the same period.

103. Slovenia's total GHG emissions excluding LULUCF covered by its quantified economy-wide emission reduction target were estimated to be 14.8 per cent below its 1990 level. Emissions peaked in 2008 and continued to decline until 2014 in the aftermath of the global financial crisis. The subsequent increase in emissions was mostly due to the transport sector. The sharp decrease in emissions in 2020 occurred mainly as a result of pandemic-related restrictions and the associated reduction in transport activity. The changes in total GHG emissions were driven mainly by the decrease and subsequent growth in GDP and the resulting transport activity. Another important factor in the changes to total GHG emissions was the fuel sold to vehicles transiting through Slovenia and the 'gasoline tourism' induced by lower fuel prices in Slovenia compared with neighbouring countries.

104. As reported in the BR5, under the Convention Slovenia 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 Slovenia has a target of limiting its emission growth to 4 per cent above the 2005 level by 2020.

105. The EU has a joint 2030 emission reduction target of 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. Slovenia has a longer-term target to achieve climate neutrality by 2050 that was enacted in 2022 through an amendment to the Environmental Protection Act. In addition to its ESD target, Slovenia committed to achieving a domestic target of a 20 per cent reduction in emissions below the 2005 level by 2020. Slovenia has longer-term targets of reducing emissions by 80–90 per cent below the 2005 level by 2050 and achieving net zero GHG emissions by the same year.

106. 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 Slovenia has met its 2020 commitment under the Convention through its contribution to achieving the joint target of the EU. See the report on the review 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.

107. The GHG emission projections provided by Slovenia in its NC8 and BR5 correspond to the WEM, WOM and WAM scenarios. Under the WEM scenario, emissions in 2030 are projected to be 14.6 per cent below the 1990 level and 3.3 per cent below the 2020 level (including LULUCF). Under the WAM scenario, emissions in 2030 are projected to be 23.2 per cent below the 1990 level and 13.1 per cent below the 2020 level. Slovenia reported on the methodologies, key drivers and assumptions underlying these projections, although the correlation between the individual PaMs and the total effect of PaMs was not clear, especially as the total effect of implemented PaMs was higher than the sum of individual PaMs. During

the review, Slovenia explained that the methodologies used for the calculation of the effect of individual PaMs differ from the model-based projections and that the effect of individual PaMs cannot be easily replicated using the model parameters. Overall emissions are also affected by general developments that are separate from the reported PaMs.

108. Slovenia's main policy framework relating to energy and climate change is the Integrated National Energy and Climate Plan. The Party described the mitigation actions it has implemented to help it achieve its 2020 and longer-term targets, which include reducing GHG emissions by at least 40 per cent compared with the 1990 level, as well as achieving climate neutrality by 2050. The key policies reported are on promoting cogeneration of electricity and heat from RES and CHP with high efficiency; and on increasing the efficiency of vehicles, promoting energy-efficient driving, increasing vehicle occupancy rate and promoting the use of fuels with low CO_2 emissions. These PaMs will contribute to the EU 2030 emission reduction target, as well as more ambitious national targets related to the Integrated National Energy and Climate Plan and the Environmental Protection Act.

109. Slovenia 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. The Party increased its climate finance assistance to developing countries in 2021, mainly owing to the resumption of payments to the Global Environment Facility and the World Bank International Development Association, which were suspended in 2020. Half of Slovenia's assistance projects were dedicated to adaptation and the other half to mitigation, including cross-cutting projects, mostly in the western Balkan countries and countries in sub-Saharan Africa. Slovenia also reported that it will continue to follow EU and UNFCCC decisions and guidelines on climate finance.

110. In its NC8 Slovenia 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, such as the Strategic Framework for Climate Change Adaptation. Vulnerability assessments and estimation of the impact of climate change by sector and municipality are ongoing. Areas that are highly vulnerable to climate change are biodiversity, drought, and agriculture and forestry. The steps taken to adapt vulnerable areas to climate change impacts were described in the NC8.

111. In its NC8 Slovenia provided information on its activities relating to research and systematic observation. An observation system and information exchange processes for international collaboration are in place. Slovenia adopted a policy on research and innovation to frame climate change research in 2022. Domestic and international cooperation research activities were described in the NC8, such as the Interreg Adrion project and three Horizon 2020 projects.

112. In its NC8 Slovenia provided information on its actions relating to education, training and public awareness. The National Programme for Higher Education 2030 was adopted in 2022 as a key policy to frame education and training on climate change in Slovenia. Slovenia provided updated information on education and training, including public participation in the preparation of the NC8.

113. In the course of the review, the ERT formulated the following recommendations for Slovenia 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 the action taken to implement Article 4, paragraph 1(b) and (e), of the Convention with regard to adaptation, and progress in the implementation of vulnerability assessments, including, for ongoing assessments, an action plan and methodology for their completion in the next NC (see issue 1 in table I.5);

(ii) Clearly reporting on capacity-building activities relating to research and systematic observation in developing countries (see issue 1 in table I.6);

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

(i) Providing more detailed information on how national circumstances influence key factors affecting GHG emissions from industry, the housing stock and urban infrastructure, agriculture and waste activities (see issue 1 in table I.1);

(ii) Providing a more detailed description of the responsibilities of institutions, especially regarding any changes in responsibilities, in its reporting on institutional arrangements (see issue 3 in table I.2);

(iii) Connecting PaMs with affected gases and sectors on the basis of how effects are accounted for in the inventory (see issue 5 in table I.3);

(iv) Providing a clear description of the allocation of PaMs to the WEM and the WAM scenarios in the next NC (see issue 1 in table I.4);

(v) Providing projections from the base year onward or providing an explanation as to why this is not possible in the next NC (see issue 2 in table I.4);

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

114. In the course of the review of Slovenia's NC8, the ERT noted the following findings relating to adherence to the reporting guidelines for supplementary information:

(a) Issues with the completeness of its reporting relating to:

(i) Information provided on its commitments and its compliance with those commitments (see issue 1 in table I.8);

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

(i) Information provided on steps undertaken to promote and/or implement decisions of ICAO and IMO (see issue 2 in table I.8).

115. In the course of the review of Slovenia'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:

(i) Summary information provided from the national GHG inventory on emissions and emission trends prepared in accordance with the UNFCCC Annex I inventory reporting guidelines, including information on indirect GHG emissions (see issue 1 in table II.1);

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

(i) Information provided on explanations for empty cells in CTF table 1, for example using a custom footnote or notation keys (see issue 2 in table II.1);

(ii) Information provided on a detailed description of responsibilities of institutions, especially regarding any changes in responsibilities, in its reporting on institutional arrangements (see issue 3 in table II.1);

(iii) Information provided on the gases included in its quantified economy-wide emission reduction target, in line with the information contained in document FCCC/SBSTA/2014/INF.6 or any updates to that document (see issue 1 in table II.2);

(iv) Information provided on the contribution of the LULUCF sector and GHG emission estimates in CTF tables 1 and 4, 4(a) and 4(b) for each reporting year (see issue 1 in table II.4);

(v) Information on the use of market-based mechanisms in CTF tables 4 and 4(b) (see issue 2 in table II.4);

(vi) The description of the allocation of PaMs to the WEM and WAM scenarios (see issue 1 in table II.5);

(vii) Information provided on projections from the base year onward or an explanation as to why this is not possible (see issue 2 in table II.5);

(c) The timeliness of its reporting (see para. 7 above).

Annex I

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

Tables I.1–I.8 summarize the ERT assessment of adherence to the UNFCCC reporting guidelines on NCs for Slovenia'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 Slovenia

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 3 Issue type: transparency Assessment: recommendation	The ERT noted that the Party included in chapter 2 of the NC8 a section on industry following a recommendation from the previous review report. However, Slovenia did not provide a description of how its national circumstances related to industry, housing stock and urban infrastructure, agriculture and waste activities are relevant to factors affecting GHG emissions and in particular its GHG emissions from industrial sources. During the review, Slovenia acknowledged this omission and provided detailed information on factors and trends affecting its emissions from industry, housing stock and urban infrastructure, agriculture and waste activities. The ERT reiterates the recommendation from the previous review report that Slovenia improve the transparency of its reporting by including information on how national circumstances influence key factors affecting GHG emissions from industry, housing stock and urban infrastructure, agriculture and waste activities.

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 Slovenia

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 5 Issue type: completeness Assessment: encouragement	The Party did not report information on indirect GHG emissions in its NC8, although estimates of indirect GHG emissions were reported in Slovenia's 2022 NIR. During the review, the Party explained that it did not include indirect GHG emissions in the summary information in the NC8, as it is not a mandatory reporting requirement. The ERT encourages Slovenia to enhance the completeness of its reporting by providing, in its next NC, summary information from the national GHG inventory on emissions and emission trends prepared in accordance with the UNFCCC Annex I inventory reporting guidelines, including information on indirect GHG emissions, especially as those gases are included in the projections.
2	Reporting requirement specified in paragraph 7 Issue type: transparency Assessment: encouragement	The Party reported limited information on underlying factors for the emission trends for all sectors and time periods in its NC8. Emission trends for the energy sector were described, but no underlying factors were reported. For the transport sector, the increase in road transport was reported as an emission driver up until 2008. However, no reason was provided to explain why emissions since then have fluctuated below the peak of 2008. Emissions from manufacturing industries were reported to have decreased until 2001, but the reason for this was not provided. Emission trends for industrial processes were described, but the underlying factors for those trends were described for some time periods only. During the review, Slovenia provided detailed additional information on the drivers of emission trends.

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
		The ERT reiterates the encouragement from the previous review report for the Party to improve transparency by providing a description of the underlying factors for all emission trends that are reported in the NC8.
3	Reporting requirement specified in paragraph 8 Issue type: transparency Assessment: recommendation	The Party provided contradictory information in its NC8 on its inventory arrangements. In one case, the Ministry of the Environment and Spatial Planning is mentioned as the body responsible for preparing the NC and the BR and in another the Ministry of the Environment, Climate and Energy and the Slovenian Environment Agency are mentioned as the bodies responsible for emission inventories and reporting. During the review, Slovenia clarified that following the reorganization of the Government, the Ministry of the Environment, Climate and Energy was designated as the entity responsible for climate policy evaluation and for reporting on PaMs and projections of anthropogenic GHG emissions. The Slovenian Environment Agency, a body under the Ministry of the Environment, Climate and Energy, is responsible for compiling the national GHG inventory, managing the national part of the EU registry and providing data to other competent authorities and information to the public. The ERT recommends that Slovenia enhance the transparency of its reporting by providing a more detailed description of the responsibilities of institutions, especially regarding any changes in responsibilities, in its reporting on institutional arrangements.

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 Slovenia

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	Slovenia reported the PaMs, or combinations of PaMs, that have the most significant impact on GHG emissions and removals. However, Slovenia did not clearly indicate those that are innovative and/or effectively replicable by other Parties. During the review, Slovenia explained that it considers PaMs on the promotion of sustainable transport to be replicable by other countries, but many others are outdated or replicated with slight modifications from other countries and that it would be incorrect to report such measures as innovative. The ERT reiterates the encouragement from the previous review report for the Party to improve the transparency of its reporting by clearly indicating in its next NC information on innovative and/or replicable PaMs.
2	Reporting requirement specified in paragraph 10 Issue type: transparency Assessment: encouragement	Slovenia reported several PaMs in the cross-cutting sector (e.g. on education, training, awareness-raising, communication and promotion; green economic growth; green public procurement; and energy labelling and minimum standards for products and devices) without estimating their effects and without explaining why, although the quantitative estimates of the effects were not calculated, they were nevertheless considered as relevant. During the review, Slovenia explained that estimated impacts were not reported for these PaMs because, among other reasons, they do not directly result in emission reductions but are relevant for the implementation of other measures. The ERT encourages Slovenia 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. PaMs without direct effects on emission reductions that are nevertheless relevant for the implementation of other measures could, for example, be mentioned together with the respective measure affected.
3	Reporting requirement specified in paragraph 12 Issue type: completeness	Slovenia reported on its system of monitoring climate policy implementation and on the Climate Action Mirror. However, Slovenia did not report on action taken to implement its commitments under Article 4, paragraph 2(e)(ii), of the Convention, which requires Parties to identify and periodically update their policies and practices that encourage activities that lead to greater levels of anthropogenic GHG emissions than would otherwise occur.

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
	Assessment: encouragement	During the review, Slovenia explained that it continuously monitors subsidies for fossil fuels and implements monitoring within the framework of the Climate Action Mirror. The Party uses several indicators for monitoring progress on climate action in relation to transport, buildings, agriculture, LULUCF, other sectors, green growth and the EU ETS. The ERT reiterates its encouragement from the previous review report that Slovenia improve the completeness of its reporting by including in its next NC information on its actions regarding the periodical update of PaMs and practices that encourage activities that lead to greater levels of anthropogenic GHG emissions than would otherwise occur, together with the rationale for implementing such actions.
4	Reporting requirement specified in paragraph 19 Issue type: transparency Assessment: encouragement	Slovenia reported in its NC8 on the status of implementation of several PaMs as "implemented, adopted" (e.g. promotion of efficient energy use and the use of RES in buildings in general; promotion of sustainable transport in general; promotion of public passenger transport; sustainable freight transport; and increasing the efficiency of vehicles, encouraging economic driving, higher vehicle occupancy and encouraging the use of fuels with low CO_2 emissions). However, Slovenia did not report on the distinction between the adopted and implemented elements of the above-mentioned PaMs reported as "implemented, adopted". During the review, Slovenia provided a table with a distinction between the adopted and implemented elements of the PaMs reported as "implemented, adopted". The ERT reiterates the encouragement from the previous review report for Slovenia to improve the transparency of its reporting by demonstrating in its next NC a clear distinction between adopted and implemented PaMs and by providing relevant explanatory information.
5	Reporting requirement specified in paragraph 19 Issue type: transparency Assessment: recommendation	Slovenia reported in its NC8 that CO_2 and PFC emissions and sectors including waste and agriculture are affected by the implementation of the measure on the use of best available techniques – environmental permits. The agriculture and waste sectors, however, are dominated by CH_4 and N_2O emissions, which are not mentioned as being affected by the measure, while CO_2 emissions for those sectors are relatively low and PFC emissions do not occur in both sectors. Similarly, Slovenia reported that CO_2 emissions and the agriculture sector, among others, would be affected by the measure on green economic growth. However, CH_4 and N_2O would be the main gases affected by the measure in the agriculture sector. During the review, Slovenia explained that it considers that the measure on the use of best available techniques – environmental permits does not directly reduce GHG emissions in the agriculture and waste sectors. However, emissions of CH_4 and N_2O are also affected, although the contribution of the measure in the agriculture and waste sectors is relatively small. Slovenia further explained that the measure on green economic growth is mainly targeted towards the reduction of CO_2 emissions from energy use in different sectors and that only energy use is affected in the agriculture sector. The ERT recommends that Slovenia improve the transparency of its reporting by correctly connecting PaMs with affected gases and sectors on the basis of how the effects are accounted for in the inventory.
6	Reporting requirement specified in paragraph 21 Issue type: completeness Assessment: encouragement	Slovenia reported the cost of PaMs for the energy, transport and industry sectors, but not for the agriculture, LULUCF and waste sectors. In addition, information on the benefits and interactions of PaMs was not reported. During the review, the Party explained that PaMs in the agriculture, waste and LULUCF sectors have multiple objectives (e.g. reduction of ammonia, sustainable forestry, waste disposal objectives) and, in such cases, it is difficult to attribute the costs to a single objective. The Party explained that in Slovenia the assessment of benefits is conducted on the basis of the GHG projections, not at the level of a single measure. The ERT notes the improvements in the Party's reporting but reiterates the encouragement from the previous review report that Slovenia enhance the completeness of its reporting by providing information on the cost, benefits and interactions of all PaMs or provide explanations as to why this is not possible.

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 Slovenia

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 26 Issue type: transparency Assessment: recommendation	The Party presented a WAM scenario that includes the PaMs required to achieve net zero emissions by 2050, which is the stated objective in the Resolution on Slovenia's Long-Term Climate Strategy until 2050. The WAM scenario reported by the Party is based on calculations carried out under the EU LIFE ClimatePath2050 project. However, it remains unclear to what extent the PaMs included in the WAM scenario are contained in official planning procedures of Slovenia, such as the Integrated National Energy and Climate Plan. As the WAM scenario is presented up until 2040 and the Integrated National Energy and Climate Plan contains goals, policies and actions until 2030 only, it remains unclear whether PaMs beyond 2030 are actually planned or only intended. Slovenia further reported that the WEM scenario contains all PaMs implemented or adopted as at the end of 2018. However, it remains unclear whether the PaMs included in the WAM scenario are those that have been reported as "planned". During the review, the Party clarified that the WAM scenario indeed reflects the PaMs planned beyond 2030 as part of the Integrated National Energy and Climate Plan and Slovenia's Long-Term Climate Strategy until 2050 and are indicated as "planned" in the NC8, while adopted and/or implemented PaMs are included in the WEM scenario. The ERT recommends that Slovenia increase the transparency of its reporting by including a clear description of the allocation of measures to the WEM and WAM scenarios in its next NC to enhance the transparency of its reporting regarding the PaMs included in the reported scenarios.
2	Reporting requirement specified in paragraph 28 Issue type: transparency Assessment: recommendation	The Party reported emission projections for the WEM, WOM and WAM scenarios relative to 2020. The base years reported are 2018 and 2005 for the WEM and WOM scenarios respectively, but projections between the respective base years and 2020 were not provided. During the review, Slovenia provided projections data for the WEM scenario for 2020 and explained the differences between the projections and the reported emissions. Regarding the WOM scenario, Slovenia clarified that although 2005 is used as the base year for most sectors, some sectors (e.g. LULUCF) have a later base year and thus 2020 is the first year for which complete projections can be calculated. The ERT recommends that Slovenia increase the transparency of its reporting by including projections from the base year onward or by explaining why this is not possible in its next NC.
3	Reporting requirement specified in paragraph 32 Issue type: completeness Assessment: encouragement	Slovenia did not report projections for CO. During the review, Slovenia explained that projections for CO were not reported because they were not calculated as the Party does not have any targets for emission reductions of CO. The ERT reiterates the encouragement from the previous review report that Slovenia improve the completeness of its reporting by including projections for CO or by providing the reason for not doing so.
4	Reporting requirement specified in paragraph 40 Issue type: completeness Assessment: encouragement	The ERT noted a considerable improvement in the description of the models used for the projections compared with the NC7. However, Slovenia provided limited information on the strengths and weaknesses of the models it used. During the review, Slovenia provided information on the interaction between the models and explained their general strengths and weaknesses. The main strength of the models used is that they are very detailed simulation models that offer a more in-depth analysis of drivers. Their main weakness is the lack of optimization options, leading to the need for complementary studies to prepare the most realistic scenarios for the implementation of different PaMs. The ERT reiterates the encouragement from the previous review report that Slovenia improve the completeness of its reporting by continuing to provide more detailed information on underlying models, especially with regard to their strengths and

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
		weaknesses. The ERT noted that addressing the interaction between models would also be helpful.

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 Slovenia

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 46 Issue type: completeness Assessment: recommendation	In its NC8, Slovenia did not outline the action taken to complete vulnerability assessments that will enable it to implement Article 4, paragraph 1(b) and (e), of the Convention with regard to adaptation. During the review, Slovenia provided detailed updated information on the action taken to conduct vulnerability assessments for some sectors. Slovenia is developing a set of assessment indicators, and assessments at the municipality level have been carried out since 2022 under the Strategic Framework for Climate Change Adaptation. Preparation for the assessment of sectoral impacts is still under way and is planned for completion by the end of 2023. Slovenia also provided information on steps taken to select an appropriate methodology for climate risk assessments, including the establishment of the Climate Change Adaptation Centre to provide a tailored climate service generating projections data for stakeholders on request. The ERT reiterates the recommendation from the previous review report that Slovenia enhance the completeness of its reporting by reporting in the next NC on the action taken to implement Article 4, paragraph 1(b) and (e), of the Convention with regard to adaptation and the progress of the implementation of vulnerability assessments, including, for ongoing assessments, an action plan and a methodology for their completion.
2	Reporting requirement specified in paragraph 47 Issue type: completeness Assessment: encouragement	In its NC8 Slovenia reported on several adaptation actions, such as sustainable and integrated water resources management, including the Common Agricultural Policy for 2014–2020 and the new agricultural policy for 2021–2027. However, Slovenia did not report on the monitoring and evaluation framework for implemented adaptation strategies or plans. During the review, Slovenia provided information explaining that strategies and plans in the water, agriculture and other sectors that include adaptation measures and goals, such as those mentioned in the NC8, have their own established monitoring and evaluation systems. For most of the strategies and plans, the implemented measures are regularly monitored, and an evaluation is conducted after the end of the period for which the strategy or plan was in effect. The ERT encourages the Party to enhance the completeness of its reporting by including information on the monitoring and evaluation framework for implemented adaptation strategies or plans 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 research and systematic observation from the review of the eighth national communication of Slovenia

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 61	Slovenia did not report in the NC8 on the action taken to provide capacity-building support to developing countries.

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
	Issue type: completeness	During the review, Slovenia explained that the action taken includes providing financial support.
	Assessment: recommendation	The ERT reiterates the recommendation from the previous review report that Slovenia increase the completeness of its reporting by reporting the actions taken to support capacity-building activities relating to research and systematic observation in developing countries in its next NC.
2	Reporting requirement specified in paragraph 65	The ERT noted that information on the identification of barriers to free and open international exchange of data and information and on action taken to overcome such barriers, if any, was not reported in the NC8.
	Issue type: completeness	During the review, Slovenia explained that it has not encountered any barriers to date.
	Assessment: encouragement	The ERT reiterates the encouragement from the previous review report that Slovenia improve the completeness of its reporting by providing information on barriers to free and open international exchange of data and information in its next NC.
3	Reporting requirement specified in paragraph 67	In the NC8 Slovenia reported on the current status of national plans, programmes and support for ground- and space-based climate observing systems, including long-term continuity of data, data quality control and availability, and exchange and archiving of data. However, the ERT could not find any information in the NC8 on support provided to developing countries to establish and maintain observing systems and related data and monitoring systems.
	Issue type: completeness	
	Assessment: encouragement	During the review, Slovenia explained that it is not currently providing direct support to developing countries to establish and maintain observing systems and related data and monitoring systems but is contributing to international development assistance within the framework of WMO, where 4 per cent of the membership fee is allocated to international development assistance.
		The ERT encourages Slovenia to improve the completeness of its reporting by providing information on the indirect support provided to developing countries to establish and maintain observing systems and related data and monitoring systems 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.7

Findings on education, training and public awareness from the review of the eighth national communication of Slovenia

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 69	The Party did not provide information in its NC8 on resource or information centres, or on monitoring, review and evaluation of the implementation of Article 6 of the Convention.
	Issue type: completeness	During the review, Slovenia provided information on information centres, including a web portal on sustainable energy. An overview of information on the monitoring, review and evaluation of the implementation of Article 6 of the Convention in Slovenia is prepared annually as part of the Climate Action Mirror report.
	Assessment: encouragement	
		The ERT encourages Slovenia to improve the completeness of its reporting by providing information on resource or information centres and on monitoring, review and evaluation of the implementation of Article 6 of the Convention 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.8
Findings on minimization of adverse impacts and supplementary information related to the Kyoto Protocol reported in the eighth national communication of Slovenia

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation*
1	Reporting requirement specified in paragraph 28 Issue type: completeness Assessment: recommendation	Slovenia did not include in its NC8 supplementary information on its commitments under the second commitment period of the Kyoto Protocol and on compliance with its commitments. During the review, Slovenia explained that it fulfils its commitments under the second commitment period as a member State of the EU jointly with the EU and its member States. The ERT recommends that Slovenia improve the completeness of its reporting by providing the necessary information on its commitments and its compliance with those commitments in the 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 35 Issue type: transparency Assessment: recommendation	Slovenia reported very general information on the steps undertaken to promote and/or implement any decisions of ICAO and IMO to limit or reduce emissions of GHGs not controlled by the Montreal Protocol from aviation and marine bunker fuels. The Party briefly referred to the participation of its aviation sector in the EU ETS, and action taken to support EU efforts to reduce GHG emissions from international shipping. However, Slovenia did not report on the steps it has taken to promote and/or implement any decision by IMO to limit or reduce GHG emissions from marine bunker fuels. During the review, Slovenia explained that it strives to develop the capacity of the maritime sector and ports to respect environmental commitments and that it is participating in the formulation and implementation of such commitments, including to reduce GHG emissions in the maritime sector and regulations on the protection of the marine environment against pollution, as an EU member State, in line with EU commitments. The ERT reiterates the recommendation from the previous review report that Slovenia improve the transparency of its reporting by including in its next NC information on steps undertaken to promote and/or implement decisions of ICAO and IMO. 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 Slovenia

The BR5 of Slovenia 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 the 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.5 summarize the ERT assessment of adherence to the UNFCCC reporting guidelines on BRs for Slovenia's BR5.

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

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 2 Issue type: completeness Assessment: recommendation	The Party did not report information on indirect GHG emissions in its BR5, although estimates of indirect GHG emissions were reported in Slovenia's 2022 NIR. During the review, the Party explained that it did not include indirect GHG emissions in the summary in the BR5, as it is not a mandatory reporting requirement. The ERT recommends that Slovenia enhance the completeness of its reporting by providing summary information from the national GHG inventory on emissions and emission trends prepared in accordance with the UNFCCC Annex I inventory reporting guidelines, including information on indirect GHG emissions.
2	Reporting requirement specified in paragraph 2 Issue type: transparency Assessment: recommendation	In CTF table 1(a)s1, emission trends (CO_2) were reported as "NO" for category 2.G (other product manufacture and use), but not for other categories where CO_2 does not occur. The ERT also noted that several rows in CTF table 1 were empty, while for others notation keys were used to explain why no data were reported. During the review, the Party explained that the empty cells were the result of using the UNFCCC macro to transfer data from common reporting format tables to the CTF tables and that empty rows in the table indicate that CO_2 emissions are not occurring in the respective sectors. The ERT recommends that Slovenia enhance the transparency of its reporting by providing an explanation for empty cells in CTF table 1, for example by using a custom footnote or notation keys, and, if notation keys are used, to apply these consistently.
3	Reporting requirement specified in paragraph 3 Issue type: transparency Assessment: recommendation	The Party provided contradictory information in its NC8 on its inventory arrangements. In one case, the Ministry of the Environment and Spatial Planning is mentioned as the body responsible for preparing the NC and the BR and in another the Ministry of the Environment, Climate and Energy and the Slovenian Environment Agency are mentioned as the bodies responsible for emissions inventories and reporting. During the review, Slovenia clarified that following the reorganization of the Government, the Ministry of the Environment, Climate and Energy was designated as the entity responsible for climate policy evaluation and for reporting on PaMs and projections of anthropogenic GHG emissions. The Slovenian Environment Agency, a body under the Ministry of the Environment, Climate and Energy, is responsible for compiling the national GHG inventory, managing the national part of the EU registry and providing data to other competent authorities and information to the public.

[1] The COP, 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, paragraphs 40–47 and 60–64, and decision 2/CP.17, paragraphs 12–62.

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
		The ERT recommends that Slovenia enhance the transparency of its reporting by providing a more detailed description of the responsibilities of institutions, especially regarding any changes in responsibilities, in its reporting on institutional arrangements.

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.2
Findings on the quantified economy-wide emission reduction target from the review of the fifth biennial report of Slovenia

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 4 Issue type: transparency Assessment: recommendation	Slovenia reported key facts related to the quantified economy-wide emission reduction target under the Convention for the EU and the United Kingdom in CTF table 2(b), as summarized in the text and table 39 of the BR5 (pp. 262–265). The ERT noted that the base year for NF_3 in CTF table 2(b) is left blank. During the review, Slovenia confirmed that NF_3 should be excluded. The ERT recommends that Slovenia improve the transparency of its reporting by providing clear information on the gases included in its quantified economy-wide emission reduction target, in line with the information contained in document FCCC/SBSTA/2014/INF.6 or any updates to that document, for example by using a custom footnote or notation keys.

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 mitigation actions and their effects from the review of the fifth biennial report of Slovenia

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 8 Issue type: completeness Assessment: encouragement	The ERT noted that Slovenia did not include in its BR5, to the extent possible, detailed information on the assessment of the economic and social consequences of response measures. During the review, Slovenia explained that this information is reported in NIR chapter 15 and that the requirement for reporting this information in the BR5 was overlooked. The ERT encourages Slovenia to include information on the assessment of the economic and social consequences of its response measures by providing the relevant information or by including a reference to the sections of the NC and the NIR where this information has been provided.
2	Reporting requirement specified in paragraph 7 Issue type: transparency Assessment: encouragement	Slovenia reported on changes in its domestic institutional arrangements, including institutional, legal, administrative and procedural arrangements used for domestic compliance, monitoring, reporting, archiving of information and evaluation of the progress towards its economy-wide emission reduction target in its NC8, but no reference was provided to those in the BR5. During the review, Slovenia confirmed that its domestic arrangements are described in detail in NC8 chapter 4.1.5. The ERT recommends that Slovenia improve the transparency of its reporting by including a clear reference to the specific chapter of the NC where this information has been provided.
3	Reporting requirement specified in paragraph 24 Issue type: transparency	The Party described the Climate Action Mirror as the national tool for monitoring the implementation of climate policy. The Party did not specify whether this includes elements used for evaluating progress towards targets and self-assessment of compliance with its emission reduction target.

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
	Assessment: encouragement	During the review, Slovenia clarified that the NC8 explains that the Climate Action Mirror includes elements for evaluating progress towards targets and self-assessment of compliance with its emission reduction target. The ERT encourages Slovenia to improve the transparency of its reporting by including specific references to the description of the elements of the Climate Action Mirror used for evaluating progress towards targets and self-assessment of compliance with its emission reduction target.

Note: Item listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on BRs or to the CTF table number from the UNFCCC reporting guidelines on CTF tables. 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 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 Slovenia

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	The ERT noted inconsistent entries in CTF table 4 compared with CTF table 1 regarding the total annual emissions excluding LULUCF from 2013 to 2020. Furthermore, a number of cells in CTF tables 4, 4(a) and 4(b) were left empty. During the review, the Party resubmitted the CTF tables and explained that the same figures should be reported in the BR5 and in the CTF tables, but an error was made. The error was not addressed in the resubmitted CTF tables. The ERT recommends that Slovenia enhance the transparency of its reporting of CTF tables 4, 4(a) and 4(b) by providing accurate information on the contribution of the LULUCF sector and consistent GHG emission estimates in CTF tables 1 and 4, 4(a) and 4(b) for each reporting year.
2	Reporting requirement specified in paragraph 10 Issue type: transparency Assessment: recommendation	The ERT noted that it is unclear whether the Party has used or intends to use market-based mechanisms under the Convention towards achieving its target. In CTF table 4 the quantity of units from other market-based mechanisms for 2019 and 2020 and in CTF table 4(b) the number of other units are left blank, with no explanation provided. During the review, the Party explained that it does not intend to use market-based mechanisms to achieve its target under the Convention for 2013–2020. The ERT recommends that Slovenia enhance the transparency of its reporting on the use of market-based mechanisms in CTF tables 4 and 4(b), for example by using a custom footnote or notation keys.

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.5
Findings on projections reported in the fifth biennial report of Slovenia

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement[a] specified in paragraph 26 Issue type: transparency Assessment: recommendation	The Party presented a WAM scenario that includes the PaMs required to achieve net zero emissions by 2050, which is the stated objective in the Resolution on Slovenia's Long-Term Climate Strategy until 2050. The WAM scenario reported by the Party is based on calculations carried out under the EU LIFE ClimatePath2050 project. However, it remains unclear to what extent the PaMs included in the WAM scenario are contained in official planning procedures of Slovenia, such as the Integrated National Energy and Climate Plan. As the WAM scenario is presented up until 2040 and the Integrated National Energy and Climate Plan contains goals, policies and actions until 2030 only, it remains unclear whether PaMs beyond 2030 are actually planned or only intended. Slovenia further reported that the WEM scenario contains all PaMs implemented or adopted as at the end of 2018. However, it remains unclear whether the PaMs included in the WAM scenario are those that have been reported as "planned".

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
		The ERT recommends that Slovenia include a clear description of the allocation of PaMs to the WEM and WAM scenarios in order to enhance the transparency of its reporting regarding the PaMs included in the reported scenarios.
2	Reporting requirement[a] specified in paragraph 28 Issue type: transparency Assessment: recommendation	The Party reported emission projections for the WEM, WOM and WAM scenarios relative to 2020. The base years reported are 2018 and 2005 for the WEM and WOM scenarios respectively, but projections between the respective base years and 2020 were not provided. During the review, Slovenia provided projections data for the WEM scenario for 2020 and explained the differences between the projections and the reported emissions. Regarding the WOM scenario, Slovenia clarified that although 2005 is used as the base year for most sectors, some sectors (e.g. LULUCF) have a later base year and thus 2020 is the first year for which complete projections can be calculated. The ERT recommends that Slovenia increase the transparency of its reporting by including projections from the base year onward or by explaining why this is not possible.
3	Reporting requirement[a] specified in paragraph 32 Issue type: completeness Assessment: encouragement	Slovenia did not report projections for CO. During the review, Slovenia explained that projections for CO were not reported because they were not calculated as the Party does not have any targets for emission reductions of CO. The ERT encourages Slovenia to improve the completeness of its reporting by including projections for CO or by providing the reason for not doing so.

Note: 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.

[a] 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.

Annex III

Documents and information used during the review

A. Reference documents

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

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

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

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

BR5 of Slovenia. 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.

National energy and climate plans of Slovenia. Available at https://energy.ec.europa.eu/system/files/2020-03/sk_final_necp_main_en_0.pdf.

NC8 of Slovenia. 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 Slovenia submitted in 2022. FCCC/ARR/2022/SVN. Available at https://unfccc.int/documents/625394.

Report on the technical review of the BR4 of Slovenia. FCCC/TRR.4/SVN. Available at https://unfccc.int/documents/274151.

"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 Lara Vrtovec (Ministry of the Environment, Climate and Energy), including additional material.