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Report on the individual review of the annual submission of Slovenia submitted in 2022*

Note by the expert review team

Summary

Each Party included in Annex I to the Convention must submit an annual inventory of emissions and removals of greenhouse gases for all years from the base year (or period) to two years before the inventory due date (decision 24/CP.19). Parties included in Annex I to the Convention that are Parties to the Kyoto Protocol are also required to report supplementary information under Article 7, paragraph 1, of the Kyoto Protocol with the inventory submission due under the Convention. This report presents the results of the individual review of the 2022 annual submission of Slovenia, conducted by an expert review team in accordance with the "Guidelines for review under Article 8 of the Kyoto Protocol". The review took place from 10 to 15 October 2022 in Bonn.

* In the symbol for this document, 2022 refers to the year in which the inventory was submitted, not to the year of publication.

Contents

Abbreviations and acronyms

2006 IPCC Guidelines	*2006 IPCC Guidelines for National Greenhouse Gas Inventories*
2019 Refinement to the 2006 IPCC Guidelines	*2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories*
AAU	assigned amount unit
AD	activity data
Annex A source	source category included in Annex A to the Kyoto Protocol
AR	afforestation and reforestation
Article 8 review guidelines	"Guidelines for review under Article 8 of the Kyoto Protocol"
BEF	biomass expansion factor
BOD	biochemical oxygen demand
C	carbon
C_{after}	biomass stocks on land type "i" immediately after conversion
CER	certified emission reduction
CH_4	methane
CKD	cement kiln dust
CM	cropland management
CO_2	carbon dioxide
CO_2 eq	carbon dioxide equivalent
COD	chemical oxygen demand
Convention reporting adherence	adherence to the "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual greenhouse gas inventories"
COPERT	software tool for calculating road transport emissions
CORINAIR	Core Inventory of Air emissions (project)
CPR	commitment period reserve
CRF	common reporting format
dm	dry matter
DOM	dead organic matter
EEA	European Environment Agency
EF	emission factor
EMEP	Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe
ERT	expert review team
ERU	emission reduction unit
EU	European Union
EU ETS	European Union Emissions Trading System
FAO	Food and Agriculture Organization of the United Nations
FECS	Forest Ecosystem Condition Survey
F-gas	fluorinated gas
FM	forest management
FMRL	forest management reference level
GHG	greenhouse gas
GM	grazing land management
HFC	hydrofluorocarbon
HWP	harvested wood products
IE	included elsewhere
IEA	International Energy Agency
IEF	implied emission factor

IPCC	Intergovernmental Panel on Climate Change
IPCC good practice guidance for LULUCF	*Good Practice Guidance for Land Use, Land-Use Change and Forestry*
IPPU	industrial processes and product use
KP reporting adherence	adherence to the reporting guidelines under Article 7, paragraph 1, of the Kyoto Protocol
KP-LULUCF	activities under Article 3, paragraphs 3–4, of the Kyoto Protocol
LULUCF	land use, land-use change and forestry
MCF	methane correction factor (waste)
MMS	manure management system(s)
MSW	municipal solid waste
N	nitrogen
N_2O	nitrous oxide
NA	not applicable
NCV	net calorific value
NE	not estimated
Nex	nitrogen excretion
NF_3	nitrogen trifluoride
NFI	national forest inventory
NH_3	ammonia
NIR	national inventory report
NO	not occurring
PFC	perfluorocarbon
QA/QC	quality assurance/quality control
RMU	removal unit
RV	revegetation
SEF	standard electronic format
SF_6	sulfur hexafluoride
SIAR	standard independent assessment report
SOC	soil organic carbon
SORS	Statistical Office of Slovenia
SWDS	solid waste disposal site(s)
TOW	total organic load in wastewater
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 review guidelines	“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”
WDR	wetland drainage and rewetting
Wetlands Supplement	*2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands*
ΔC_G	annual increase in carbon stocks due to biomass growth
ΔC_L	annual increase in carbon stocks due to biomass loss

I. Introduction

1. This report covers the review of the 2022 annual submission of Slovenia, organized by the secretariat in accordance with the Article 8 review guidelines (adopted by decision 22/CMP.1 and revised by decision 4/CMP.11). In accordance with the Article 8 review guidelines, this review process also encompasses the review under the Convention as described in the UNFCCC review guidelines, particularly in part III thereof, namely the "UNFCCC guidelines for the technical review of greenhouse gas inventories from Parties included in Annex I to the Convention" (annex to decision 13/CP.20). The review took place from 10 to 15 October 2022 in Bonn and was coordinated by Sevdalina Todorova (secretariat). Table 1 provides information on the composition of the ERT that conducted the review for Slovenia.

Table 1
Composition of the expert review team that conducted the review for Slovenia

Area of expertise	*Name*	*Party*
Generalist	Giorgi Mukhigulishvili	Georgia
	Harry Vreuls	Netherlands
Energy	André Amaro	Portugal
	Brooke Elizabeth Perkins	Australia
IPPU	Stanford Mwakasonda	United Republic of Tanzania
	Ann Marie Ryan	Ireland
Agriculture	Richard German	United Kingdom
	Mahmoud Medany	Egypt
	Ben Morrow	New Zealand
LULUCF and KP-LULUCF	Atsuko Hayashi	Japan
	Yasna Rojas	Chile
	Valentyna Slivinska	Ukraine
Waste	Chart Chiemchaisri	Thailand
	José Ramírez García	Spain
Lead reviewers	Giorgi Mukhigulishvili	
	Harry Vreuls	

2. The basis of the findings in this report is the assessment by the ERT of the Party's 2022 annual submission in accordance with the UNFCCC review guidelines and the Article 8 review guidelines.

3. The ERT has made recommendations that Slovenia resolve identified findings, including issues[1] designated as problems.[2] Other findings, and, if applicable, the encouragements of the ERT to Slovenia to resolve related issues, are also included in this report.

4. A draft version of this report was communicated to the Government of Slovenia, which provided comments that were considered and incorporated, as appropriate, into this final version of the report.

5. Annex I presents the annual GHG emissions of Slovenia, including totals excluding and including LULUCF, indirect CO_2 emissions, and emissions by gas and by sector, and

[1] Issues are defined in decision 13/CP.20, annex, para. 81.
[2] Problems are defined in decision 22/CMP.1, annex, paras. 68–69, as revised by decision 4/CMP.11.

contains background data on emissions and removals from KP-LULUCF, if elected by the Party, by gas, sector and activity.

6. Information to be included in the compilation and accounting database can be found in annex II.

II. Summary and general assessment of the Party's 2022 annual submission

7. Table 2 provides the assessment by the ERT of the Party's 2022 annual submission with respect to the tasks undertaken during the review. Further information on the issues identified, as well as additional findings, may be found in tables 3 and 5.

Table 2
Summary of review results and general assessment of the 2022 annual submission of Slovenia

Assessment			*Issue/problem ID#(s) in table 3 or 5*[a]
Dates of submission	Original submission: NIR, 15 April 2022; CRF tables (version 4), 13 April 2022; SEF tables, 14 April 2022 Revised submission: CRF tables (version 5), 14 October 2022 Unless otherwise specified, values from the most recent submission are included in this report		
Review format	Centralized		
Application of the requirements of the UNFCCC Annex I inventory reporting guidelines and the Wetlands Supplement (if applicable)	Have any issues been identified in the following areas:		
	(a) Identification of key categories?	No	
	(b) Selection and use of methodologies and assumptions?	Yes	E.17, I.4, I.13, L.8, L.13, L.24
	(c) Development and selection of EFs?	Yes	E.3, E.16, E.18, E.20, W.12
	(d) Collection and selection of AD?	Yes	E.23, L.20, W.4
	(e) Reporting of recalculations?	No	
	(f) Reporting of a consistent time series?	Yes	I.1, I.11
	(g) Reporting of uncertainties, including methodologies?	Yes	A.7
	(h) QA/QC?	QA/QC procedures were assessed in the context of the national system (see supplementary information under the Kyoto Protocol below)	
	(i) Missing categories, or completeness?[b]	Yes	E.19
	(j) Application of corrections to the inventory?	No	
Significance threshold	For categories reported as insignificant, has the Party provided sufficient information showing that the likely level of emissions meets the criteria in paragraph 37(b) of the UNFCCC Annex I inventory reporting guidelines?	No	A.4, I.6, W.11
Description of trends	Did the ERT conclude that the description in the NIR of the trends for the different gases and sectors is reasonable?	Yes	
Supplementary information under the Kyoto Protocol	Have any issues been identified related to the following aspects of the national system:		
	(a) Overall organization of the national system, including the effectiveness and reliability of the institutional, procedural and legal arrangements?	No	
	(b) Performance of the national system functions?	No	

Assessment			*Issue/problem ID#(s) in table 3 or 5*[a]
	Have any issues been identified related to the national registry:		
	(a) Overall functioning of the national registry?	No	
	(b) Performance of the functions of the national registry and the adherence to technical standards for data exchange?	No	
	Have any issues been identified related to the reporting of information on AAUs, CERs, ERUs and RMUs and on discrepancies in accordance with decision 15/CMP.1, annex, chapter I.E, in conjunction with decision 3/CMP.11, taking into consideration any findings or recommendations contained in the SIAR?	No	
	Have any issues been identified in matters related to Article 3, paragraph 14, of the Kyoto Protocol, specifically problems related to the transparency, completeness or timeliness of the reporting on the Party's activities related to the priority actions listed in decision 15/CMP.1, annex, paragraph 24, in conjunction with decision 3/CMP.11, including any changes since the previous annual submission?	No	
	Have any issues been identified related to the following reporting requirements for KP-LULUCF:		
	(a) Reporting requirements of decision 2/CMP.8, annex II, paragraphs 1–5?	No	
	(b) Demonstration of methodological consistency between the reference level and reporting on FM in accordance with decision 2/CMP.7, annex, paragraph 14?	Yes	KL.5
	(c) Reporting requirements of decision 6/CMP.9?	No	
	(d) Country-specific information to support provisions for natural disturbances in accordance with decision 2/CMP.7, annex, paragraphs 33–34?	NA	
CPR	Was the CPR reported in accordance with decision 18/CP.7, annex; decision 11/CMP.1, annex; and decision 1/CMP.8, paragraph 18?	No	G.2
Adjustments	Has the ERT applied any adjustments under Article 5, paragraph 2, of the Kyoto Protocol?	No	
	Has the Party submitted a revised estimate to replace a previously applied adjustment?	NA	Slovenia does not have a previously applied adjustment
Response from the Party during the review	Has the Party provided the ERT with responses to the questions raised, including the data and information necessary for assessing conformity with the UNFCCC Annex I inventory reporting guidelines and any further guidance adopted by the Conference of the Parties?	Yes	
Recommendation for an exceptional in-country review	On the basis of the issues identified, does the ERT recommend that the next review be conducted as an in-country review?	No	
Questions of implementation	Did the ERT list any questions of implementation?	No	

[a] Further information on the issues identified, as well as additional findings, may be found in tables 3 and 5.
[b] Missing categories for which methods are provided in the 2006 IPCC Guidelines may affect completeness and are listed in annex III.

III. Status of implementation of recommendations included in the previous review report

8. Table 3 compiles the recommendations from previous review reports that were included in the most recent previous review report, published on 14 May 2021,[3] and had not been resolved by the time of publication of the report on the review of the Party's 2020 annual submission. The ERT has specified whether it believes the Party had resolved, was addressing or had not resolved each issue or problem by the time of publication of this review report and has provided the rationale for its determination, which takes into consideration the publication date of the most recent previous review report and national circumstances.

Table 3
Status of implementation of recommendations included in the previous review report for Slovenia

ID#	*Issue/problem classification*[a, b]	*Recommendation from previous review report*	*ERT assessment and rationale*
General			
G.1	Article 3, paragraph 14, of the Kyoto Protocol (G.1, 2020) (G.4, 2018) Convention reporting adherence	Provide information on any change(s) in the reporting on the minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol in accordance with decision 15/CMP.1 in conjunction with decision 3/CMP.11.	Resolved. The Party reported in its NIR (chap. 15, pp.393–395) information on the minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol in accordance with decision 15/CMP.1 in conjunction with decision 3/CMP.11.
G.2	CPR (G.3, 2020) KP reporting adherence	Report the calculation of the CPR in accordance with decision 15/CMP.1, annex, paragraph 18.	Not resolved. According to decision 15/CMP.1, annex, paragraph 18, Parties shall report the calculation of their CPR by comparing 100 per cent of eight times the total GHG emissions without LULUCF of their most recently reviewed inventory with 90 per cent of the assigned amount and select the lower value. The Party reported in its NIR (section 12.2, pp.389–390) that it used data on total GHG emissions for 2018 reported in the 2020 submission instead of the values for 2020 reported in the 2022 submission. During the review, the Party clarified that 100 per cent of total GHG emissions without LULUCF of its most recently reviewed inventory (for 2020, reported in the 2022 submission) multiplied by eight is 126,811,536 t CO_2 eq (15,851,442 t CO_2 eq × 8) and that the value is higher than 89,483,204 t CO_2 eq (90 per cent of the assigned amount), which is the CPR as reported in the NIR. The ERT concludes that, despite the incorrect value used in the comparison in the NIR, 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 and the calculation reported in the NIR has no impact on the value of the CPR.

[3] FCCC/ARR/2020/SVN. The ERT notes that the report on the review of Slovenia's 2021 annual submission has not been published yet owing to insufficient funding for the review process. As a result, the latest previously published annual review report reflects the findings of the review of the Party's 2020 annual submission.

ID#	*Issue/problem classification*[a, b]	*Recommendation from previous review report*	*ERT assessment and rationale*
G.3	QA/QC and verification (G.4, 2020) Convention reporting adherence	Implement additional general QA/QC procedures to ensure the uncertainty analysis is correctly documented and consistently reported throughout the NIR, including annex 2, and the uncertainty information required pursuant to the 2006 IPCC Guidelines (vol. 2, chaps. 3.2.3.1 and 3.5) is reported when using approach 1 to assess uncertainties.	Resolved. The Party reported a summary of its uncertainty analysis in the NIR (section 1.7) and further details in annex 2 to the NIR. In the category-specific sections of the NIR, the Party reported the uncertainties of AD and EFs, which are consistent with the values reported in annex 2, suggesting that the Party has implemented additional QA/QC procedures. The ERT noted that the Party included in annex 2 to the NIR a table containing the uncertainty information required pursuant to the 2006 IPCC Guidelines (vol. 2, chap. 3, sections 3.2.3.1 and 3.5) for approach 1.
G.4	Uncertainty analysis (G.5, 2020) Transparency	Improve the transparency of the uncertainty analysis by including, in both the NIR and its annex 2, comprehensive information on the underlying assumptions of the source- and sink-level quantitative uncertainty estimates.	Resolved. The Party reported a summary of its uncertainty analysis in the NIR (section 1.6) and further details in annex 2 to the NIR. The description of the uncertainties in the sector-specific sections of the NIR was significantly improved compared with the previously reviewed annual submission and included information on the underlying assumptions. In annex 2, the Party added a table containing information on the sources for the uncertainty analysis for each reported category.
G.5	Recalculations (G.6, 2020) Transparency	Provide in the NIR a discussion of the impact of any recalculations as well as explanatory information on and justification for the recalculations in accordance with paragraphs 43–45 and 50(h) of the UNFCCC Annex I inventory reporting guidelines.	Resolved. The Party provided relevant information on the recalculations performed for the 2022 submission and resolved the issues related to the reporting of recalculations noted in the previous review report for the waste sector (see ID#s I.3 and W.6–W.8 below). The information provided is in accordance with paragraphs 43–45 and 50(h) of the UNFCCC Annex I inventory reporting guidelines.
Energy			
E.1	Fuel combustion – reference approach – all fuel types – CO_2 (E.1, 2020) (E.13, 2018) Transparency	Indicate, for the reference approach, which data sources were used for the NCVs of individual fuel types, along with the respective carbon EFs.	Addressing. Slovenia reported in the NIR (e.g., sections 3.2.1, p.48; 3.2.4.2, pp.56 and 60, 3.2.5.2; p.71) the sources for the NCVs and carbon content for most fuels: SORS was used for the NCVs for all fuels except lubricants and bitumen, for which IPCC default values were used; and IPCC default values were used for the carbon content for all fuel types except petroleum coke, lignite and natural gas, for which country-specific values were used. The NCVs for oil products, solid fuels and natural gas were reported in an annex to the NIR (annex 4, tables A4.1, A4.2 and A4.3 respectively). The ERT noted, however, the different format of NIR table A4.4 on other fossil fuels and biomass, which does not include information on NCVs. During the review, the Party referred to the information reported in section 3.2.1 of the NIR, which includes overall information on the data sources used in the reference approach. The ERT considers that the recommendation has not yet been fully addressed because the Party has still not provided information in the NIR on the NCVs and carbon content for other fossil fuels and biomass.

ID#	*Issue/problem classification*[a, b]	*Recommendation from previous review report*	*ERT assessment and rationale*
E.2	Fuel combustion – reference approach – other fossil fuels – CO_2 (E.15, 2020) Convention reporting adherence	Investigate and document the reasons for the differences in other fossil fuel consumption and provide explanations for the observed significant differences in the estimated CO_2 emissions from other fossil fuels between the reference and the sectoral approach.	Resolved. The Party included in its NIR (section 3.2.1, p.48) explanations for the significant differences between the reference and the sectoral approach observed in the consumption of other fossil fuels (e.g. around –94 per cent for 2000–2002, and around +69 per cent for 2003–2004) and the corresponding CO_2 emissions (e.g. 19.1 per cent for 2019). Slovenia explained that the differences were caused by deficiencies and changes in the approach of SORS to collecting data on other fossil fuels across the time series.
E.3	1.A Fuel combustion – sectoral approach – liquid fuels – CO_2 (E.3, 2020) (E.4, 2018) (E.8, 2016) (E.8, 2015) (31, 2014) (29, 2013) (45, 2012) (35, 2011) (33, 2010) Accuracy	Develop country-specific CO_2 EFs for all fuels that have a significant share in the fuel mix for each category.	Not resolved. Slovenia reported in the NIR (table 10.2.1, p.358) that this issue has not been resolved and no data on the carbon content of liquid fuels are available. However, in accordance with paragraph 11 of the UNFCCC Annex I inventory reporting guidelines, Slovenia provided information in the NIR (p.44) and during the review on why it was unable to develop country-specific EFs. The Party explained that although the European Commission has initiated a project to help member States in developing country-specific EFs for liquid fuels, there are some constraints that prevent Slovenia from doing so, namely the lack of an accredited laboratory in the national territory to determine the carbon content of liquid fuels; the fact that samples collected under the EU fuel quality directive are not available for further use because they are not archived; and the impossibility of obtaining data back to 1986. Although the Party explained that it is in contact with an expert from the main company in Slovenia that prepares reports under the EU fuel quality directive, it does not currently know exactly how and when it will be able to put in place a contract to resolve the issue. There are no further developments on this issue and the contract had not yet been signed at the time of the review.
E.4	1.A Fuel combustion – sectoral approach – liquid fuels – CO_2 (E.4, 2020) (E.5, 2018) (E.15, 2016) (E.15, 2015) Transparency	Include in the submission the results of discussions with SORS regarding the use of constant NCVs for liquid fuels for most of the time series (1986–2013).	Resolved. The Party included in its NIR (section 3.2, p.44) the results of the ongoing discussions with SORS regarding the use of constant NCVs for liquid fuels for most of the time series (1986–2013), which indicate that it will be impossible to obtain historical and annual values for this parameter (see ID# E.3 above).
E.5	1.A Fuel combustion – sectoral approach – liquid fuels – CO_2 (E.5, 2020) (E.6, 2018) (E.15, 2016) (E.15, 2015) Transparency	Report in the submission how Slovenia intends to periodically monitor NCVs for liquid fuels.	Resolved. The Party explained in its NIR (section 3.2, p.44) that it intends to obtain updated data on NCVs and the carbon content of liquid fuels; however, owing to the coronavirus disease 2019 pandemic, this project was postponed. The project will rely on one-off measurements, which will not be carried out every year, and there are no plans for periodic monitoring of the NCVs for liquid fuels. The ERT concluded that the Party provided the requested clarification to improve the transparency of the report. (The accuracy of the CO_2 EFs for liquid fuels is discussed under ID# E.3 above.)

ID#	*Issue/problem classification*[a, b]	*Recommendation from previous review report*	*ERT assessment and rationale*
E.6	1.A Fuel combustion – sectoral approach – gaseous fuels – CO_2 (E.6, 2020) (E.7, 2018) (E.14, 2016) (E.14, 2015) Accuracy	Make all possible efforts to obtain the missing composition data for natural gas after 1996 and recalculate the emissions.	Resolved. The Party recalculated emissions from combustion of gaseous fuels for the entire time series in its 2022 submission on the basis of revised composition data for natural gas for 1998–2019. Information on this recalculation was included in the NIR (sections 3.2.4.5, 3.2.5.5 and 3.2.7.1.5, pp.64, 77 and 102 respectively).
E.7	1.A.1.a Public electricity and heat production – other fossil fuels – CO_2 and CH_4 (E.16, 2020) Accuracy	Apply the default values for the CO_2 EF (91.7 t CO_2/TJ) and CH_4 EF (0.03 t CH_4/TJ) from the 2006 IPCC Guidelines (vol. 2, section 2.3, table 2.2) for the non-biogenic fraction of municipal waste or provide a justification for the choice of the CO_2 EF (73.3 t CO_2/TJ) and CH_4 EF (0.01 t CH_4/TJ) used.	Resolved. The Party recalculated emissions from combustion of the non-biogenic fraction of municipal waste using the default values for the CO_2 EF (91.70 t CO_2/TJ) and CH_4 EF (0.03 t CH_4/TJ) from the 2006 IPCC Guidelines (vol. 2, chap. 2, section 2.3, table 2.2) in its 2021 and 2022 submissions. The choice of default EFs was documented in the NIR (section 3.2.4.2.1, p.60).
E.8	1.A.2.d Pulp, paper and print – biomass – CO_2, CH_4 and N_2O (E.17, 2020) Transparency	Include in the NIR for this category the NCVs and EFs applied for all biomass types (black liquor, wood, fibrous sludge and biogas) and a description of the data sources used for the AD, NCVs and EFs.	Addressing. Slovenia included information in the NIR (section 3.2.5.2, pp.73–74) on the data sources used for the AD, NCVs and EFs and reported in NIR table 3.2.35 the NCVs applied for all biomass types (black liquor, wood, fibrous sludge and biogas). However, information on the EFs applied for these fuels was not reported in the NIR. During the review, Slovenia provided the ERT with the EFs applied for all types of biomass that it used to estimate emissions for subcategory 1.A.2.d. The ERT considers that the recommendation has not yet been fully addressed because the Party has not amended the information in the NIR by adding the EFs applied for all biomass types.
E.9	1.A.2.d Pulp, paper and print – biomass – CO_2, CH_4 and N_2O (E.17, 2020) Transparency	Correct the NCVs for 2007–2009 reported in the NIR (table 3.2.31) to reflect the correct values applied for wood.	Resolved. The data reported in the NIR (table 3.2.31, p.71) reflect the correct NCVs used for wood under category 1.A.2 for 2007–2009.
E.10	1.A.3.b Road transportation – liquid fuels – CO_2 (E.9, 2020) (E.8, 2018) (E.11, 2016) (E.11, 2015) (35, 2014) (34, 2013) Transparency	Continue to improve the characterization of the physical and chemical properties of gasoline and diesel fuel for road transportation and report on the results achieved.	Addressing. The Party documented in its NIR (section 3.2, p.44) the steps taken to derive country-specific CO_2 EFs for gasoline and diesel fuel used for road transportation (see ID# E.3 above). In the NIR (section 3.2.6.1.3, p.90), the Party explained that all EFs used for road transportation are based on default COPERT 5 (version 5.5.1) values. Slovenia further explained in the NIR (section 3.2.6.1.6, p.92) and during the review that it is considering options for obtaining additional information on the characterization of the physical and chemical properties of gasoline and diesel fuel used for road transportation. During the review, the Party provided the ERT with data on gasoline imports for 2003–2020, showing that most of the country's gasoline (e.g. for 2019 and 2020) was

ID#	Issue/problem classification[a, b]	Recommendation from previous review report	ERT assessment and rationale
			imported from Italy, and about one third was imported from Austria. During the review of the 2020 submission, Slovenia provided verification information which demonstrated that the differences between the CO_2 EFs for diesel oil and gasoline used by Italy and Slovenia were below 1 per cent. However, the ERT noted that this comparison was not provided in the NIR of the 2022 submission. The ERT considers that the recommendation has not yet been addressed because the Party has not sufficiently justified the approach applied for road transportation. For example, it has not included in the NIR the verification information provided during the review of the 2020 submission demonstrating the correlation between the CO_2 EFs used by the Party (sourced from the COPERT 5 default values) and the country-specific EFs of Italy and Austria.
E.11	1.A.3.b Road transportation – liquid fuels – CO_2 (E.18, 2020) Comparability	Correctly report AD for biodiesel and fossil diesel under subcategories 1.A.3.b.i (cars), 1.A.3.b.ii (light-duty trucks) and 1.A.3.b.iii (heavy-duty trucks and buses) so that the CO_2 IEF for diesel reflects the CO_2 EF of the COPERT model used for all vehicle categories.	Resolved. The Party reported in its 2021 NIR (section 3.2.6.1.5, p.91) that emissions from road transportation were estimated using the most recent version of COPERT 5 (version 5.4.36) instead of COPERT 4, as previously used. The Party reported in its 2022 NIR (section 3.2.6.1.5, p.91) that further recalculations were performed owing to the transition from using version 5.4.36 of COPERT 5 to version 5.5.1. Updating to the use of COPERT 5 allowed the Party to disaggregate emissions and AD for biodiesel and fossil diesel use across the subcategories under category 1.A.3.b (road transportation), thereby removing volatility in the CO_2 IEF. It also corrected the discrepancies identified for the CO_2 IEFs for diesel oil between subcategories 1.A.3.b.i (cars), 1.A.3.b.ii (light-duty trucks) and 1.A.3.b.iii (heavy-duty trucks and buses) (ranging from 70.07 to 77.88 t CO_2/TJ previously reported for 2018 in the 2020 submission) by using consistent IEFs (ranging from 73.80 to 73.97 t CO_2/TJ) for all three subcategories for all years of the time series.
E.12	1.A.3.b Road transportation – liquid fuels – CO_2 (E.19, 2020) Comparability	Report the correct amount of (fossil) gasoline consumption (i.e. without the amount of bioethanol) under category 1.A.3.b (road transportation) in CRF table 1.A(a)s3 and correctly allocate bioethanol to biomass under this category to avoid the CO_2 IEF reported in CRF table 1.A(a)s3 being impacted by the amount of bioethanol blended into gasoline.	Resolved. The transition to the use of COPERT 5 (version 5.5.1) allowed the Party to disaggregate emissions and AD for biogasoline and fossil gasoline use across the subcategories under category 1.A.3.b (road transportation), thereby removing volatility in the CO_2 IEF (see ID# E.11 above). The AD for gasoline reported in CRF table 1.A(a)s3 have been revised to remove the amount of bioethanol, which impacted the IEF across the time series (e.g. updated values for the corresponding CO_2 IEF ranging from 70.60 to 70.69 t CO_2/TJ for 2005 onward compared with values ranging from 68.96 to 72.09 t CO_2/TJ for the same period reported in the 2020 submission).
E.13	1.A.3.b Road transportation – liquid fuels – CO_2 (E.20, 2020) Transparency	Include in the NIR the reasons for the observed variation in the CO_2 IEF for gasoline throughout the time series.	Resolved. The CO_2 IEF for gasoline was recalculated for the 2022 submission, resulting in IEFs within the range of 70.60 to 71.94 t/TJ for the entire time series compared with the range of 68.96 to 73.23 t/TJ reported in the 2020 submission. The biggest change was observed between 2004 and 2005: 71.94 t/TJ for 2004 decreasing to 70.69 t/TJ for 2005. The Party explained in its NIR (section 3.2.6.1.4, p.91) that the CO_2 IEF for gasoline decreased between 2004 and 2005 owing to a 2 per cent increase in the NCV, from 43.08 TJ/kt for 2004 to 43.85 TJ/kt for 2005. The source for the NCVs was SORS,

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			which collected data from all fuel distributors in Slovenia until 2004, and moved to collecting data from the largest fuel distributor only from 2005 onward. The Party also explained in its NIR (section 3.2.6.1.6, p.92) that it is considering options for obtaining additional information on the characterization of the physical and chemical properties of gasoline and diesel used for road transportation (see ID#s E.3 and E.10 above).
E.14	1.A.4.b Residential – biomass – CH_4 (E.21, 2020) Transparency	Include in the NIR a brief description of the methodological approach used to derive country-specific CH_4 EFs for residential wood combustion installations, including the information that the CH_4 EFs applied by the Party are based on a literature review of CH_4 EFs for residential wood combustion installations and that two publications (from Sweden and Italy) were selected, and include references to those two publications in the NIR.	Resolved. The Party included in the NIR (section 3.2.7.1.2, p.99) a description of the methodological approach used to derive the country-specific CH_4 EFs for residential wood combustion installations. Slovenia also included information in the NIR on the literature used, mentioning the study by an expert at the Jožef Stefan Institute – Energy Efficiency Centre (Česen, 2020) and the two publications from Sweden (Kindbom, 2017) and Italy (Ozgen and Caserini, 2018) used in the study.
E.15	1.A.4.c.i Stationary – iquid fuels and biomass – CO_2, CH_4 and N_2O (E.14, 2020) (E.19, 2018) Comparability	Correct the notation key from "NO" to "IE" for CO_2, CH_4 and N_2O emissions from liquid and biomass fuels for the subcategory 1.A.4.c.i (stationary), and explain in CRF table 9 where in the inventory these emissions are reported.	Resolved. Slovenia corrected the notation key by reporting "IE" in CRF table 1.A(a)s4 for AD and emissions for liquid fuels and biomass under subcategory 1.A.4.c.i (agriculture/forestry/fishing – stationary combustion). The Party clarified in the NIR (section 3.2.7.2.1, p.102) that insufficient data on fuel consumption for stationary sources were available for this subcategory, and emissions were therefore included either under subcategory 1.A.4.a.i (commercial/institutional (liquid fuels) – stationary combustion) or subcategory 1.A.4.b.i (residential (biomass) – stationary combustion). Information on the allocation of emissions was also provided in CRF table 9.
IPPU			
I.1	2.A.4 Other process uses of carbonates – CO_2 (I.3, 2020) (I.2, 2018) (I.8, 2016) (I.8, 2015) Consistency	Estimate the emission levels for bricks and ceramics production for 1990–1994 using a robust extrapolation method relevant to the country's circumstances, taking into account factors such as the peaking of the country's construction industry in 2006 and the 2008 economic crisis.	Not resolved. The Party did not recalculate CO_2 emissions from bricks and ceramics production for 1990–1994 and continues to use the 1995 emission estimates for 1986–1994 owing to lack of data on carbonate consumption (NIR, section 4.2.4.2, p.136). During the review, the Party explained that this issue is included in the inventory improvement plan, as indicated in section 4.2.4.6 of the NIR (p.138).
I.2	2.B.10 Other (chemical industry) – CO_2 (I.12, 2020) Transparency	Improve the description in the NIR of how AD on natural gas for hydrogen production were obtained, with reference to the data sources and including the assumptions and values of the CO_2 EF applied for calculating emissions from hydrogen production.	Resolved. The Party reported in its NIR (section 4.3.5, p.144) that data on non-energy use of natural gas were obtained from SORS and that, owing to the unavailability of a methodology in the 2006 IPCC Guidelines, CO_2 emissions from hydrogen production were calculated using the same approach as for combustion emissions and the same country-specific NCV and CO_2 EFs as for the energy industry. The NCV and CO_2 EFs for natural gas were reported in the NIR (tables 3.2.14 and 3.2.2 respectively). During the review, the ERT compared the reported estimates with the estimates calculated by

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			applying the methodology in the 2019 Refinement to the 2006 IPCC Guidelines (vol. 2, chap. 3, table 3.30, p.47), which confirmed that the Party's estimates are conservative.
I.3	2.B.10 Other (chemical industry) – CO_2 (I.12, 2020) Transparency	If recalculations are performed for this category for the next annual submission, report in the NIR information on the recalculations in accordance with paragraphs 43–45 of the UNFCCC Annex I inventory reporting guidelines.	Resolved. The Party clarified in the NIR (section 4.3.5.5) that no recalculations were performed for this category for the 2022 submission.
I.4	2.C.1 Iron and steel production – CO_2 (I.6, 2020) (I.12, 2018) Accuracy	Estimate CO_2 emissions from pig iron production on the basis of a basic carbon balance method considering the inputs (e.g. iron ore, coke) and outputs (e.g. pig iron) in the process and update the methodological description in the NIR.	Not resolved. The Party continued to report CO_2 emissions from pig iron production for 1986 and 1987 only, reporting "NO" for 1988–2020. The Party did not estimate CO_2 emissions from pig iron production for 1986–1987 using a basic carbon balance method and explained in the NIR (section 4.4.1.6, p.148) that the recommended methodological change is included in the inventory improvement plan. During the review, the Party clarified the difficulties related to implementing the recommendation on obtaining relevant data dating back to 1986 and 1987, in particular due to the break-up of the former State in 1991. The Party continues to examine the possibility of applying the basic carbon balance method and is making efforts to source reliable information from the national steel producer.
I.5	2.F.1 Refrigeration and air conditioning – HFCs (I.8, 2020) (I.15, 2018) Transparency	Provide in the NIR evidence that all transport equipment is exported before decommissioning.	Addressing. The Party continues to report in the NIR (section 4.6.2, p.166) that around 80–200 trucks and trailers with cooling units have been deleted from the database in recent years and there is no evidence that these vehicles were disposed of in Slovenia. As there is no centre for decommissioning spent trucks (heavy-duty) and buses in Slovenia, no transport refrigerators can be legally disposed of in the country. The Party also stated that, according to unofficial information, these vehicles were sold abroad, but did not provide any further sources for this information or evidence for these assumptions. During the review, the Party clarified that it consulted the Ministry of the Environment and Spatial Planning and two of the main dismantlers of used motor vehicles (https://eko-mobil.si/ and https://at-kastelec.si/), which confirmed that no legal disposal of heavy-duty vehicles and buses occurs in Slovenia. In addition, since 2019, owners of light-duty trucks (below 3.5 t) should provide proof that the vehicle was either decommissioned in accordance with environmental protection regulations or registered in another country, and in the last three years no light-duty trucks have been decommissioned in the country. The Party further explained that transport equipment is sold to countries with less strict environmental standards and although light-duty trucks could be disposed of in dismantling facilities, this does not occur as the option to sell this equipment outside the country is more financially beneficial. The Party also consulted the Financial Administration of the Republic of Slovenia, which was not able

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			to provide the exact number of exported vehicles but confirmed that older vehicles are exported and that a customs declaration must be completed for every vehicle exported. The ERT considers that the recommendation has not yet been fully addressed because the Party has not yet included an explanation in the NIR, as provided during the review, of the investigation into the export of transport equipment or provided a source for the information showing that all trucks and trailers deleted from the database of registered vehicles were sold abroad.
I.6	2.F.1 Refrigeration and air conditioning – HFCs (I.9, 2020) (I.15, 2018) Transparency	Investigate whether part of the transport refrigeration equipment is disposed of on the national market without recovery (e.g. broken equipment but with a working refrigeration system, equipment containing less than 50 per cent fill-in and not efficiently cooling, leakage during accidents).	Addressing. The Party reported in its NIR (section 4.6.2, p.166) that based on data for 2015–2019 any possible emissions from transport refrigeration equipment as a result of accidents would amount to between 1.3 and 1.9 kt CO_2 eq, which is below the significance threshold, and these emissions were therefore not included in the inventory. The Party did not provide the results of its investigation to determine whether part of the transport refrigeration equipment is disposed of on the national market without recovery. During the review, the Party clarified that it consulted the Ministry of the Environment and Spatial Planning, two of the main dismantlers of used motor vehicles and the Financial Administration of the Republic of Slovenia, who confirmed that disposal does not occur in the country (see ID# I.5 above). The ERT considers that the recommendation has not yet been fully addressed because the Party has not yet provided in the NIR relevant background information demonstrating that transport refrigeration equipment is not disposed of on the national market. The ERT notes that in accordance with paragraph 37(b) of the UNFCCC Annex I inventory reporting guidelines the insignificance criteria may be applied to the GHG emissions (by gas) for a specific category only, as defined by the CRF tables, and not for part of a category. The ERT suggests that the Party provide in the NIR justification for excluding any emissions from disposal for all transport refrigeration equipment (see ID# I.5 above), not just those emissions resulting from accidents, and consider reporting disposal emissions in CRF table 2(II).B-Hs2 as "NE" rather than as "NO", together with relevant information on the level of significance in line with paragraph 37(b) of the UNFCCC Annex I inventory reporting guidelines.
I.7	2.F.1 Refrigeration and air conditioning – HFCs (I.13, 2020) Accuracy	Correct the number of vehicles used in estimating emissions from transport refrigeration for 2018 and report the corresponding revised emissions in CRF table 2(II).B-Hs2.	Resolved. The erroneous number of refrigerated transport vehicles for 2018 and the resulting error in the emissions reported in CRF table 2(II).B-Hs2 (15.66 kt CO_2 eq instead of 19.93 kt CO_2 eq for 2018) in the 2020 submission were corrected. The Party reported in its 2022 submission emission estimates of 19.93 kt CO_2 eq for 2018.
I.8	2.G.1 Electrical equipment – SF_6 (I.14, 2020) Transparency	Reassess the value of the disposal loss factor applied to estimate SF_6 emissions from the disposal of electrical equipment and, on the basis of that analysis, provide documentation	Addressing. Slovenia continues to use a disposal loss factor of 0.10 per cent to estimate SF_6 emissions from disposal of electrical equipment in CRF table 2(II).B-Hs2. The Party reported in its NIR (section 4.7.1.2, p.173) that the disposal loss factor of 0.10 per cent is based on expert judgment and can be justified by the high price of SF_6.

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		and references that justify the value of 0.10 per cent, or revise it accordingly.	During the review, the Party clarified that at the end of life, all SF_6 equipment, including hermetically sealed pressure switchgear, is properly decommissioned to avoid emissions. Any remaining SF_6 is fully extracted using recovery systems that achieve acceptable blank-off pressure (i.e. generated using a vacuum during the recovery process to a level of 0.05 bars and lower). Used SF_6 is purified either on- or off-site. Gas that is non-reusable is collected in the original cylinders in which the SF_6 was supplied and is sent to specialized incineration plants in other countries (e.g. France) for destruction, as there is no such plant in Slovenia. The value of 0.10 per cent was obtained through personal communication with experts from the largest users of SF_6. Slovenia contacted other SF_6 users during the review, the majority of which assured the Party that there is no leakage. The ERT considers that the recommendation has not yet been fully addressed because the Party has not yet included an explanation in the NIR to justify using the disposal loss factor value of 0.10 per cent, as provided to the ERT during the review.
Agriculture			
A.1	3.A.1 Cattle – CH_4 (A.10, 2020) Transparency	Include in the NIR an explanation of the inter-annual variation in the CH_4 IEFs for non-dairy cattle for 2009–2010 to clarify the trend in the time series for those years.	Resolved. Slovenia reported an inter-annual variation in the CH_4 IEFs for non-dairy cattle from 2009 (53.10 kg CH_4/head/year) to 2010 (52.49 kg CH_4/head/year). The IEFs for these years are markedly lower than those for 2002–2008, which range from 54.55 to 54.79 kg CH_4/head/year, and the values for 2011 and onwards (54.90 to 56.21 kg CH_4/head/year). The Party explained in its NIR (section 5.2.2.1, p.188) that this variability was caused by poor economic conditions, which increased the proportion of calves for slaughter by around 100 per cent compared with the preceding years. As calves are not a source of CH_4 owing to their developing rumen, the ERT concluded that the information in the NIR sufficiently explains the inter-annual variation in the CH_4 IEFs for non-dairy cattle for 2009–2010.
A.2	3.B Manure management – N_2O (A.3, 2020) (A.3, 2018) (A.11, 2016) (A.11, 2015) Transparency	Provide additional information in the NIR on Nex rates for livestock other than dairy cattle and demonstrate that those parameters are appropriate in the specific national circumstances and more accurate than the default data provided in the 2006 IPCC Guidelines.	Addressing. Slovenia has revised the sources for Nex rates used for livestock other than dairy cattle since its 2020 submission (the last inventory subject to an individual review) (NIR section 5.4.5, p.209), resulting in a recalculation of estimates of N_2O emissions from manure management for cattle, swine and other livestock across the time series. The Nex rates were updated with values sourced from the EMEP/EEA air pollutant emission inventory guidebook 2019, as reported in NIR table 5.4.2.1 (section 5.4.5, p.204), whereas previous values were derived from several older sources. However, the Party did not provide justification for determining that the values in the EMEP/EEA air pollutant emission inventory guidebook 2019 are more appropriate to its national circumstances than the default data in the 2006 IPCC Guidelines. The ERT noted that the values used by the Party are within the range provided by the 2006 IPCC Guidelines (vol. 4, chap.10, table 10.19). Although Slovenia noted in the NIR (section 5.4.2, p.203) the consistency between the EMEP/EEA EFs and the IPCC default EFs, the ERT suggests that the Party provide further information and comparisons in its NIR to justify the choice of reported Nex rates (e.g. in section 5.4.4 of the NIR).

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			For swine, the Party reported in its NIR (section 5.4.3.2, p.205) that it continues to use the Nex rates in the EMEP/CORINAIR emission inventory guidebook 2002. While the ERT accepts the explanation in the NIR that the EMEP/CORINAIR emission inventory guidebook 2002 allows for harmonization with available national statistics and the comparison in the NIR (section 5.4.2.1, p. 205) with the IPCC default Nex for swine, the ERT considers that the recommendation has not yet been fully addressed because the Party has not yet included information to demonstrate that the EMEP/CORINAIR Nex rate values are more accurate than the default values in the 2006 IPCC Guidelines (vol. 4, chap.10, table 10.19), for example based on the swine composition and national circumstances.
A.3	3.B Manure management – CH_4 (A.11, 2020) Accuracy	Change the assumption on the average annual temperature used to select methane conversion factor values to reflect the data available, that is, to use an average annual temperature of 10 °C for the early part of the time series, increasing to 11 °C during the time series and possibly increasing further for later and future years.	Resolved. Slovenia reported in its NIR (section 5.3.4, p.201) updated information regarding the average annual temperature used for selecting methane conversion factor values for reporting CH_4 emissions from manure management. The change in average annual temperature (from 12 °C to 11 °C) was applied to the whole time series, which resulted in a recalculation of CH_4 emission estimates for the category. The impact of this recalculation was a relatively consistent decrease in the CH_4 emission estimates across the entire time series of between 15 and 18 kt CO_2 eq (approximately 1 per cent of gross emissions for the agriculture sector). The Party included in the NIR (section 5.3.4, p.202) justification for using a single average annual temperature for the entire time series, as opposed to using a series of temperature values for different periods of the time series to reflect changing temperatures. The Party compared monthly temperatures for 1986 and 2020 measured at five meteorological stations in rural areas, showing little average difference during summer months (0.2 to 0.9 °C), which are most relevant in terms of emissions for the category. The ERT agreed with the explanation provided by the Party. The ERT noted that according to the information provided during the review, Slovenia expects an updated temperature map (up until 2020) to become available within the next couple of years and will continue to assess whether the value for the average annual temperature is appropriate to its national circumstances.
A.4	3.B Manure management – CH_4 (A.12, 2020) Accuracy	Reassess the methane conversion factor value applied (which is currently zero) for anaerobic digestion of cattle and swine manure to ensure that CH_4 emissions are not underestimated for this MMS.	Addressing. No recalculations have been performed for this category since the previous review. A methane conversion factor of zero was used for reporting emissions from cattle and swine manure handled in anaerobic digestors (NIR, section 5.3.2.1, p.195, and section 5.3.2.2, p.197). The Party included in the NIR (p.199) a brief explanation of the assumption used to report the methane conversion factor value as zero and the plan for estimating emissions for future annual submissions. Emissions from this MMS were reported as "NE" in CRF table 3.B(a)s2. During the review, Slovenia clarified that it changed the notation key from "NO" to "NE" following a recommendation from an EU review conducted in early 2022. The ERT noted that the NIR (section 5.3.2.2, p.199) does not provide sufficient information to justify that emissions from this source are insignificant. Slovenia was unable to

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			provide the ERT with an exact estimate of the significance of emissions for this category owing to a lack of data. However, the Party calculated a rough estimate assuming a reasonably conservative methane conversion factor value of 10 per cent, which resulted in an increase in the emission estimate by approximately 3.6 kt CO_2 eq for 2020 (0.2 per cent of gross emissions for the agriculture sector). The ERT notes that the resulting emissions for this category reported as "NE" are below the threshold for the application of an adjustment in accordance with decision 22/CMP.1, annex, paragraph 80(b), in conjunction with decision 4/CMP.11 (7.93 kt CO_2 eq for 2020) and therefore did not include this issue in its list of potential problems and further questions. The ERT considers that the recommendation has not yet been fully addressed because the Party has not yet reported the CH_4 emissions from anaerobic digestion of cattle and swine manure. Alternatively, sufficient justification should be provided in the NIR if the Party continues to report the emissions as "NE".
A.5	3.B Manure management – N_2O (A.13, 2020) Transparency	Specify the source for each parameter used in estimating N_2O emissions from manure management of cattle (in NIR table 5.4.4) and swine (in NIR table 5.4.5).	Addressing. Slovenia reported in NIR tables 5.4.4 and 5.4.5 (section 5.4.2.1, pp.206–208) the parameters used for reporting N_2O emissions from manure management of cattle and swine. The ERT noted that for cattle (NIR table 5.4.4) and swine (NIR table 5.4.5) some references were added (e.g. for cattle, EMEP/EEA (2019) and Menzi et al. (1997); and for swine, EMEP/EEA (2019) and EPA (2004)), but without clearly indicating which parameters were from which source. During the review, Slovenia provided the ERT with updated tables which clearly indicate that the majority of parameters in NIR tables 5.4.4 and 5.4.5 were sourced from the EMEP/EEA air pollutant emission inventory guidebook 2019. The parameters for which a different reference source was used were also clearly identified. The Party stated that these updated tables will be included in the next annual submission.
A.6	3.B Manure management – N_2O (A.13, 2020) Transparency	Verify whether the latest version of the EMEP/EEA air pollutant emission inventory guidebook contains updated guidance compared with the currently used values from the 2016 version, assess their applicability to the national circumstances and report on any resulting changes made in the next annual submission.	Resolved. Slovenia reported in its NIR (section 5.4.2.1, pp.204–210) the parameters and sources used for reporting direct N_2O emissions from manure management. All parameters that were previously sourced from the EMEP/EEA air pollutant emission inventory guidebook 2016 have been updated to the 2019 version. The Party clarified during the review that both the 2016 and 2019 versions of the guidebook are based on the same principles, and, as such, are equally applicable to the national circumstances. The update resulted in changes to the ammonia EFs for animal housing and manure storage, but other parameters remained unchanged in the 2016 and 2019 guidebooks. The recalculation for the category was performed across the entire time series and led to an overall decrease in the emission estimate for 2018 of 0.19 kt CO_2 eq (–0.1 per cent of gross emissions for the agriculture sector).
LULUCF			
L.1	4. General (LULUCF) – CO_2 (L.1, 2020) (L.2, 2018)	Make efforts to complete the uncertainty assessment of all carbon pools and gases in the LULUCF sector.	Resolved. The Party improved the completeness of the information on uncertainty in the NIR. The uncertainty of AD (area of land) is presented in NIR table 6.3.7 (p.239) and the overall uncertainties per pool are included in the sector-specific sections of the NIR

ID#	Issue/problem classification[a, b]	Recommendation from previous review report	ERT assessment and rationale
	(L.11, 2016) (L.11, 2015) Transparency		(e.g. uncertainty estimates for category 4.A (forest land) including growing stock, deadwood, litter and soil (section 6.4.5, p.259, table 6.4.8); and uncertainty estimates for the EFs for categories 4.B (cropland) and 4.C (grassland) including living biomass, litter, mineral soils and organic soils for cropland, and living biomass, DOM and mineral soils for grassland (section 6.5.5, table 6.5.5, p.273, and section 6.6.5, table 6.6.3, p.282, respectively)). During the review, the Party clarified that for cropland and grassland, the uncertainty estimates for biomass loss were not included in the living biomass uncertainty estimates because these biomass losses are considered to be zero (see ID# L.13 below). The Party reported in its NIR (section 6.7.5, p.288) uncertainty estimates for the EFs for category 4.D (wetlands) using default values from the 2006 IPCC Guidelines (vol. 4, chap. 7). In annex 2 to the NIR, the Party provided the uncertainty estimates for the AD and EFs for all LULUCF categories and all gases.
L.2	4. General (LULUCF) – CO_2 (L.16, 2020) Transparency	Improve the transparency of the reporting on the LULUCF sector by completing the table provided during the review (which shows carbon stocks for each carbon pool by land-use type, further separated by subcategory) with values for gains and losses for living biomass and including the table in the next NIR.	Addressing. The Party reported in its NIR (section 6.3.1, pp.241–242) tables containing information on the carbon stocks for each carbon pool by land-use type, separated by subcategory (tables 6.3.9, 6.3.10 and 6.3.11). However, the values for gains and losses were not reported separately in these tables. The Party reported values for gains for living biomass for perennial crops (0.789 t C ha^{-1} $year^{-1}$) and perennial grassland (0.99 t C ha^{-1} $year^{-1}$) in its NIR (pp.267 and 278 respectively). The ERT noted that there was no information in the NIR on the gains and losses in land converted to annual cropland and annual grassland, or on the losses in land converted to perennial cropland and perennial grassland (see ID# L.13 below). During the review, the Party clarified that for gains and losses in land converted to annual cropland and annual grassland, and losses of biomass in land converted to perennial cropland and perennial grassland it used the assumption that the value is equal to zero. The ERT noted that it is important to include information on this assumption in the next annual submission. The ERT considers that the recommendation has not yet been fully addressed because the Party has not yet included information in the NIR on gains and losses considered in land converted to annual cropland and annual grassland, or on losses in land converted to perennial cropland and perennial grassland.
L.3	Land representation – CO_2 (L.17, 2020) Transparency	Include in the NIR the crown cover classification parameters applied for different land uses.	Resolved. The Party reported in its NIR (section 6.2.2, p.234) the crown cover classification parameters applied for forest land and grassland (in both cases, the crown cover considered in the classification is greater than 10 per cent).
L.4	4.A Forest land – CO_2 (L.3, 2020) (L.32, 2018) Accuracy	Consider the choice of BEF for the conversion of annual net increment (including bark) to above-ground tree biomass increment when estimating emissions and removals in forest land, and apply appropriate factors in accordance with	Resolved. The BEFs used for the conversion of annual net increment to above-ground tree biomass increment for estimating emissions and removals in forest land were revised, as reported in CRF table 4.A and in the NIR (section 6.4.4.1, p.248). The BEFs were applied in accordance with the 2006 IPCC Guidelines in the calculations described in equation 2 of the NIR (section 6.4.4.1, p.247). According to the NIR, the Party considered different forest types and used generalized functions from Teobaldelli et al.

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		the 2006 IPCC Guidelines in the calculations described in equations 6 and 12 of the NIR.	(2009). The annual increment of stem wood over bark on land converted to forest land was estimated using NFI data. In addition, the Party reported in its NIR (section 6.4.4.1, p.248) information on basic wood density, which is based on analyses of national data from previous studies conducted by the Slovenian Forestry Institute and the Biotechnical Faculty and default values from the 2006 IPCC Guidelines (vol. 4, chap. 4, table 4.14, p.4.71). The ERT noted that the estimates are in line with the 2006 IPCC Guidelines (vol. 4, chap. 4), thereby resolving the issue related to the accuracy of the reporting. However, insufficient information was provided in the NIR on how the BEF values were obtained (see ID# L.21 in table 5).
L.5	4.A.1 Forest land remaining forest land – CO_2 (L.18, 2020) Transparency	Include in the next NIR the information provided during the review concerning the prohibition of the fertilization of forest land and also documentation (i.e. reference to a legal document, if possible) of the non-occurrence of drainage and rewetting of forest land in the country to justify the assumptions made.	Addressing. The Party reported in its NIR (section 6.4.4.2, p.254) information on a legal act (the regulation on the protection of waters against pollution caused by nitrates from agricultural sources (2009)) that prohibits fertilization of forest land. The Party did not include documentation justifying the assumption of the non-occurrence of drainage and rewetting of forest land in the country. During the review, the Party clarified that the Ministry of Agriculture, Forestry and Food confirmed that, since 2016, the Agricultural Land Act prohibits the introduction of drainage systems, and that a moratorium on the introduction of new drainage systems was introduced in 1991. Regulation of minor drainage systems is only allowed as a land improvement measure, as provided for in the national strategic plan for 2023–2027 under the EU Common Agricultural Policy. The Ministry of Agriculture, Forestry and Food did not provide any information on rewetting, and the Party did not provide additional information in the NIR to justify the assumption of the non-occurrence of rewetting of forest land. The ERT considers that the recommendation has not yet been fully addressed because the Party has not included in the NIR the information provided during the review on drainage and rewetting of forest land.
L.6	4.A.1 Forest land remaining forest land – CO_2 (L.19, 2020) Transparency	Include in the NIR the information provided during the review concerning natural disturbances, which explains the reasons for the difference in net emissions and removals for forest land remaining forest land between 2013 and 2014.	Resolved. The Party included in its NIR (section 6.4.4.1, p.247) information concerning natural disturbances, ice break and massive bark beetle outbreaks in forests, which explains the difference in net CO_2 emissions and removals for forest land remaining forest land between 2013 (–4,420.06 kt CO_2) and 2014 (1,606.34 kt CO_2).
L.7	4.A.2 Land converted to forest land – CO_2 (L.20, 2020) Convention reporting adherence	Update the description in the NIR of the methodology applied for this category to reflect the use of the stock-difference method (tier 2) and equation 2.23 from the 2006 IPCC Guidelines (vol. 4, chap. 2) for calculating carbon stock changes in deadwood and litter.	Resolved. The Party updated in its NIR (section 6.4.4.3, p.257) the description of the methodology applied for calculating carbon stock changes in DOM, reflecting the use of the stock-difference method (tier 2) and equation 2.23 from the 2006 IPCC Guidelines (vol. 4, chap. 2).

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L.8	4.B.1 Cropland remaining cropland 4.C.1 Grassland remaining grassland – CO_2 (L.21, 2020) Accuracy	Develop a higher-tier method for estimating emissions and removals from the SOC pool in mineral soils for the subcategories annual grassland remaining annual grassland and annual cropland remaining annual cropland, or explain in the NIR the reasons why national circumstances do not allow a higher-tier method to be applied.	Addressing. The Party has not yet developed a higher-tier method for estimating emissions and removals from the SOC pool in mineral soils for the subcategories annual grassland remaining annual grassland and annual cropland remaining annual cropland. In addition, the Party did not include an explanation in the NIR of the reasons why national circumstances do not allow a higher-tier method to be applied. During the review, the Party clarified that internal discussions have been ongoing with experts at the Agricultural Institute of Slovenia on how to improve the carbon stock change factors and the reference carbon stock to reflect national conditions. The Party has also applied for technical support from the LULUCF team at the European Commission Joint Research Centre to conduct capacity-building activities in late 2022 and early 2023. Slovenia is also considering use of the steady-state method included in the 2019 Refinement to the 2006 IPCC Guidelines (vol. 4, chap. 5). The Party clarified that it will include further information and a rationale for the selected method in its next annual submission.
L.9	4.B.1 Cropland remaining cropland 4.C.1 Grassland remaining grassland – CO_2 (L.22, 2020) Transparency	Improve the transparency of the NIR by clarifying (1) the difference between the methods applied for calculating carbon stock changes in mineral soils for annual and for perennial grassland; (2) the SOC values applied for annual grassland remaining annual grassland; (3) the reasons why carbon stock change for perennial grassland remaining perennial grassland is considered in equilibrium; and (4) that there is no differentiation between the methods used for calculating carbon stock changes in mineral soils for annual cropland remaining annual cropland and for perennial cropland remaining perennial cropland.	Not resolved. The Party did not report information to improve the transparency of the NIR by clarifying: (1) the difference between the methods applied for calculating carbon stock changes in mineral soils for annual and perennial grassland; (2) the SOC values applied for annual grassland remaining annual grassland; (3) the reasons why carbon stock change for perennial grassland remaining perennial grassland is considered in equilibrium; and (4) that there is no differentiation between the methods used for calculating carbon stock changes in mineral soils for annual cropland remaining annual cropland and for perennial cropland remaining perennial cropland. During the review of the 2020 annual submission, the Party explained the method used for calculating the carbon stock changes in mineral soils for annual grassland remaining grassland and perennial grassland remaining perennial grassland. The Party informed the ERT that there are no differences in the method used for calculating the carbon stock changes in mineral soils for annual cropland remaining annual cropland and for perennial cropland remaining perennial cropland. The Party clarified that this information will be included in the next annual submission.
L.10	4.B.2 Land converted to cropland – CO_2 (L.7, 2020) (L.8, 2018) (L.7, 2016) (L.7, 2015) (68, 2014) (61, 2013) Accuracy	Determine and use country-specific parameters such as the changes in carbon stocks from one year of cropland growth for perennial and annual cropland.	Resolved. The Party reported in its NIR (section 6.3.1, table 6.3.9, p.241) and in CRF table 4.B country-specific values for carbon stock changes for living biomass in perennial cropland (15.77 t C ha^{-1}) and annual cropland (2.76 t C ha^{-1}) (see also ID# L.23 in table 5). These values were used correctly to estimate the changes in carbon stocks from one year of cropland growth for perennial and annual cropland.
L.11	4.B.2 Land converted to cropland – CO_2 (L.9, 2020) (L.10, 2018)	Make efforts to improve the completeness of reporting of carbon stock changes in land conversions to other perennial cropland for	Resolved. The Party has recalculated the emission estimates for carbon stock changes in land conversions to other perennial cropland for 1986–2018 since its 2021 submission in response to this recommendation. The Party reported in the NIR of its 2022 submission (section 6.5.4.1, table 6.5.4 and pp.266–267; and section 6.5.4.2, p.270) and in CRF

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	(L.17, 2016) (L.17, 2015) Accuracy	carbon gains that occurred after two years or more.	table 4.B the carbon stock changes in land conversions to other perennial cropland for carbon gains that occurred after two years or more using country-specific values.
L.12	4.B.2 Land converted to cropland 4.C.2 Land converted to grassland – CO_2 (L.23, 2020) Transparency	(a) Correct the presentation of equations 15, 16, 19, 26, 27 and 29 to reflect that parameter "A" denotes the correct area of land under conversion; (b) Include the justification provided during the review concerning using zero as the value of carbon stocks in living biomass after land conversion ("C_{after}").	(a) Resolved. The Party corrected in its NIR (section 6.5.4.1, p.267; section 6.5.4.2, p.270; and section 6.6.4.1, p.278) the presentation of equations 17, 18, 21, 22, 29 and 30 (replacing equations 15, 16, 19, 26, 27 and 29 reported in the 2020 submission) in accordance with equations 2.15 and 2.16 from the 2006 IPCC Guidelines. Equations 17, 18, 21, 22, 29 and 30 reflect that parameter "A" denotes the correct area of land under conversion; (b) Not resolved. The Party did not include in the NIR the justification concerning the use of zero as the value of carbon stocks in living biomass after land conversion. During the previous review, for conversions within cropland or from land to cropland, the Party justified using a C_{after} value of zero for all conversions to annual cropland and annual grassland because carbon gains in living biomass from annual growth are offset by losses from harvesting; and for conversions within grassland or from land to grassland, the Party explained that living biomass stocks of land immediately after all land conversions to perennial cropland and perennial grassland are still substantially lower than the average carbon stocks, as measured during monitoring. During the current review, the Party confirmed that living biomass stocks immediately after conversion are assumed to be zero and indicated that the necessary information will be included in the next annual submission.
L.13	4.B.2 Land converted to cropland 4.C.2 Land converted to grassland – CO_2 (L.24, 2020) Accuracy	Apply equations 2.15 and 2.16 from the 2006 IPCC Guidelines (vol. 4, chap. 2) correctly by taking into account losses in biomass carbon stocks to avoid any possible overestimation of removals or underestimation of emissions for the land-use categories land converted to cropland and land converted to grassland. If it is not possible to estimate losses in living biomass, apply a simple stock change approach (equations 2.4 and 2.5 from the 2006 IPCC Guidelines), thereby taking into account the mean carbon stock values for the land-use types, rather than the biomass carbon stocks immediately after conversion.	Addressing. The Party reported in its NIR (section 6.5.4.1, p.267; section 6.5.4.2, p.270; section 6.6.4.1, p.278; and section 6.6.4.2, p.280) information on the use of equations 2.15 and 2.16 from the 2006 IPCC Guidelines (vol. 4, chap. 2) to calculate carbon stock changes in living biomass for conversions within cropland or from land to cropland, and for conversions within grassland or from land to grassland. The Party correctly incorporated the annual decrease in biomass carbon stocks due to losses (ΔC_L) in the equation in accordance with equation 2.15 from the 2006 IPCC Guidelines (vol. 4, chap. 2). According to the information reported in CRF tables 4.B and 4.C, for land converted to annual cropland and to annual grassland, the Party assumed that annual changes in carbon stocks in biomass due to growth are equal to the annual decrease in biomass carbon stock due to loss ($\Delta C_G = \Delta C_L$) in equation 2.15. The ERT noted that no information was provided in the NIR (sections 6.5.4.2 and 6.6.4.2) on this assumption. For land converted to perennial cropland and to perennial grassland, the Party included information only on the annual increase in carbon stocks in biomass due to growth (ΔC_G) and did not include any information on the annual decrease in biomass carbon stocks (ΔC_L) due to losses from harvesting, fuelwood gathering and disturbances. During the review, the Party clarified that for losses of biomass carbon stocks (ΔC_L in equation 2.15) in land converted to perennial cropland, it assumed a value equal to zero in accordance with a common assumption used by several EU member States. The ERT

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			noted that it is important to include further information in the NIR on the assumption used to justify the use of a value of zero for land converted to perennial cropland. For land converted to perennial grassland, the Party used a value of zero for losses of biomass carbon stocks (ΔC_L in equation 2.15) without justifying its use. During the review, the Party informed the ERT that it will be possible to estimate losses once the permanent sampling plots and monitoring system are in place. The ERT noted that it is necessary to justify the use of the value of zero for losses in land converted to perennial cropland and that further progress is required in relation to generating information on losses in land converted to perennial grassland in order to avoid any possible overestimation of removals or underestimation of emissions. The ERT considers that the recommendation has not yet been fully addressed because the Party has not yet estimated annual losses for land converted to perennial cropland and to perennial grassland in accordance with equation 2.15 from the 2006 IPCC Guidelines (vol. 4, chap. 2).
L.14	4.C.1 Grassland remaining grassland – CO_2 (L.25, 2020) Transparency	Explain in the NIR the reasons for the drop in the values of net carbon stock changes in mineral soils between 2006 and 2007 and the continuing decrease after 2007.	Addressing. Although the Party recalculated the values for the net carbon stock changes in mineral soils per area for the 2022 submission, it continues to report a drop between 2006 (0.064 t C/ha) and 2007 (0.039 t C/ha), and a continuing decrease thereafter, reaching 0.006 t C/ha in 2020. The NIR contains no explanation of the reasons for the drop in the values of net carbon stock changes in mineral soils between 2006 and 2007 and the continuing decrease after 2007. During the previous review, the Party acknowledged that the change in net carbon stock in mineral soils per area appears incorrect for category 4.C.1 (grassland remaining grassland) and explained that different values were reported for the above-mentioned periods (i.e. a decrease in values between 2006 and 2007) because the change in carbon stock in mineral soils for the subcategory "GL_a to GL_a" reported under 4.C.1 was estimated for 2007–2018 only, causing a trend change in mineral soil carbon stock change per area. In addition, the Party explained that changes in land-use management occurred in 2007 following the introduction of initiatives such as the Rural Development Programme 2007–2013 (which resulted in, for example, a range of subsidy payment regimes and incentives to change crop types and/or adopt different management technologies) and agri-environment-climate policy measures (which provided for additional activities to be undertaken in the country related to soil management). The Party clarified that this explanation will be included in the next annual submission.
L.15	4.E.1 Settlements remaining settlements – CO_2 (L.11, 2020) (L.17, 2018) (L.21, 2016) (L.21, 2015) Transparency	Provide in the NIR information on the methodology used for estimating carbon stock change in living biomass in settlements remaining settlements, taking into consideration whether carbon stock in the settlements area is increasing or expected to be maturing in the future, and examine the	Addressing. The previous ERT concluded that Slovenia provided in the 2020 NIR (p.288) additional methodological information on the assumption and EF used for calculating carbon stock changes in living biomass for settlements remaining settlements, but did not document sufficiently the country-specific value for crown cover (11.1 per cent) (e.g. whether it is applied to the entire Slovenian territory). In the 2022 submission, the Party did not provide any additional information on crown cover. In addition, the Party reported in its NIR (section 6.8.4, p.292) a different country-specific

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		application of actual growing period if necessary.	value for crown cover area (9.4 per cent) and referred to the same study cited in the previous annual submission (WISDOM, 2006). During the review, the Party explained that the value for crown cover was changed from 11.1 to 9.4 per cent because of an informal recommendation resulting from a review conducted by the EU on the 2022 submission, which noted that the correct value in the referenced study for Slovenia is 9.4 per cent for tree cover in settlements (p.57), and that the value of 11.1 per cent refers to total cover by woody vegetation. The Party clarified that additional information on crown cover will be included in the next annual submission. The ERT considers that the recommendation has not yet been fully addressed because the Party has not yet included all the information necessary to clarify the crown cover value (e.g. whether the value reported for crown cover in settlements applies to the whole territory and whether the accumulation rate of urban trees is considered).
L.16	4.E.2 Land converted to settlements – CO_2 (L.27, 2020) Transparency	Include in the NIR the information underpinning the assumption that the carbon stock of soils for settlements is half of the carbon stock value for annual grassland (e.g. references to the scientific literature and to the study on visual interpretation of digital orthophotos, as well as to the expert judgment described in the 2020 review report).	Not resolved. The Party did not include in the NIR the information underpinning the assumption that the carbon stock of soils for settlements is half of the carbon stock value for annual grassland. During the review, the Party clarified that the expert judgment used follows the approach described in the NIR of Austria, which is based on the assumption that the SOC stock of settlements is similar to the SOC stock of managed grassland, considering the proportion of unsealed areas. In 2022, the Slovenian Forestry Institute estimated the proportion of unsealed settlement areas on the basis of a visual analysis of digital orthophotos (1,000 sample plots). The Party stated that a description of the analysis and the information underpinning the assumption used will be included in the next annual submission.
L.17	4(V) Biomass burning – CO_2, CH_4 and N_2O (L.13, 2020) (L.24, 2018) (L.28, 2016) (L.28, 2015) Completeness	Further examine whether, where forest wildfires occur in Slovenia, these affect the DOM pool and, if appropriate, add the DOM to mass of fuel available for combustion.	Resolved. The Party reported in its NIR (section 6.4.4, pp.254 and 256) and in CRF table 4(V) the inclusion of DOM in the mass of fuel available for wildfires. The recalculation was performed for the 2021 submission for 1986–2018 and resulted in an increase in the emission estimates across the time series (e.g. by 139.1 per cent for 2018). The mass of fuel available was calculated from the average growing stock in the part of the country where most wildfires occur and the average carbon stocks in DOM.
L.18	4(V) Biomass burning – CO_2 (L.28, 2020) Transparency	Include in the next NIR documentation showing that wildfires are not covered by the FECS because its grid size is too large and therefore there is no double counting of CO_2 emissions from wildfires in forest land remaining forest land.	Resolved. Slovenia reported CO_2 emissions from wildfires on forest land remaining forest land separately in CRF table 4(V) and not under category 4.A.1 in CRF table 4.A. The Party included in the NIR (section 6.4.4.2, p.255) information on the grid size covered by the FECS (4 km × 4 km) and explained in the NIR (table 6.4.7, p.255) that, owing to the large grid size and the small area of the wildfires, the losses in living and dead biomass are not covered by the FECS as the grid size is not dense enough to detect the effects of a wildfire. Therefore, there is no double counting of CO_2 emissions from wildfires in forest land remaining forest land in the estimates reported under category 4.A.1.

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L.19	4.G HWP – CO_2 (L.15, 2020) (L.26, 2018) (L.30, 2016) (L.30, 2015) Transparency	Fully revise the NIR (section 6.9) on the basis of the latest methodologies applied and provide all necessary information on AD, parameters and equations applied.	Resolved. The Party reported in its 2020 NIR (section 6.10, p.297) information on the methodologies and assumptions applied in estimating HWP, in line with the 2006 IPCC Guidelines (vol. 4, chap. 12); however, information on the AD and parameters used was missing. In the 2022 submission, the Party provided in the NIR (section 6.10.2, pp.301–302) and in CRF table 4.Gs2 information on the AD for sawnwood, wood panels and paper and paperboard for the entire time series along with the parameters (e.g. in NIR section 6.10.2, table 6.10.3, p.303), methodologies and equations used in the estimates of HWP (NIR section 6.10.2, pp.302–305).
Waste			
W.1	5. General (waste) – CO_2, CH_4 and N_2O (W.1, 2020) (W.10, 2018) Transparency	Include in the NIR information about how expert judgment on uncertainty for AD and EFs was obtained for each category in the waste sector.	Resolved. The Party included in its NIR category-specific sections to describe the uncertainty of the AD and EFs. The ERT noted that the information has been significantly improved since the 2020 submission and more detailed information was included in the NIR (sections 7.2.3, 7.3.3, 7.4.3 and 7.5.4) on how the uncertainty was obtained for each category in the waste sector.
W.2	5.A Solid waste disposal on land – CH_4 (W.2, 2020) (W.2, 2018) (W.2, 2016) (W.2, 2015) (75, 2014) (69, 2013) Consistency	Ensure that the use of multiple sources of data for MSW disposal for different periods is in accordance with the 2006 IPCC Guidelines (vol. 1, chap. 5).	Resolved. The Party reported in its NIR (section 7.2.2, pp.314–316) a transparent description of the assumptions considered and how the data were obtained and/or calculated, including the data sources for the whole time series. Similar information was also provided during the review. The ERT considers that the data sources and assumptions considered are reliable and transparently reported, and that consistency between the different data periods has been ensured to the extent possible.
W.3	5.A Solid waste disposal on land – CH_4 (W.9, 2020) Transparency	Ensure that good practice is followed for the reporting of gas recovery (i.e. 2006 IPCC Guidelines, vol. 5, chap. 3, p.3.19) and report in the NIR information from the annual reports prepared by installations operating under the EU directive on integrated pollution prevention and control on monitoring of gas recovery both for flaring and for energy.	Addressing. The Party reported in its NIR (section 7.2.2, p.322) that data on the quantities of CH_4 recovered for 1990–2004 were obtained through memorandums with each of the three largest SWDS with CH_4 recovery in Slovenia. According to the national landfill regulation (www.pisrs.si/Pis.web/pregledPredpisa?id=URED6660), all landfill operators were obliged to build landfill gas capture facilities by the end of 2005; therefore, since then, data on CH_4 recovery are available (separately for flaring and energy use) from the annual reports prepared by installations operating under the EU directive on integrated pollution prevention and control. However, the NIR does not contain any direct references documenting the amount of CH_4 recovery reported in the NIR (figure 7.2.1 and table 7.2.11, pp.322–323) in accordance with the 2006 IPCC Guidelines (vol. 5, chap. 3, p.3.19). During the previous review, the Party explained that, according to the national landfill regulation, landfill gas shall be collected from all landfills receiving biodegradable waste and the landfill gas must be treated and used. The inventory team has no technical specifications on the measurements of this gas before flaring. The Party also explained that all landfills have to obtain permits under the EU directive on integrated pollution prevention and control, which describes the monitoring requirements, and have to submit annual reports on the implementation of operational monitoring to the relevant ministry. During the current review, the Party clarified that data on recovery are taken

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			from the individual reports of all SWDS, not only the largest ones, which are obliged to report under the EU directive on integrated pollution prevention and control. In addition, for QA/QC purposes, the amount of CH_4 used for energy recovery (in m^3) is compared with the data from SORS on the amount of landfill gas used for electricity production (in TJ). The ERT considers that the recommendation has not yet been fully addressed because the Party has not included the information provided to the current and previous ERT documenting the amount of CH_4 recovered, including relevant references to the data sources for information on gas recovery for flaring and energy use.
W.4	5.D Wastewater treatment and discharge – CH_4 (W.13, 2020) Accuracy	Make every effort to obtain plant-level data (volumes and water characteristics such as BOD-COD) in order to be able to apply a higher-tier method for estimating CH_4 emissions from wastewater treatment and discharge in accordance with the 2006 IPCC Guidelines, and report in the NIR the methods and data used, as well as any recalculation performed, in accordance with paragraphs 43–45 of the UNFCCC Annex I inventory reporting guidelines.	Not resolved. The Party continues to use IPCC default values and assumptions for its estimates and did not perform recalculations using plant-level data owing to the unavailability of data. According to the NIR (section 7.5.6, p.348), no improvements are planned for this category. The Party reported in its NIR (section 7.5.2, p.336) that the AD used for calculating CH_4 emissions were obtained from SORS and the data on municipal wastewater treatment plans were collected by the Slovenian Environment Agency. During the review, the Party clarified that it was not possible to obtain plant-level data for the 2022 submission. However, Slovenia is planning to estimate emissions using plant-specific data for its 2024 submission.
W.5	5.D.2 Industrial wastewater – CH_4 (W.6, 2020) (W.13, 2018) Transparency	Provide in the NIR: (a) A detailed description of and justification for the total amount of industrial wastewater produced, the fraction of the wastewater undergoing various treatment methods (treated (e.g. well managed and not well managed) and untreated discharge to rivers, lakes and sea, if any); (b) The corresponding MCF applied to the various fractions. In the case that any of the applied MCFs depart from the default MCF values in table 6.8 of the 2006 IPCC Guidelines (vol. 5, chap. 6), include a justification for the country-specific value in the NIR.	(a) Resolved. The Party reported in its NIR (section 7.5.2) the volume of wastewater output for various industries (table 7.5.5, p.343), TOW in industrial wastewater treated in centralized wastewater treatment plants (table 7.5.7, p.345) and TOW in industrial wastewater treated in centralized and industrial wastewater treatment plants (table 7.5.8, p.345). In the NIR (p.346), the Party also explained that 77 per cent of industrial wastewater from the production of soft drinks and alcoholic beverages and 21 per cent of industrial wastewater from pulp and paper production and other industrial wastewater was treated in centralized wastewater treatment plants in 2020. The MCF was derived from the operating conditions at the plants (i.e. 93 per cent well managed and 7 per cent not well managed). The remaining wastewater from the production of soft drinks and alcoholic beverages and the production of pulp and paper was treated in industrial wastewater treatment plants (100 per cent well managed) in 2020; (b) Resolved. The Party reported in its NIR (section 7.5.2, p.346) the corresponding MCF applied to centralized and industrial wastewater treatment plants. The Party used the default MCF values provided in table 6.3 of the 2006 IPCC Guidelines (vol. 5, chap. 6) to derive aggregate MCF values (0 for well-managed and 0.3 for not well-managed centralized wastewater treatment plants). For industrial wastewater treatment plants, the Party used a default MCF value of 0 for well-managed plants in line with table 6.8 of the 2006 IPCC Guidelines (see ID# W.13 in table 5).

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W.6	5.D.2 Industrial wastewater – CH_4 (W.10, 2020) Convention reporting adherence	If recalculations are performed for this category for the next annual submission, include in the NIR explanatory information on the recalculations in accordance with paragraphs 43–45 and 50(i) of the UNFCCC Annex I inventory reporting guidelines, including on any changes in emission estimates and the reason for the changes compared with the previously submitted inventory, as well as on changes in response to the review process.	Resolved. The Party reported in its 2021 NIR (section 7.5.4, p.345) that recalculations of emission estimates for category 5.D.2 (industrial wastewater) were performed for the entire time series owing to the inclusion of the pharmaceutical industry as an industrial sector producing CH_4 emissions. Explanatory information on the recalculations was provided in accordance with paragraphs 43–45 and 50(i) of the UNFCCC Annex I inventory reporting guidelines. No additional recalculations were performed for the 2022 submission.
W.7	5.D.2 Industrial wastewater – CH_4 (W.11, 2020) Completeness	Estimate CH_4 emissions from the pharmaceutical industry or provide in the NIR clear justification for their exclusion based on expert judgment (e.g. documentation showing that the pharmaceutical industry does not generate organic carbon).	Resolved. The Party included CH_4 emission estimates for the pharmaceutical industry in the inventory. The Party reported in its NIR (table 7.5.5, p.343) the volume of wastewater generated from production processes of the pharmaceutical industry separated from the volume of wastewater generated by the organic chemical industry, applying a default COD concentration of organic chemicals of 3 kg/m^3 from the 2006 IPCC Guidelines (vol. 5, chap. 6, table 6.9, p.6.22) for pharmaceutical industrial wastewater because there is no default value specifically for the pharmaceutical industry. Pharmaceutical industrial wastewater was assumed to be totally treated in centralized wastewater treatment plants together with domestic wastewater for the entire time series. The country-specific MCF value of 0.022 was used for the emission calculations for 2020.
W.8	5.D.2 Industrial wastewater – CH_4 (W.12, 2020) Transparency	Clearly justify in the NIR the decrease in the TOW values across the time series and the assumptions regarding the reallocation of part of the TOW amount from centralized to industrial wastewater treatment plants.	Resolved. The Party explained in its NIR (section 7.5.2, p.344) the decrease in the TOW values across the time series and the reallocation of part of the TOW amount from centralized to industrial wastewater treatment plants. Information on the TOW in industrial wastewater treated in centralized wastewater treatment plants was reported in NIR table 7.5.7 (p.345). Since 2004, a share of wastewater from the production of soft drinks and alcoholic beverages and pulp and paper industry has been treated in industrial wastewater plants; the emissions also decreased as a result of this change as the MCF value was reduced from 0.022 for centralized treatment plants to 0 for industrial treatment plants. The Party further clarified that there are four industrial wastewater treatment plants in Slovenia treating industrial wastewater with anaerobic digestion (one brewery and three paper factories have anaerobic reactors to produce and capture biogas). The biogas produced in the treatment plants is used as fuel to minimize biogas loss. Therefore, an MCF value of 0 was applied to those industrial wastewater treatment plants. The ERT concluded that the explanations provided by the Party are sufficient to justify the decrease in the TOW values across the time series and the assumptions regarding the reallocation of part of the TOW amount from centralized to industrial wastewater treatment plants.

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KP-LULUCF			
KL.1	Deforestation – CO_2 (KL.9, 2020) Transparency	Explain in the next NIR that the data from the Slovenia Forest Service on deforestation are now used only for verification because data on land-use conversion to and from forest land are obtained from digital orthophotos.	Resolved. The Party explained in its NIR (section 11.1.2, p.375) that the data from the Slovenia Forest Service on deforestation are used for verification only. The Party also explained in the NIR that data on land-use conversion to and from forest land used for the inventory were obtained from digital orthophotos.
KL.2	FM – CO_2, CH_4 and N_2O (KL.4, 2020) (KL.14, 2018) Comparability	Work further on harmonization of the forest definition and its implementation to classify the same patches of land as forest under both the Convention and its Kyoto Protocol.	Resolved. The Party stated in the NIR (section 11.1.2, p.375) that information on the areas subject to activities under Article 3, paragraphs 3–4, of the Kyoto Protocol was compiled using the same methodology as that for the reporting under the Convention. Forest land remaining forest land was used to define FM land, and FM is assumed to occur on all land fulfilling the forest definition. During the review, the Party also confirmed that only one methodology was used to determine forest areas in the second commitment period (tree crown cover of 10 per cent was considered as the minimum value for forest, according to the reporting under the Convention).
KL.3	FM – CO_2, CH_4 and N_2O (KL.5, 2020) (KL.15, 2018) Accuracy	Update the FM cap, reporting the value of 5,691.720 t CO_2 eq in the CRF accounting table, as contained in the report on the review of the report to facilitate the calculation of the assigned amount for the Party.	Resolved. The Party reported in the CRF accounting table the value of 5,691.720 t CO_2 eq, as contained in the report on the review of the report to facilitate the calculation of the assigned amount for the Party.
KL.4	FM – CO_2 (KL.10, 2020) Transparency	Include in the next NIR the list of elements identified as key to making a technical correction to the FMRL.	Resolved. The Party included in the NIR (section 11.5.7, p.385) the list of elements identified as key when making a technical correction to the FMRL in the 2022 submission. Slovenia explained that the gain–loss method was used for preparing the FMRL, while the stock-difference method was used for estimating GHG emissions and removals for FM for the second commitment period, resulting in methodological inconsistency. The Party also provided information on the modification of some methodological elements, such as the addition of new pools and gases, namely the deadwood pool and emissions from biomass burning, which were not included in the FMRL; the recalculation of historical data on (forest) area owing to a change in the data source; and the recalculation of historical data for FM in the GHG inventory (i.e. the recalculation of growing stocks for 2000 and 2007, and a change in the parameters used to convert volume to biomass).
KL.5	FM – CO_2 (KL.11, 2020) Transparency	Take into account in the calculation of the technical correction to the FMRL all elements identified in ID# KL.10 of the 2020 review report as well as the recommendations in the report on the	Addressing. The Party explained in the NIR (section 11.5.7, pp.384–386) that it took into account in its calculation of the technical correction to the FMRL all the elements identified in ID# KL.4 above and the recommendations in the report on the technical assessment of the FMRL submission of Slovenia in 2011 (FCCC/TAR/2011/SVN) (e.g. inclusion of deadwood pool estimates and non-CO_2 emissions from biomass burning, reconciliation of forest areas under the Convention and KP-LULUCF as per paras. 32

ID#	Issue/problem classification[a, b]	Recommendation from previous review report	ERT assessment and rationale
		technical assessment of the FMRL submission of Slovenia in 2011.	and 34 of FCCC/TAR/2011/SVN). However, the ERT noted that the Party did not include in the NIR the rationale for the assumption provided during the technical assessment (para. 33 of FCCC/TAR/2011/SVN) of the FMRL (i.e. a significant increase in the harvesting rate of an annual average of 75 per cent of the increment for 2013–2020, compared with historical data), as requested by the previous ERT. During the review, the Party clarified there were two main reasons that justified the assumption of the increased harvesting rate for 2013–2020, both of which were based on the state of the forests during that period and are included in the FMRL submission of Slovenia (pp.11–12) and in annex B to FCCC/TAR/2011/SVN. The first reason is that, since the optimal growing stock, as defined in the National Forest Programme from 2007 (i.e. 320–330 m^3/ha), was already achieved at the time the FMRL was prepared, the harvesting rate was projected to represent the allowable cut of 75 per cent taking into account the wood needs and demands of private forest owners, given that 80 per cent of forests in Slovenia are privately owned. The second reason is that the age structure of forests does not allow a further increase of growing stock. The ERT considered the justifications provided by Slovenia and concluded that the remaining transparency issue, which is related to a reporting requirement of a mandatory nature, does not influence the Party's ability to fulfil its commitments for the second commitment period of the Kyoto Protocol and therefore this issue was not included in the list of potential problems and further questions raised.

[a] References in parentheses are to the paragraph(s) and the year(s) of the previous review report(s) in which the issue or problem was raised. Issues are identified in accordance with paras. 80–83 of the UNFCCC review guidelines and classified as per para. 81 of the same guidelines. Problems are identified and classified as problems of transparency, accuracy, consistency, completeness or comparability in accordance with para. 69 of the Article 8 review guidelines in conjunction with decision 4/CMP.11.

[b] The report on the review of the 2021 annual submission of Slovenia was not available at the time of this review. Therefore, the recommendations reflected in this table are taken from the 2020 annual review report. For the same reason, 2021, 2019 and 2017 are excluded from the list of review years in which issues could have been identified.

IV. Issues and problems identified in three or more successive reviews and not addressed by the Party

9. In accordance with paragraph 83 of the UNFCCC review guidelines, the ERT noted that the issues and/or problems included in table 4 have been identified in three or more successive reviews, including the review of the 2022 annual submission of Slovenia, and had not been addressed by the Party by the time of publication of this review report.

Table 4
Issues and/or problems identified in three or more successive reviews and not addressed by Slovenia

ID#	Previous recommendation for issue	Number of successive reviews issue not addressed[a]
General	No issues identified.	

ID#	*Previous recommendation for issue*	*Number of successive reviews issue not addressed*[a]
Energy		
E.1	Indicate, for the reference approach, which data sources were used for the NCVs of individual fuel types, along with the respective carbon EFs.	3 (2018–2022)
E.3	Develop country-specific CO_2 EFs for all fuels that have a significant share in the fuel mix for each category.	9 (2010–2022)
E.10	Continue to improve the characterization of the physical and chemical properties of gasoline and diesel fuel for road transportation and report on the results achieved.	6 (2013–2022)
IPPU		
I.1	Estimate the emission levels for bricks and ceramics production for 1990–1994 using a robust extrapolation method relevant to the country's circumstances, taking into account factors such as the peaking of the country's construction industry in 2006 and the 2008 economic crisis.	4 (2015/2016–2022)
I.4	Estimate CO_2 emissions from pig iron production on the basis of a basic carbon balance method considering the inputs (e.g. iron ore, coke) and outputs (e.g. pig iron) in the process and update the methodological description in the NIR.	3 (2018–2022)
I.5	Provide in the NIR evidence that all transport equipment is exported before decommissioning.	3 (2018–2022)
I.6	Investigate whether part of the transport refrigeration equipment is disposed of on the national market without recovery (e.g. broken equipment but with a working refrigeration system, equipment containing less than 50 per cent fill-in and not efficiently cooling, leakage during accidents).	3 (2018–2022)
Agriculture		
A.2	Provide additional information in the NIR on Nex rates for livestock other than dairy cattle and demonstrate that those parameters are appropriate in the specific national circumstances and more accurate than the default data provided in the 2006 IPCC Guidelines.	4 (2015/2016–2022)
LULUCF		
L.15	Provide in the NIR information on the methodology used for estimating carbon stock change in living biomass in settlements remaining settlements, taking into consideration whether carbon stock in the settlements area is increasing or expected to be maturing in the future, and examine the application of actual growing period if necessary.	4 (2015/2016–2022)
Waste	No issues identified.	
KP-LULUCF	No issues identified.	

[a] Reports on the reviews of the 2017, 2019 and 2021 annual submissions of Slovenia have not yet been published. Therefore 2017, 2019 and 2021 were not included when counting the number of successive years for this table. In addition, as the reviews of the Party's 2015 and 2016 annual submissions were conducted together, they are not considered successive reviews and 2015/2016 is counted as one year.

V. Additional findings made during the individual review of the Party's 2022 annual submission

10. Table 5 presents findings made by the ERT during the individual review of the 2022 annual submission of Slovenia that are additional to those identified in table 3.

Table 5
Additional findings made during the individual review of the 2022 annual submission of Slovenia

ID#	*Finding classification*	*Description of finding with recommendation or encouragement*	*Is finding an issue/problem?*[a]
General		No general findings additional to those included in table 3 were made by the ERT during the review.	
Energy			
E.16	1. General (energy sector) – solid fuels – CO_2, CH_4 and N_2O	The ERT identified that the NCV for other bituminous coal for 2020 (27.38 TJ/kt) reported in CRF table 1.A(b) is among the highest of all reporting Parties. During the review, the Party explained that four plants used this type of coal in 2020, three of which were included under the EU ETS, while the plant with the highest NCV was not. After investigation, SORS confirmed that the highest NCV reported in the NIR for 2020 was an error. The error in the NCV for other bituminous coal affects the emission estimates under the reference approach, as well as the emissions estimated for subcategory 1.A.2.b (non-ferrous metals) under the sectoral approach. The ERT recommends that the Party correct the NCV used for other bituminous coal for all years of the time series in which the plant for which the incorrect NCV was reported was in operation. The ERT also recommends that the Party recalculate the emission estimates for subcategory 1.A.2.b under the sectoral approach and implement relevant changes to the information reported on other bituminous coal in CRF table 1.A(b) under the reference approach.	Yes. Accuracy
E.17	1. General (energy sector) – other fossil fuels – CO_2	The Party reported in the NIR (tables 3.2.3–3.2.4, p.48) and in CRF table 1.A(c) information on the differences between the AD and emissions reported under the sectoral and the reference approach. For individual fuel types, there are differences of more than 2 per cent for some years of the time series, with particularly large differences for consumption of other fossil fuels in CRF table 1.A(c) (which are reported in CRF table 1.A(b) in the reference approach under waste (non-biomass fraction), and in CRF table 1.A(a)s1 in the sectoral approach under other fossil fuels). The Party included in its NIR (section 3.2.1, p.48) general explanations for the significant differences observed in the consumption of other fossil fuels and the corresponding CO_2 emissions across the time series, but did not provide specific information on the differences observed for the latest years of the time series (e.g. for energy consumption: –16.52 and –10.58 per cent; and for CO_2 emissions: –19.14 and –7.01 per cent for 2019 and 2020 respectively). During the review, the Party explained that an error was identified in the information reported by SORS in which the consumption of other fossil fuels under the reference approach was underestimated for 2019. In addition, the Party further explained that there are other differences that relate to the consumption of waste solvents in the pharmaceutical industry (data reported under the EU ETS). Owing to an inconsistency in the classification of waste	Yes. Accuracy

ID#	*Finding classification*	*Description of finding with recommendation or encouragement*	*Is finding an issue/problem?*[a]
		solvents between the reporting under the EU ETS and by SORS, this consumption was double counted, once in subcategory 1.A.2.c (chemicals) and another in subcategory 1.A.2.g.viii (other). The ERT recommends that the Party correct the double counting of fuel consumption and the emission estimates for the pharmaceutical industry and clearly explain in the NIR where the AD and emissions for consumption of other fossil fuels are allocated. The ERT also recommends that the Party correct the identified error in the consumption data for other fossil fuels for 2019 under the reference approach.	
E.18	1.A.3.b Road transportation – liquid fuels – CO_2	The Party explained that the fluctuating trends in the CO_2 IEFs for gasoline and diesel use reported in CRF table 1.A(a)s3 for road transportation (see ID# E.13 in table 3) were caused by variations in the NCVs across the time series. The Party reported in its NIR (section 3.2.6.1.4, p.91) that the source for the NCVs was SORS, which collected NCV data on all fuel distributors in Slovenia until 2004, and on Slovenia's largest distributor only from 2005 onward. The Party also explained in its NIR (section 3.2.6.1.6, p.92) that it is considering options for obtaining additional information on the characterization of the physical and chemical properties of gasoline and diesel used for road transportation. The ERT noted that the Party reported in CRF table 1.A(b) that no primary production of liquid fuels occurred in Slovenia in 2020, with minimal crude oil production for 1990–2019 (<3,100 m^3/year), implying that liquid fuels are imported for use in Slovenia, and requested further information on fuel imports. During the review, the Party explained that all of its gasoline was imported and provided a data set on annual gasoline imports to Slovenia by country of origin for 2003–2020, demonstrating that most imports were from Italy (40.9 per cent of imports in 2020) and Austria (31.0 per cent of imports in 2020) (see ID# E.10 in table 3). The Party also indicated that it would investigate the NCV data for gasoline reported in the most recent annual submissions of Austria and Italy to identify whether it might be possible to use these data instead of the limited NCV data available in Slovenia for 2005 onward. The Party did not provide information on the shares of imported diesel fuel. The ERT recommends that the Party review the information on NCVs for gasoline used in road transportation reported in the most recent annual submissions of Austria and Italy to determine whether NCVs that are appropriate for use by Slovenia can be derived on the basis of the shares of gasoline imported into Slovenia and recalculate the time series using the updated NCVs, if it is determined that they better reflect national circumstances. In addition, the ERT encourages the Party to include in its review a comparison of the NCV used with the default NCVs from the 2006 IPCC Guidelines (vol. 2, chap. 1, table 1.2, p.1.18) and a comparison of the overlapping years between the NCVs reported by SORS and the NCVs derived using import data, and present the findings in the NIR. It also encourages the Party to conduct a similar analysis of import data for diesel oil used in road transportation if import data are available by year and by country of origin.	Yes. Accuracy
E.19	1.A.3.b.iii Heavy-duty trucks and buses – liquid fuels – CO_2, CH_4 and N_2O	The Party reported in CRF table 1.A(a)s3 the gasoline consumed by heavy-duty trucks and buses as "NO" for 1986–1991. The ERT noted that this was a change from the 2020 submission, in which the Party reported small quantities of gasoline consumed by heavy-duty trucks and buses (e.g. 105.26 TJ for 1986, 109.73 TJ for 1990 and 99.69 TJ for 1991, with associated emissions below 8 kt CO_2 eq/year). During the review, the Party clarified that an error had occurred following the transition from applying the COPERT 4 model to the COPERT 5 model, which resulted in the omission of AD and emissions for gasoline for	Yes. Completeness

ID#	*Finding classification*	*Description of finding with recommendation or encouragement*	*Is finding an issue/problem?*[a]
		this category. The Party indicated that it will correct the AD and emissions for gasoline used in heavy-duty trucks and buses for 1986–1991 for its next annual submission. The ERT recommends that the Party report in CRF table 1.A(a)s3 of its next annual submission the quantity of gasoline consumed and associated emissions for heavy-duty trucks and buses for 1986–1991.	
E.20	1.A.3.b.iii Heavy-duty trucks and buses – liquid fuels – CO_2	The Party reported in CRF table 1.A(a)s3 the recalculated CO_2 IEFs for gasoline compared with those reported in the 2020 submission, which resulted in a decrease in the IEFs across the time series (e.g. by 5.8 per cent for 2018). The CO_2 IEFs for 2018 (66.08 t/TJ) and 2020 (65.72 t/TJ) were outside the range of the IPCC default values (67.50–73.00 t/TJ) and the CO_2 IEF for 2018 (66.08 t/TJ) was among the lowest of all reporting Parties (60.36–75.47 t/TJ). In addition, the inter-annual change between 2019 and 2020 (–5.1 per cent) was identified as significant and larger than those of other reporting Parties. During the review, the Party explained that the emissions from gasoline represented a small source (below 0.01 per cent of the total national emissions) and that, as a result, any fluctuations are more pronounced. The Party further explained that the bioshare of gasoline was larger in 2018 and 2020, which affected the CO_2 IEF values. The drop in emissions in 2020 was due to low fuel consumption and reduced mobility as a consequence of pandemic lockdown measures. The ERT noted that the CO_2 IEFs for gasoline use reported under subcategory 1.A.3.b.i for cars (70.62 t/TJ for 2020) and under subcategory 1.A.3.b.ii for light-duty trucks (70.72 t/TJ for 2020) were similar in terms of trend and absolute values but notably different to the fluctuating CO_2 IEF reported under subcategory 1.A.3.b.iii for heavy-duty trucks and buses (65.72 t/TJ for 2020, around 7 per cent lower than for cars and light-duty trucks). The ERT does not consider that the use of a lower EF applied by recalculating gasoline use in heavy-duty trucks and buses represents a risk of underestimating the emissions for this category, because using the highest IPCC default value (73.00 t/TJ) to calculate the emissions would result in a maximum change of 0.05 kt CO_2/year, which is below the threshold of significance for Slovenia (7.93 kt CO_2 eq for 2020) according to paragraph 37(b) of the UNFCCC Annex I inventory reporting guidelines. The ERT recommends that the Party review the AD, EFs and NCVs for gasoline use for subcategory 1.A.3.b.iii (heavy-duty trucks and buses) and confirm in the NIR whether accurate and time-series consistent data for fossil gasoline are reported. The ERT also recommends that the Party explain in the NIR any anomalous trends and variations in the CO_2 IEF for gasoline use in heavy-duty trucks and buses, including any significant differences compared with the trend and values observed for the CO_2 IEF for gasoline use for subcategories 1.A.3.b.i (cars) and 1.A.3.b.ii (light-duty trucks).	Yes. Accuracy
E.21	1.A.3.d Domestic navigation – liquid fuels – N_2O	The Party reported in CRF table 1.A(a)s3 an N_2O IEF for gas/diesel oil of 28.60 kg/TJ for subcategory 1.A.3.d (domestic navigation), which was among the highest of all reporting Parties (ranging from 0.39 to 34.29 kg/TJ). The Party recorded the N_2O EF as default ("D") in its CRF reporting. However, the ERT noted that the N_2O IEF reported in CRF table 1.A(a)s3 was outside the range of the IPCC default values (1.2–4.8 kg/TJ). During the review, the Party explained that the default N_2O EFs in table 3.5.3 of the 2006 IPCC Guidelines (vol. 2, chap. 3) are suitable for ocean-going ships using heavy fuel oil. As the Slovenian coast is short and there are no regular shipping routes between small ports along the coast, all domestic navigation is attributable to small boats and sailing yachts. For this reason, the Party chose the N_2O default EF from table 3.3.1 of the 2006 IPCC Guidelines (vol. 2, chap. 3) as it determined that this EF is more appropriate to the national circumstances than the	Yes. Transparency

ID#	*Finding classification*	*Description of finding with recommendation or encouragement*	*Is finding an issue/problem?*[a]
		default EF provided in table 3.5.3 of the 2006 IPCC Guidelines because it corresponds to vehicles with no emission control catalysts installed, which is applicable to the small boats and yachts operating in Slovenia. The ERT recommends that the Party describe in its NIR the national circumstances for domestic navigation relating to vehicle classes and the extent to which they operate along the national coastline, and provide justification for choosing the default N_2O EF for gas/diesel oil in table 3.3.1 of the 2006 IPCC Guidelines (vol. 2, chap. 3) instead of the default EF in table 3.5.3.	
E.22	1.A.4.a Commercial/ institutional – biomass – CO_2, CH_4 and N_2O	Slovenia stated in the NIR (section 7.2.2, p.322) that emissions from energy use of CH_4 are reported under the energy sector under subcategory 1.A.1.a (public electricity and heat production) (see ID# W.10 below). However, the ERT noted that data on the amount of biogas used for electricity reported under the waste sector (NIR section 7.2.2, table 7.2.11) are not consistent with the data reported in annex 3 to the NIR (table 1) under subcategory 1.A.1.a. The ERT also noted that in annex 3 to the NIR (table 3), Slovenia reported consumption of landfill gas for 2008–2020. If added together, the total consumption of landfill gas reported under subcategories 1.A.1.a and 1.A.4.a is consistent with the amount of biogas reported under the waste sector (NIR section 7.2.2, table 7.2.11). In addition, the ERT identified an inconsistency for 2007 because the amount of CH_4 recovery used for electricity generation reported under the waste sector of 317 TJ (NIR section 7.2.2, table 7.2.11) is not consistent with the amount reported under the energy sector because the Party reported biogas only under subcategory 1.A.1.a (256 TJ) and not under subcategory 1.A.4.a (0 TJ). During the review, the Party explained that emissions from combustion of landfill gas were incorrectly reported under two different subcategories. After consulting with SORS, Slovenia confirmed that for all years of the time series (1998–2020) landfill gas was combusted for energy and heat production on SWDS and was not burned in other places. The Party considers landfills to be autoproducers (installations that generate electricity or heat wholly or partly for their own use, as an activity that supports their primary activity) and, in accordance with the 2006 IPCC Guidelines, emissions from energy use of landfill gas should be assigned to the sector where they were generated and not under subcategory 1.A.1.a. The ERT recommends that the Party clearly document the allocation of the emissions from combustion of landfill gas in the chapter of the NIR on the energy sector, providing a justification for the assumptions used for classifying SWDS as autoproducers and ensuring that the allocation of emissions from CH_4 recovery for energy use for the entire time series is in line with the allocation of emissions in the 2006 IPCC Guidelines (vol. 2, chap. 2, table 2.1, p.2.7).	Yes. Transparency
E.23	International bunkers and multilateral operations – liquid fuels – CO_2, CH_4 and N_2O	The Party reported in CRF table 1.D data for international marine bunkers that were higher than the IEA data for 2005 onward within a range of 4 per cent, except for 2020 for which the value reported in CRF table 1.D was 5.5 per cent lower than the IEA value. During the review, the Party clarified that one cause of the difference between the data reported in CRF table 1.D and the IEA data for 2020 is the different NCVs used. However, the Party explained that the main reason for the difference is that consumption of gas/diesel oil was unintentionally excluded from the estimates reported in CRF table 1.D (corresponding to approximately 28 kt CO_2 eq) and that it intends to correct this error for the next annual submission.	Yes. Accuracy

ID#	*Finding classification*	*Description of finding with recommendation or encouragement*	*Is finding an issue/problem?*[a]
		The ERT recommends that the Party report the missing quantity of gas/diesel oil consumption in CRF table 1.D of its next annual submission for international marine bunkers (corresponding to approximately 28 kt CO_2 eq).	
E.24	Fuel combustion – reference approach – solid fuels – CO_2	The ERT identified an inter-annual change of –9.8 per cent in the value of the NCV for coke oven/gas coke for 2019/2020, which is larger than those of other reporting Parties. For 2020, the NCV reported in CRF table 1.A(b) was 26.81 TJ/kt, which is below both the average reported for the previous five years (30.00 TJ/kt) and the average for the entire time series (29.45 TJ/kt). During the review, the Party explained that the lower value for 2020 was due to an error in the SORS data. The Party provided the correct value for the NCV for coke oven/gas coke of 29.906 TJ/kt. The ERT noted that this was consistent with the average for the previous five years and results in a much lower inter-annual change for 2019/2020 of 0.6 per cent. The ERT recommends that the Party correct the NCV for coke oven/gas coke for 2020 in CRF table 1.A(b) using the revised data from SORS (29.906 TJ/kt).	Yes. Accuracy
IPPU			
I.9	2.A.1 – Cement production – CO_2	The Party reported in the NIR (section 4.1.1.2, p.127) that CKD was not included in the emission calculations for 1986–2018 because CKD is returned into the cement production process in the two cement plants in operation. The Party also reported that in 2019 a producer reported emissions from CKD for the first time, and that CO_2 emissions from CKD for 2019 and 2020 were included in the emission estimates. The ERT failed to find further information in the NIR on the reasons for the change from excluding to including emissions from CKD, given that a group of experts had previously confirmed that 100 per cent of CKD is returned to the process, as explained in the NIR. During the review, Slovenia explained that CO_2 emissions from CKD for 2019 and 2020 were included in the inventory owing to a change in the fuel type used in cement production during that period. A cement factory increased the amount of waste used as fuel. As a result of applying alternative fuels, flue gas cleaning has been required in the plants. A bypass dust system has been used to reduce the content of chloride and sulfur oxides. The ERT recommends that Slovenia improve the explanation in the NIR of the methodological change in the estimation of emissions from CKD, including the changes in the cement production process since 2019.	Yes. Transparency
I.10	2.A.4 – Other process uses of carbonates – CO_2	The Party reported in the NIR (section 4.2.4.4, p.138) that it carried out a survey to determine that all carbonate use in the country was accounted for, and no new sources were found. The ERT noted that Slovenia did not include in the NIR details of when this survey was carried out and whether the Party is planning to conduct the survey on a regular basis. During the review, Slovenia explained that the surveys were carried out in 2014 and 2019, and that it is planning to conduct a survey every five years. The Party further explained that all new applications for environmental permits and the data obtained from SORS are examined on an annual basis to check for any new sources of carbonate use. The ERT recommends that Slovenia include in the NIR details regarding the timing and frequency of the surveys conducted to determine that all carbonate use in the country is accounted for under category 2.A.4 (other process uses of carbonates).	Yes. Transparency

ID#	*Finding classification*	*Description of finding with recommendation or encouragement*	*Is finding an issue/problem?*[a]
I.11	2.F.1 Refrigeration and air conditioning – HFCs	The Party reported in CRF table 2(II).B-Hs2 the product life factors for some of the F-gases for subcategory 2.F.1.c (industrial refrigeration), with inter-annual fluctuations ranging between 12 and 26 per cent for the most recent years of the time series that are greater than those of other reporting Parties (e.g. for HFC-125: –18.2 and –18.7 per cent for 2017/2018 and 2018/2019 respectively; and for HFC-143a: –23.6 and –26.1 per cent for 2017/2018 and 2018/2019 respectively). During the review, the Party clarified that the product life factors for 2015 onward are based on data contained in the reports received from service companies. For 2015 and 2016, the quantity of F-gases was estimated because the reporting was not complete, while for 2018–2020 the actual amounts filled in during maintenance were used. The Party further explained that it does not have a sufficiently long time series of quality data to extrapolate the data backwards and that the constant product life factor of 16 per cent used for the years before 2015 does not reflect the actual situation. The ERT recommends that the Party check the time-series consistency of the values used for the product life factors and include in the NIR an explanation for the inter-annual fluctuations in the product life factors for F-gases (HFC-134a, HFC-125, HFC-143a and HFC-32) for subcategory 2.F.1.c (industrial refrigeration). The ERT encourages the Party to continue improving the accuracy of the product life factors to ensure that they reflect the actual situation in the country as further data become available.	Yes. Consistency
I.12	2.F.1 Refrigeration and air conditioning – HFC-134a	The Party reported in CRF table 2(II).B-Hs2 the amount of HFC-134a remaining in products at decommissioning for subcategory 2.F.1.e (mobile air conditioning), which was significantly higher for 2019 (2,889.40 t) than for 2018 (2.21 t or a 124,458.4 per cent increase) and 2020 (4.24 t or a 99.9 per cent decrease). During the review, the Party clarified that the amount of HFC-134a remaining in products reported for 2019 is not correct: it should be 1,000 times smaller (2.88 t). This error is the cause of the significant inter-annual changes; however, it does not have an impact on the emission estimates. The Party stated that this error will be corrected for the next annual submission. The ERT recommends that the Party correct the amount of HFC-134a remaining in products at decommissioning for subcategory 2.F.1.e (mobile air conditioning) for 2019 in CRF table 2(II).B-Hs2.	Yes. Convention reporting adherence
I.13	2.F.1 Refrigeration and air conditioning – HFC-134a	The Party reported a disposal loss factor for HFC-134a in CRF table 2(II).B-Hs2 for subcategory 2.F.1.e (mobile air conditioning) which fluctuates between 0.05 and 85 per cent for 2008–2020. For 2019, the reported value (0.05 per cent) is the lowest among all reporting Parties (ranging between 0.05 and 100.00 per cent). The ERT noted that an explanation for the disposal loss factors used and the source of the expert judgment or other references used for determining the disposal factors was not provided in the relevant section of the NIR (section 4.6.2, pp.167–168). During the review, the Party clarified that the disposal factor of 85 per cent, which was used for 2008 was recommended by experts from the Ministry of the Environment and Spatial Planning, which supervised the implementation of the legislation in practice and had a good overview of facilities for used vehicles. The Party further clarified that an incorrect amount of HFC-134a remaining in products at decommissioning was reported for 2019 (see ID# I.12 above) and that the correct value is 50 per cent, which was used for 2015 onward. Background information explaining the trend of the disposal loss factor used in the inventory for 2008–2020 was also provided during the review. The Party also identified an error in the estimates of emissions from disposal for 2009–2020, namely an overestimation of (disposal) emissions for 2009 by around 1.5 kt CO_2 eq and for 2017–2020 by about	Yes. Accuracy

ID#	*Finding classification*	*Description of finding with recommendation or encouragement*	*Is finding an issue/problem?*[a]
		0.1 kt CO_2 eq, resulting from the inadvertent omission of the proportion of air conditioning in the disposed vehicles. The ERT recommends that the Party include in the NIR an explanation of the trend in the disposal factors for HFC-134a for subcategory 2.F.1.e (mobile air conditioning). The ERT also recommends that the Party correct the estimates of disposal emissions for HFC-134a for 2009–2020 in order to take into account the proportion of air-conditioning equipment in disposed vehicles when reporting emissions in CRF table 2(II).B-Hs2.	
I.14	2.F.1 Refrigeration and air conditioning – HFC-32 and HFC-125	The Party reported in CRF table 2(II).B-Hs2 a disposal loss factor for HFC-32 for subcategory 2.F.1.f (stationary air conditioning) for 2016–2020 (e.g. 27.92 per cent for 2020) which is outside the IPCC default range (18–22 per cent). The Party also reported an HFC-125 disposal life factor with an inter-annual change of 22.55 per cent for 2015/2016. During the review, the Party clarified that a mistake was made in the final calculation of the amount remaining in products at decommissioning for HFC-32 and HFC-125, which the Party used as input in the CRF Reporter. This error had an impact on the calculation of the quantity of gas recovered and on the disposal loss factor reported in the CRF tables, which should be 20 per cent for all years of the time series, including 2016–2020. The corrected values were provided to the ERT during the review, which confirmed that the error does not affect the reported emission estimates, for which the correct amounts were reported in the annual submission. The ERT recommends that the Party correct the disposal loss factors for HFC-32 and HFC-125 reported in CRF table 2(II),B-Hs2 for 2016–2020 for subcategory 2.F.1.f (stationary air conditioning) and improve the QA/QC checks to avoid similar errors.	Yes. Convention reporting adherence
I.15	2.F.3 Fire protection – HFC-227ea	In the NIR (section 4.6.2, p.170), the Party reported that actual data on use of HFCs in fire extinguishers for 1999 onward were obtained from service companies. However, the ERT noted that section 4.6.2 of the NIR also states, "The evidence of F-gases used in fire extinguishers in our database is incomplete, because not all enterprises are aware of this reporting obligation." In addition, the Party used an EF of 5 per cent for first filling for 1997, which decreased to 0.5 per cent for 2012, explained by rigorous legislation and high F-gas prices. The ERT noted that CRF table 2(II).B-Hs2 shows a product manufacturing factor for HFC-227ea of 0.50 per cent for 1997 and 0.05 for 2012 and subsequent years, without any explanation or sources for the value 0.05 per cent or the approach used to define the values used for 1998–2011. During the review, the Party clarified that, as it was aware that the database on installed fire protection equipment was not complete, it did not use the data from the database for calculating the emission estimates and instead used data obtained from service companies. The Party also explained that the reference for the EF of 5 per cent for first filling is from the national operational plan on replacement of halons with HFCs. The EF value of 5 per cent for halons is also recommended in the operational plan for HFCs and was used for 1996–1999. Since 2012, only one service company fills HFC-227ea into fire protection systems in Slovenia. On the basis of its experience, the company suggested using an EF of 0.05 per cent, which the Party used for 2012 onward, while the EFs for 2000–2011 were interpolated. The ERT recommends that the Party improve the information in the NIR on the methodology applied for the category, including details of the sources of data used to calculate HFCs in fire extinguishers and the sources of data for the product manufacturing factor for HFC-227ea across the time series, together with justification for the	Yes. Transparency

ID#	*Finding classification*	*Description of finding with recommendation or encouragement*	*Is finding an issue/problem?*[a]
		reduction in the value of the EF for first filling across the time series. The ERT further recommends that the correct values for the percentage of the EF be entered in CRF 2(II).B-Hs2 (as a percentage rather than as a fraction).	
Agriculture			
A.7	3. General (agriculture)	The Party reported in its NIR (pp.200, 201, 220 and 224) that it used expert judgment as the basis for several key assumptions (e.g. proportion of grazing animals) and for the uncertainty estimates for the agriculture sector. However, there are no specific references in the NIR to the expert judgment used. During the review, the Party clarified that it only partially followed the protocol for expert elicitation in line with the 2006 IPCC Guidelines (vol. 1, chap. 2, annex 2A.1). The Party confirmed that the expert judgment consisted mainly of personal interviews with experts who were carefully selected and familiar with the field for which their advice was elicited. The ERT recommends that the Party follow the protocol for expert elicitation when conducting the uncertainty analysis for the agriculture sector, in line with the 2006 IPCC Guidelines (vol. 1, chap. 2, annex 2A.1) and include references to the key assumptions based on expert judgment in the next annual submission.	Yes. Convention reporting adherence
A.8	3. General (agriculture)	The Party reported in its NIR (pp.185 and 227) information on the use of unpublished data from the central cattle database in the Agricultural Institute of Slovenia regarding slaughter and birth dates, and from SORS on the application of urea. During the review, the Party agreed that using published data would improve the transparency of the annual submission. However, the data source for birth and slaughter dates is extremely extensive and is not publicly accessible, although data on growth rates are published regularly (see https://www.govedo.si/zakol-in-klavna-kakovost/) and are referenced in NIR section 5.2.2. SORS provides data on the application of urea but does not publish them; however, the data are reported to FAO which then publishes them (see https://www.fao.org/faostat/en/#data/RFB), albeit with a slight delay. The ERT encourages the Party to provide the data source for birth and slaughter dates in section 5.2.2.1 in the NIR, and the reference to FAO data on the application of urea in section 5.7.2 of the NIR.	Not an issue/problem
A.9	3.B Manure management – N_2O	The Party reported in its NIR (table 5.4.7, p.210) the EF and basic information on manure management used for calculating NH_3, N_2O, nitric oxide and dinitrogen emissions for sheep, goats, horses and rabbits. The EF and related information were sourced from the tier 2 N-flow algorithm in the EMEP/EEA air pollutant emission inventory guidebook 2019 (chap. 3.B, table 3.9). The ERT noted that where an EF was unavailable from the data source for rabbits there was a lack of justification for the selected replacement EF. There was also an inconsistency in the footnote to NIR table 5.4.7 for "Emissions from manure stores (proportion of TAN entering the stores)" for rabbits, as the value of 0.28 kg NH_3-N/kg N is the EF for goats and not for sheep, as reported in the NIR. During the review, the Party confirmed that there was an error in the EF reported in NIR table 5.4.7 for manure stores for rabbits and that it will fix this error for the next NIR. Slovenia also provided an explanation for the selection of EFs, namely that values for sheep were used for rabbits given the similarity of their excreta. The ERT recommends that the Party correct the EF for manure stores for rabbits in NIR table 5.4.7 and provide sufficient justification for the selection of EF values where there is no IPCC default value for a specific animal type.	Yes. Transparency

ID#	*Finding classification*	*Description of finding with recommendation or encouragement*	*Is finding an issue/problem?*[a]
LULUCF			
L.20	Land representation – CO_2	The Party reported in CRF table 4.1 an area of forest land (final area) of 1,208.53 kha for 2020, while in CRF table 4.A the area of forest land was reported as 1,207.93 kha for 2020. For 2015, the area of settlements (final area) reported in CRF table 4.1 was 115.71 kha, while in CRF table 4.E it was reported as 115.69 kha. During the review, the Party clarified that the correct final area of forest land for 2020 was 1,208.53 kha. The Party confirmed that there was an error in the summing of the annual conversion of perennial grassland to forest land which resulted in the converted area for 20 years being 43.44 kha instead of 44.04 kha. In the case of settlements, the correct value was 115.71 kha for 2020. The Party detected a calculation error, namely the annual land-use change from perennial grassland to settlements for 2015 (i.e. 0.02 kha was not added to the calculation), resulting in 1.24 kha for a 20-year converted area instead of 1.26 kha. The ERT recommends that the Party correct the information reported in the CRF tables on the area of forest land for 2020 and the area of settlements for 2015 and related CO_2 estimates.	Yes. Accuracy
L.21	4.A Forest land – CO_2	The Party reported in its NIR (section 6.4.4.1, p.248) and in CRF table 4.A the use of country-specific BEFs and basic wood density values for the conversion of annual net increment to above-ground tree biomass increment for estimating emissions and removals in forest land (see ID# L.4 in table 3). The ERT noted that insufficient information was provided in the NIR on the input parameters used and on how the country-specific BEF values were obtained. During the review, the Party clarified that the BEF values were estimated for each tree species and stated that detailed information on the methodology applied to estimate the country-specific BEFs will be included in the next annual submission, including on the model used and its parameters. The Party informed the ERT that the BEF values range from 1.11 to 3.91 and are consistent with the BEFs in the IPCC good practice guidance for LULUCF. The ERT recommends that the Party include in its NIR comprehensive information on the methodology for estimating the country-specific BEF, including the parameters used, the results by species and an evaluation of the consistency of the country-specific BEFs with the values in the 2006 IPCC Guidelines (vol. 4, chap. 4).	Yes. Transparency
L.22	4.A.1 Forest land remaining forest land – CO_2	The Party reported in its NIR (section 6.4.4.1, table 6.4.3, p.249) a growing stock volume of 329.63 m^3ha^{-1} for 2018. In addition, the Party reported in its NIR (section 6.4.7 p. 259) that the growing stock volume for 2019 and 2020 was estimated as a projection on the basis of the growing stock volume for 2018 reported in the Global Forest Resources Assessment 2020. During the review, the ERT noted that the Global Forest Resources Assessment 2020 (section 2a, p.22) provides a growing stock volume for above-ground biomass of 331.36 m^3ha^{-1} for 2018 and the value reported in the NIR (section 6.4.4.1, p.249) is 329.63 m^3ha^{-1}. The Party confirmed the difference between the values contained in the Global Forest Resources Assessment 2020 and in the NIR for the growing stock volume for 2018 and explained that at the time of reporting to FAO for the Global Forest Resources Assessment 2020 (i.e. in 2018), the NFI estimates, including the growing stock volume, were preliminary, not final. As a result, the growing stock volume for 2019 and 2020 reported in the NIR was not based on the final figures for 2018. The Party resubmitted the CRF tables during the review with recalculated values of carbon stock changes in living biomass for the category forest land remaining forest land in CRF table 4.A for 2019 and 2020. The recalculation resulted in a decrease in the	Yes. Transparency

ID#	*Finding classification*	*Description of finding with recommendation or encouragement*	*Is finding an issue/problem?*[a]
		estimates of net removals for the category by 34.0 per cent (from –4,218.67 to –2,783.26 kt CO_2 for 2019, and from –4,277.39 to –2,833.00 kt CO_2 for 2020). The recalculation affected the estimates of FM (see ID# KL.6 below).	
		The ERT recommends that the Party update the information in the NIR on the growing stock volume in line with Global Forest Resources Assessment 2020 for Slovenia (section 2a, p.22) to reflect the recalculated estimates of carbon stock changes in living biomass for 2019 and 2020 provided in revised CRF table 4.A.	
L.23	4.B Cropland – CO_2	The Party reported in its NIR (section 6.3.1, table 6.3.9, p.241; and section 6.5.4.1, p.267) a country-specific value for carbon stock changes for living biomass in annual cropland (2.76 t C ha^{-1}) (see ID# L.10 in table 3). According to the explanation in the NIR, this value was estimated using data from SORS. The ERT noted that no additional information was provided in the NIR on the method used to estimate this value, for instance crop types, or the size and representativeness of the sample considered in the estimation.	Yes. Transparency
		During the review, the Party clarified that additional information on the method applied for estimating the country-specific value for carbon stock changes for living biomass in annual cropland will be included in the next annual submission.	
		The ERT recommends that the Party include additional information in the NIR on the method applied for estimating the country-specific value for carbon stock changes for living biomass in annual cropland, including crop types, and the size and representativeness of the sample.	
L.24	4.C.1 Grassland remaining grassland – CO_2	The Party reported in its NIR (section 6.6.4.1, p.278) and in CRF table 4.C the use of a country-specific EF for carbon stock changes for gains in living biomass for perennial grassland (0.99 t C ha^{-1} $year^{-1}$) and reported losses as "NO", as losses are close to zero (NIR p.278). The ERT noted that no additional information was provided in the NIR on the assumptions used for considering losses in perennial grassland as being close to zero.	Yes. Accuracy
		During the review, the Party clarified that perennial grassland includes overgrown areas, trees and shrubs, forest trees on agricultural land (NIR section 6.2, table 6.2.1, p.235). Although this land is considered to be managed, woody vegetation on it is assumed to occur primarily as a result of abandoned agricultural activities. Harvesting or gathering of wood for fuel was assumed to predominate in forested areas, while losses on perennial grassland remaining perennial grassland were mainly due to natural mortality and disturbances, which were assumed to be at a small scale. The Party is considering using data on forest fires related to shrubland from the Slovenia Forest Service and calculating the associated GHG emissions for 1995 onward, or using the stock-difference method to estimate the changes in carbon stock in living biomass once permanent monitoring plots have been established at the country level.	
		The ERT recommends that the Party estimate and report the losses in living biomass for perennial grassland remaining perennial grassland or include better justification in the NIR for why such estimates are not included in the inventory.	
Waste			
W.9	5. General (waste) – CO_2, CH_4 and N_2O	The Party reported in its NIR (section 7.1, figure 7.1.2, p.307) a waste stream diagram for 2016. However, the ERT noted that there is still room for improving transparency with regard to the reporting of the different types of waste and their treatment in order to demonstrate the accuracy, completeness and/or consistency of the reporting both within the sector (e.g. regarding the consistency of the sludge balance between the solid waste and wastewater	Yes. Transparency

ID#	Finding classification	Description of finding with recommendation or encouragement	Is finding an issue/problem?[a]
		treatment categories) and with other sectors such as the energy and agriculture sectors. For example, the ERT identified that the NIR does not include information on the amount and types of wastes treated in composting and anaerobic digestion plants, or on the reasons for the notable decrease in the amount of MSW deposited in SWDS. During the review, the Party clarified the questions raised by the ERT on waste treatment pathways and trends for the sector and provided an Excel file containing information on waste flows for 2002–2020. The ERT recommends that the Party improve the transparency of the NIR by including, in the section on the overview of the waste sector, information (e.g. a flow chart) on the waste flows used in the inventory estimates; the amounts of all types of waste produced in the country (MSW, industrial, hazardous, clinical, sludge), considering both imports and exports; and the treatment applied to the different types of waste in the country, including recycling.	
W.10	5.A.1 Managed waste disposal sites – CH_4	The Party reported in its NIR (section 7.2.2, pp.322–323) information on CH_4 recovered from landfills. Emissions from energy use of CH_4 were reported under the energy sector under category 1.A.1.a (public electricity and heat production), while emissions from flaring were not included in the inventory. The ERT reviewed the information reported under the energy sector and detected some inconsistencies with the information reported under the waste sector (see ID# E.22 above). During the review, the Party clarified that the information in the NIR on the allocation of emissions from combustion of landfill gas under the waste sector is not correct and will be updated for the next annual submission. The ERT recommends that the Party correctly report in the chapter on the waste sector of the NIR the category in the energy sector in which energy use of landfill gas occurs and the associated emissions are reported.	Yes. Transparency
W.11	5.B.2 Anaerobic digestion at biogas facilities – CH_4	The Party reported in its NIR (section 7.3, p.326) information on category 5.B which covers only subcategory 5.B.1 (composting) and not subcategory 5.B.2 (anaerobic digestion). The Party reported in its NIR (section 7.1, p.310) that there are no CH_4 emissions from anaerobic digestion in biological treatment plants because the generated CH_4 is fully recovered, and all biological treatment plants in Slovenia are very new and meet high technical standards which ensure that unintentional CH_4 emissions are flared. The Party reported anaerobic digestion as "NO" in CRF table 5.B for 1990–2008, and as "NE" for 2009–2020, including for the AD and CH_4 emissions and recovery. CRF table 9 includes an explanation for the notation keys used and states that the related emissions are negligible. During the review, the Party clarified that data on the amount of waste treated by mechanical-biological plants are available but were not reported in the NIR or in the CRF tables and confirmed that all generated CH_4 is recovered. Data on the amount of biogas produced and electricity generated are not currently available; however, the Party clarified that it will obtain the data for the next annual submission and will include relevant information in the CRF tables and the NIR. The ERT recommends that the Party include in the NIR a section on subcategory 5.B.2 (anaerobic digestion), explaining that the activity started in 2009, and provide a detailed explanation and justification for reporting CH_4 recovery and emissions from anaerobic digestion as "NE", in line with paragraph 37(b) of the UNFCCC Annex I inventory reporting guidelines.	Yes. Transparency
W.12	5.C.1 Waste incineration – CO_2	Slovenia reported in the NIR (table 7.4.2, p.329) the use of a dm content value of 35 per cent for calculating the CO_2 EF for clinical waste and referred to the 2006 IPCC Guidelines (vol. 5, chap. 2, table 2.6, p.2.16) as the data	Yes. Accuracy

ID#	*Finding classification*	*Description of finding with recommendation or encouragement*	*Is finding an issue/problem?*[a]
		source used. However, the ERT noted that the IPCC default value of 35 per cent is for water content (equivalent to 65 per cent of dm content). During the review, Slovenia clarified that there was an error in the value of the dm content used for clinical waste and that the correct dm value is 65 per cent. The Party also provided a correct CO_2 EF value of 0.572 t CO_2/t waste to be used instead of the value of 0.308 t CO_2/t waste reported in its NIR (section 7.4.2, table 7.4.3, p.329). The preliminary recalculations performed using the correct values across the time series resulted in an increase in the CO_2 emission estimates of 0.035 kt CO_2 for 1994 and 0.070 kt CO_2 for 2020, with the largest increase observed for 2010 at 0.177 kt CO_2. The ERT noted that the underestimation of emissions is below the significance threshold for the application of an adjustment in accordance with decision 22/CMP.1, annex, paragraph 80(b), in conjunction with decision 4/CMP.11 (7.93 kt CO_2 eq for Slovenia in 2020), and this issue was therefore not included in the list of potential problems and further questions raised by the ERT. The ERT recommends that the Party update the CO2 EF for clinical waste using the correct value for dm content from the 2006 IPCC Guidelines (vol. 5, chap. 2, table 2.6, p.2.16) and recalculate CO2 emissions from clinical waste for the entire time series.	
W.13	5.D.2 Industrial wastewater – CH_4	The Party reported in its NIR (section 7.5.2, p.346) the MCF for centralized aerobic wastewater treatment plants used for estimating emissions from industrial wastewater treated together with domestic wastewater. The MCF was derived from default MCF values in the 2006 IPCC Guidelines (vol. 5, chap. 6, table 6.3, p.6.13) for well-managed centralized aerobic treatment plants (MCF = 0) and not well-managed plants (MCF = 0.3), using operation data obtained from the EU urban wastewater treatment directive. The Party reported that in 2020, 93 per cent of wastewater was treated in well-managed centralized aerobic treatment plants (MCF = 0) and 7 per cent in not well-managed plants (MCF = 0.3); therefore, a weighted average MCF of 0.022 was derived from the share of wastewater treated under both treatment conditions. However, Slovenia did not report the MCF values applied throughout the time series to explain the decreasing trend in CH_4 emissions from industrial wastewater treatment. During the review, the Party provided information on the share of industrial wastewater treated in well-managed and not well-managed centralized aerobic treatment plants over the entire time series (1986–2020), which shows that the fraction of wastewater treated in well-managed treatment plants gradually increased from 69 per cent in 1986 to 93 per cent in 2020, with a corresponding decrease in the MCF value from 0.093 to 0.022. This decrease in the value of the MCF partially explains the decrease in the emission trend for industrial wastewater treatment, which was also caused by a decrease in the volume of industrial wastewater treated in centralized aerobic treatment plants, as described in the NIR (section 7.5.2, p.346). The ERT recommends that the Party include, in the section of the NIR on the MCF, information on the changes in the value of the MCF throughout the time series to clarify the improvement in treatment conditions for industrial wastewater and the corresponding decrease in emissions.	Yes. Transparency
KP-LULUCF			
KL.6	FM – CO_2	The Party indicated in the section of the NIR on KP-LULUCF (section 11.3.1.1, p.377) that the method used to estimate carbon stock changes in living biomass is described in NIR section 6.4.4.1, which shows a growing stock volume of 329.63 m^3ha^{-1} for 2018, as reported in the NFI (NIR table 6.4.3, p.249). The Party also reported in its NIR (section 6.4.7, p.259) that the growing stock volume for 2019 and 2020 was estimated as a projection on the	Not a problem

ID#	Finding classification	Description of finding with recommendation or encouragement	Is finding an issue/problem?[a]
		basis of the growing stock for 2018, as reported in the Global Forest Resources Assessment 2020. The ERT noted that the Global Forest Resources Assessment 2020 (section 2a, p.22) provides a growing stock volume for above-ground biomass of 331.36 m^3ha^{-1} for 2018 and the value reported in the NIR (section 6.4.4.1, p.249) is 329.63 m^3 ha^{-1}. During the review, the Party confirmed the difference between the values reported in the NIR and those contained in the Global Forest Resources Assessment 2020 and explained that at the time of reporting to FAO for the Global Forest Resources Assessment 2020 (i.e. in 2018) the NFI estimates, including the growing stock volume, were preliminary, not final. As a result, the growing stock volume for 2019 and 2020 reported in the NIR was not based on the final figures contained in the NFI for 2018. The preliminary values were used in CRF table 4(KP-I)B.1 and affected the extrapolated values for 2019 and 2020 and the accounting quantities reported in the CRF accounting table for 2019 and 2020, as well as the estimation of forest land remaining forest land (see ID# L.22 above). The ERT concluded that the use of the preliminary values resulted in an overestimation of removals from FM for 2019 and 2020. During the review, the Party submitted revised CRF tables with recalculated values for the carbon stock changes in living biomass using a final value for growing stock volume of 329.63 m^3ha^{-1}, which affected CRF tables 4(KP), 4(KP-1)B.1 and the accounting table. The recalculation resulted in a decrease of 34.0 per cent in the estimates of net removals from carbon stock changes reported in CRF table 4(KP-I)B.1 under FM for 2019 and 2020 (from –4,218.67 to –2,783.26 kt CO_2 for 2019, and from –4,277.39 to –2,822.00 kt CO_2 for 2020) and a corresponding change in the accounting quantity of 2,890.70 kt CO_2 eq. The ERT accepted the recalculated estimates of carbon stock changes in living biomass and the revised accounting quantity.	

[a] Recommendations made by the ERT during the review are related to issues as defined in para. 81 of the UNFCCC review guidelines or problems as defined in para. 69 of the Article 8 review guidelines.

VI. Application of adjustments

11. The ERT did not identify the need to apply any adjustments for the 2022 annual submission of Slovenia.

VII. Accounting quantities for activities under Article 3, paragraph 3, and, if any, activities under Article 3, paragraph 4, of the Kyoto Protocol

12. Table I.5 presents the accounting quantities for KP-LULUCF reported by Slovenia and the final values agreed by the ERT. The final quantities of units to be cancelled are presented in table I.6.

VIII. Questions of implementation

13. No questions of implementation were identified by the ERT during the individual review of the Party's 2022 annual submission.

Annex I

Overview of greenhouse gas emissions and removals and data and information on activities under Article 3, paragraphs 3–4, of the Kyoto Protocol, as submitted by Slovenia in its 2022 annual submission

1. Tables I.1–I.4 provide an overview of the total GHG emissions and removals as submitted by Slovenia.

Table I.1
Total greenhouse gas emissions and removals for Slovenia, base year–2020
(kt CO_2 eq)

	Total GHG emissions excluding indirect CO_2 emissions		*Total GHG emissions and removals including indirect CO_2 emissions*[a]		*Land-use change (Article 3.7 bis as contained in the Doha Amendment)*[b]	*KP-LULUCF (Article 3.3 of the Kyoto Protocol)*[c]	*KP-LULUCF (Article 3.4 of the Kyoto Protocol)*	
	Total including LULUCF	*Total excluding LULUCF*	*Total including LULUCF*	*Total excluding LULUCF*			*CM, GM, RV, WDR*	*FM*
FMRL								–3 171.00
Base year[d]	15 613.88	20 379.11	NA	NA	NA		NA	
1990	14 234.66	18 598.85	NA	NA				
1995	13 561.91	18 683.17	NA	NA				
2000	12 395.41	18 581.83	NA	NA				
2010	12 485.40	19 643.77	NA	NA				
2011	12 508.00	19 567.83	NA	NA				
2012	11 983.98	18 943.49	NA	NA				
2013	12 843.11	18 250.07	NA	NA		250.93	NA	–4 440.47
2014	17 224.30	16 612.20	NA	NA		251.43	NA	1 494.89
2015	17 506.10	16 793.51	NA	NA		252.33	NA	1 506.52
2016	18 531.26	17 657.58	NA	NA		253.76	NA	1 577.90
2017	18 737.71	17 727.38	NA	NA		255.67	NA	1 611.58
2018	18 616.49	17 554.69	NA	NA		256.77	NA	1 578.37
2019	13 621.82	17 074.18	NA	NA		259.68	NA	–3 028.24
2020	12 571.03	15 851.44	NA	NA		262.50	NA	–2 956.12

Note: Emissions and removals reported for the sector other (sector 6) are not included in the total GHG emissions.

[a] The Party did not report indirect CO_2 emissions in CRF table 6.

[b] The value reported in this column relates to GHG emissions from conversion of forests (deforestation) in 1990 as contained in the report on the review of the Party's report to facilitate the calculation of the assigned amount for the second commitment period of the Kyoto Protocol.

[c] Activities under Article 3, para. 3, of the Kyoto Protocol, namely AR and deforestation.

[d] "Base year" refers to the base year under the Kyoto Protocol, which is 1986 for CO_2, CH_4 and N_2O, and 1995 for HFCs, PFCs, SF_6 and NF_3. Slovenia has not elected any activities under Article 3, para. 4, of the Kyoto Protocol. For activities under Article 3, para. 3, of the Kyoto Protocol and FM under Article 3, para. 4, only the inventory years of the commitment period must be reported.

Table I.2
Greenhouse gas emissions and removals by gas for Slovenia, excluding land use, land-use change and forestry, 1986–2020
(kt CO_2 eq)

	CO_2[a]	*CH_4*	*N_2O*	*HFCs*	*PFCs*	*Unspecified mix of HFCs and PFCs*	*SF_6*	*NF_3*
1986	16 779.34	2 599.37	827.23	NO	233.19	NO	9.77	NO
1990	15 094.85	2 530.13	756.45	NO	207.59	NO	9.83	NO
1995	15 354.18	2 364.59	791.24	32.89	128.14	NO	12.13	NO
2000	15 053.69	2 491.38	845.90	46.10	129.75	NO	15.01	NO
2010	16 459.52	2 169.95	728.92	257.76	9.64	NO	17.99	NO
2011	16 358.58	2 161.67	739.17	270.11	20.16	NO	18.15	NO
2012	15 760.51	2 111.32	742.54	294.66	18.11	NO	16.34	NO
2013	15 133.32	2 053.25	715.27	315.76	15.31	NO	17.16	NO
2014	13 568.17	1 954.03	724.48	333.12	15.22	NO	17.19	NO
2015	13 653.31	2 014.69	748.78	343.50	15.74	NO	17.49	NO
2016	14 464.58	2 049.13	755.13	351.51	19.78	NO	17.44	NO
2017	14 622.03	2 002.04	730.81	339.25	17.45	NO	15.81	NO
2018	14 526.71	1 935.53	740.10	320.92	15.59	NO	15.83	NO
2019	14 048.14	1 922.69	778.90	296.78	11.81	NO	15.87	NO
2020	12 866.24	1 893.63	771.01	295.03	9.62	NO	15.93	NO
Percentage change 1986–2020	**–23.3**	**–27.2**	**–6.8**	**NA**	**–95.9**	**NA**	**63.0**	**NA**

Note: Emissions and removals reported for the sector other (sector 6) are not included in this table.
[a] Slovenia did not report indirect CO_2 emissions in CRF table 6.

Table I.3
Greenhouse gas emissions and removals by sector for Slovenia, 1986–2020
(kt CO_2 eq)

	Energy	*IPPU*	*Agriculture*	*LULUCF*	*Waste*	*Other*
1986	16 471.53	1 407.99	1 936.15	–4 765.23	633.24	NO
1990	14 646.88	1 392.88	1 860.25	–4 364.20	698.83	NO
1995	15 184.47	1 073.07	1 773.74	–5 121.26	651.90	NO
2000	14 831.40	1 162.43	1 809.81	–6 186.43	778.19	NO

	Energy	*IPPU*	*Agriculture*	*LULUCF*	*Waste*	*Other*
2010	16 406.84	1 015.38	1 677.63	–7 158.37	543.92	NO
2011	16 327.57	1 030.76	1 659.59	–7 059.83	549.91	NO
2012	15 705.74	1 058.52	1 644.08	–6 959.51	535.15	NO
2013	14 980.60	1 123.33	1 629.58	–5 406.96	516.55	NO
2014	13 284.95	1 162.65	1 676.62	612.10	487.97	NO
2015	13 434.92	1 145.82	1 716.65	712.60	496.11	NO
2016	14 284.08	1 144.94	1 736.97	873.68	491.59	NO
2017	14 353.14	1 191.24	1 702.81	1 010.33	480.19	NO
2018	14 193.00	1 216.24	1 702.12	1 061.80	443.32	NO
2019	13 691.71	1 227.68	1 719.63	–3 452.37	435.16	NO
2020	12 538.32	1 174.60	1 723.82	–3 280.41	414.70	NA
Percentage change 1986–2020	**–23.9**	**–16.6**	**–11.0**	**–31.2**	**–34.5**	**NA**

Notes: (1) Slovenia did not report emissions or removals for the sector other (sector 6); (2) Slovenia did not report indirect CO_2 emissions in CRF table 6.

Table I.4

Greenhouse gas emissions and removals from activities under Article 3, paragraphs 3–4, of the Kyoto Protocol by activity, base year–2020, for Slovenia

(kt CO_2 eq)

	Article 3.7 bis as contained in the Doha Amendment[a]	*Activities under Article 3.3 of the Kyoto Protocol*		*FM and elected activities under Article 3.4 of the Kyoto Protocol*				
	Land-use change	*AR*	*Deforestation*	*FM*	*CM*	*GM*	*RV*	*WDR*
FMRL				–3 171.00				
Technical correction				–161.37				
Base year[b]	NA				NA	NA	NA	NA
2013		NA, NO	250.93	–4 440.47	NA	NA	NA	NA
2014		NA, NO	251.43	1 494.89	NA	NA	NA	NA
2015		NA, NO	252.33	1 506.52	NA	NA	NA	NA
2016		NA, NO	253.76	1 577.90	NA	NA	NA	NA
2017		NA, NO	255.67	1 611.58	NA	NA	NA	NA
2018		NA, NO	256.77	1 578.37	NA	NA	NA	NA
2019		NA, NO	259.68	–3 028.24	NA	NA	NA	NA
2020		NA, NO	262.50	–2 956.12	NA	NA	NA	NA
Percentage change base year–2019					**NA**	**NA**	**NA**	**NA**

Note: Values in this table include emissions from land subject to natural disturbances, if applicable.

[a] The value reported in this column relates to 1990.
[b] For activities under Article 3, para. 3, of the Kyoto Protocol and FM under Article 3, para. 4, only the inventory years of the commitment period must be reported.

2. Table I.5 provides information on the Party's accounting quantities for reporting under Article 3, paragraphs 3–4, of the Kyoto Protocol.

Table I.5
Accounting quantities for activities under Article 3, paragraph 3, and forest management and any elected activities under Article 3, paragraph 4, of the Kyoto Protocol for Slovenia
(kt CO_2 eq)

GHG source/sink activity	*Net emissions/removals*										*Accounting parameters*	*Accounting quantities*[a]
	Base year[b]	*2013*	*2014*	*2015*	*2016*	*2017*	*2018*	*2019*	*2020*	*Total*[c]		
A.1. AR		NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO		NA, NO
Excluded emissions from natural disturbances		NA	NA	NA	NA	NA	NA	NA	NA	NA		NA
Excluded subsequent removals from land subject to natural disturbances		NA	NA	NA	NA	NA	NA	NA	NA	NA		NA
A.2. Deforestation		250.931	251.435	252.328	253.763	255.674	256.774	259.679	262.504	2 043.088		2 043.088
B.1. FM										–2 655.566		24 003.395
Net emissions/ removals		–4 440.474	1 494.888	1 506.520	1 577.904	1 611.581	1 578.370	–3 028.238	–2 956.118	–2 655.566		
Excluded emissions from natural disturbances[d]		NA	NA	NA	NA	NA	NA	NA	NA	NA		NA
Excluded subsequent removals from land subject to natural disturbances		NO	NO	NO	NO	NO	NO	NO	NO	NO		NO
Any debits from newly established forest		NA	NA	NA	NA	NA	NA	NA	NA	NA		NA
FMRL[e]											–3 171.000	

GHG source/sink activity	*Net emissions/removals*										*Accounting parameters*	*Accounting quantities*[a]
	Base year[b]	*2013*	*2014*	*2015*	*2016*	*2017*	*2018*	*2019*	*2020*	*Total*[c]		
Technical corrections to FMRL											–161.370	
FM cap											5 691.720	24 003.395
B.2. CM (if elected)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA
B.3. GM (if elected)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA
B.4. RV (if elected)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA
B.5. WDR (if elected)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA

[a] Cumulative net emissions and removals for all years of the commitment period reported in the annual submission under review.
[b] Net emissions and removals from CM, GM, RV and/or WDR, if elected, in the Party's base year as established in decision 9/CP.2.
[c] The accounting quantity is the total quantity of units to be issued or cancelled for a particular activity.
[d] The Party indicated that it does not intend to exclude emissions from natural disturbances.
[e] As inscribed in the appendix to the annex to decision 2/CMP.7 in kt CO_2 eq per year.

3. Table I.6 provides an overview of key data from Slovenia's reporting under Article 3, paragraphs 3–4, of the Kyoto Protocol.

Table I.6
Key data for Slovenia under Article 3, paragraphs 3–4, of the Kyoto Protocol from its 2022 annual submission

Parameter	*Data values*
Periodicity of accounting	(a) AR: commitment period accounting (b) Deforestation: commitment period accounting (c) FM: commitment period accounting (d) CM: not elected (e) GM: not elected (f) RV: not elected (g) WDR: not elected
Elected activities under Article 3, paragraph 4, of the Kyoto Protocol	None
Election of application of provisions for natural disturbances	No
3.5% of total base-year GHG emissions, excluding LULUCF	711.465 kt CO_2 eq (5 691.720 kt CO_2 eq for the duration of the commitment period)
Cancellation of AAUs, CERs and ERUs and/or issuance of RMUs in the national registry for:	
1. AR	NA
2. Deforestation	Cancel 2 043 088 units
3. FM	Cancel 24 003 395 units

Note: Values in this table reflect the accounting quantities for activities under Article 3, para. 3, and FM and any elected activities under Article 3, para. 4, of the Kyoto Protocol as reported in table I.5.

Annex II

Information to be included in the compilation and accounting database

Tables II.1–II.8 include the information to be included in the compilation and accounting database for Slovenia. Data shown are from the Party's annual submission, including the latest revised estimates submitted, adjustments (if applicable) and the final data to be included in the compilation and accounting database.

Table II.1
Information to be included in the compilation and accounting database for 2020, including on the commitment period reserve, for Slovenia
(t CO_2 eq)

	Original submission	*Revised submission*	*Adjustment*	*Final value*
CPR	89 483 204	–	–	89 483 204
Annex A emissions				
CO_2	12 866 237	–	–	12 866 237
CH_4	1 893 625	–	–	1 893 625
N_2O	771 007	–	–	771 007
HFCs	295 025	–	–	295 025
PFCs	9 622	–	–	9 622
Unspecified mix of HFCs and PFCs	NO	–	–	NO
SF_6	15 926	–	–	15 926
NF_3	NO	–	–	NO
Total Annex A sources[a]	15 851 443	**–**	**–**	15 851 443
Activities under Article 3, paragraph 3, of the Kyoto Protocol				
AR	NO, NA	–	–	NO, NA
Deforestation	262 504	–	–	262 504
FM and elected activities under Article 3, paragraph 4, of the Kyoto Protocol				
FM	–4 411 506	–2 956 118	–	–2 956 118

[a] The sum of the values for the individual gases and groups of gases may not match the total owing to rounding.

Table II.2
Information to be included in the compilation and accounting database for 2019 for Slovenia
(t CO_2 eq)

	Original submission	*Revised submission*	*Adjustment*	*Final value*
Annex A emissions				
CO_2	14 048 142	–	–	14 048 142
CH_4	1 922 688	–	–	1 922 688
N_2O	778 897	–	–	778 897
HFCs	296 778	–	–	296 778
PFCs	11 805	–	–	11 805
Unspecified mix of HFCs and PFCs	NO	–	–	NO
SF_6	15 871	–	–	15 871
NF_3	NO	–	–	NO
Total Annex A sources[a]	17 074 182	**–**	**–**	17 074 182
Activities under Article 3, paragraph 3, of the Kyoto Protocol				
AR	NO, NA	–	–	NO, NA
Deforestation	259 679	–	–	259 679

	Original submission	*Revised submission*	*Adjustment*	*Final value*
FM and elected activities under Article 3, paragraph 4, of the Kyoto Protocol				
FM	–4 463 646	–3 028 238	–	–3 028 238

[a] The sum of the values for the individual gases and groups of gases may not match the total owing to rounding.

Table II.3
Information to be included in the compilation and accounting database for 2018 for Slovenia
(t CO_2 eq)

	Original submission	*Revised submission*	*Adjustment*	*Final value*
Annex A emissions				
CO_2	14 526 712	–	–	14 526 712
CH_4	1 935 531	–	–	1 935 531
N_2O	740 099	–	–	740 099
HFCs	320 922	–	–	320 922
PFCs	15 592	–	–	15 592
Unspecified mix of HFCs and PFCs	NO	–	–	NO
SF_6	15 829	–	–	15 829
NF_3	NO	–	–	NO
Total Annex A sources[a]	17 554 686	**–**	**–**	17 554 686
Activities under Article 3, paragraph 3, of the Kyoto Protocol				
AR	NO, NA	–	–	NO, NA
Deforestation	256 774	–	–	256 774
FM and elected activities under Article 3, paragraph 4, of the Kyoto Protocol				
FM	1 578 370	–	–	1 578 370

[a] The sum of the values for the individual gases and groups of gases may not match the total owing to rounding.

Table II.4
Information to be included in the compilation and accounting database for 2017 for Slovenia
(t CO_2 eq)

	Original submission	*Revised submission*	*Adjustment*	*Final value*
Annex A emissions				
CO_2	14 622 025	–	–	14 622 025
CH_4	2 002 038	–	–	2 002 038
N_2O	730 810	–	–	730 810
HFCs	339 250	–	–	339 250
PFCs	17 447	–	–	17 447
Unspecified mix of HFCs and PFCs	NO	–	–	NO
SF_6	15 812	–	–	15 812
NF_3	NO	–	–	NO
Total Annex A sources[a]	17 727 383	**–**	**–**	17 727 383
Activities under Article 3, paragraph 3, of the Kyoto Protocol				
AR	NO, NA	–	–	NO, NA
Deforestation	255 674	–	–	255 674
FM and elected activities under Article 3, paragraph 4, of the Kyoto Protocol				
FM	1 611 581	–	–	1 611 581

[a] The sum of the values for the individual gases and groups of gases may not match the total owing to rounding.

Table II.5
Information to be included in the compilation and accounting database for 2016 for Slovenia
($t CO_2 eq$)

	Original submission	*Revised submission*	*Adjustment*	*Final value*
Annex A emissions				
CO_2	14 464 584	–	–	14 464 584
CH_4	2 049 134	–	–	2 049 134
N_2O	755 132	–	–	755 132
HFCs	351 509	–	–	351 509
PFCs	19 781	–	–	19 781
Unspecified mix of HFCs and PFCs	NO	–	–	NO
SF_6	17 436	–	–	17 436
NF_3	NO	–	–	NO
Total Annex A sources[a]	17 657 577	**–**	**–**	17 657 577
Activities under Article 3, paragraph 3, of the Kyoto Protocol				
AR	NO, NA	–	–	NO, NA
Deforestation	253 763	–	–	253 763
FM and elected activities under Article 3, paragraph 4, of the Kyoto Protocol				
FM	1 577 904	–	–	1 577 904

[a] The sum of the values for the individual gases and groups of gases may not match the total owing to rounding.

Table II.6
Information to be included in the compilation and accounting database for 2015 for Slovenia
($t CO_2 eq$)

	Original submission	*Revised submission*	*Adjustment*	*Final value*
Annex A emissions				
CO_2	13 653 307	–	–	13 653 307
CH_4	2 014 692	–	–	2 014 692
N_2O	748 776	–	–	748 776
HFCs	343 499	–	–	343 499
PFCs	15 740	–	–	15 740
Unspecified mix of HFCs and PFCs	NO	–	–	NO
SF_6	17 493	–	–	17 493
NF_3	NO	–	–	NO
Total Annex A sources[a]	16 793 507	**–**	**–**	16 793 507
Activities under Article 3, paragraph 3, of the Kyoto Protocol				
AR	NO, NA	–	–	NO, NA
Deforestation	252 328	–	–	252 328
FM and elected activities under Article 3, paragraph 4, of the Kyoto Protocol				
FM	1 506 520	–	–	1 506 520

[a] The sum of the values for the individual gases and groups of gases may not match the total owing to rounding.

Table II.7
Information to be included in the compilation and accounting database for 2014 for Slovenia
($t CO_2 eq$)

	Original submission	*Revised submission*	*Adjustment*	*Final value*
Annex A emissions				
CO_2	13 568 170	–	–	13 568 170
CH_4	1 954 027	–	–	1 954 027
N_2O	724 476	–	–	724 476

	Original submission	*Revised submission*	*Adjustment*	*Final value*
HFCs	333 115	–	–	333 115
PFCs	15 221	–	–	15 221
Unspecified mix of HFCs and PFCs	NO	–	–	NO
SF_6	17 189	–	–	17 189
NF_3	NO	–	–	NO
Total Annex A sources[a]	16 612 199	–	–	16 612 199
Activities under Article 3, paragraph 3, of the Kyoto Protocol				
AR	NO, NA	–	–	NO, NA
Deforestation	251 435	–	–	251 435
FM and elected activities under Article 3, paragraph 4, of the Kyoto Protocol				
FM	1 494 888	–	–	1 494 888

[a] The sum of the values for the individual gases and groups of gases may not match the total owing to rounding.

Table II.8
Information to be included in the compilation and accounting database for 2013 for Slovenia
(t CO_2 eq)

	Original submission	*Revised submission*	*Adjustment*	*Final value*
Annex A emissions				
CO_2	15 133 322	–	–	15 133 322
CH_4	2 053 247	–	–	2 053 247
N_2O	715 268	–	–	715 268
HFCs	315 756	–	–	315 756
PFCs	15 315	–	–	15 315
Unspecified mix of HFCs and PFCs	NO	–	–	NO
SF_6	17 162	–	–	17 162
NF_3	NO	–	–	NO
Total Annex A sources[a]	18 250 070	–	–	18 250 070
Activities under Article 3, paragraph 3, of the Kyoto Protocol			–	–
AR	NO, NA	–	–	NO, NA
Deforestation	250 931	–	–	250 931
FM and elected activities under Article 3, paragraph 4, of the Kyoto Protocol				
FM	–4 440 474	–	–	–4 440 474

[a] The sum of the values for the individual gases and groups of gases may not match the total owing to rounding.

Annex III

Additional information to support findings in table 2

Missing categories that may affect completeness

The category for which estimation methods are included in the 2006 IPCC Guidelines that was reported as "NE" or for which the ERT otherwise determined that there may be an issue with the completeness of the reporting in the Party's inventory is the following: 1.A.3.b.iii Heavy-duty trucks and buses – liquid fuels (CO_2, CH_4 and N_2O) for 1986–1991 (see ID# E.19 in table 5).

Annex IV

Reference documents

A. Reports of the Intergovernmental Panel on Climate Change

IPCC. 2003. *Good Practice Guidance for Land Use, Land-Use Change and Forestry*. J Penman, M Gytarsky, T Hiraishi, et al. (eds.). Hayama, Japan: Institute for Global Environmental Strategies. Available at https://www.ipcc-nggip.iges.or.jp/public/gpglulucf/gpglulucf_files/GPG_LULUCF_FULL.pdf.

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IPCC. 2019. *2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories*. E Calvo Buendia, K Tanabe, A Kranjc, et al. (eds.). Geneva: IPCC. Available at https://www.ipcc-nggip.iges.or.jp/public/2019rf/index.html.

B. UNFCCC documents

Annual review reports

Reports on the individual reviews of the 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2018 and 2020 annual submissions of Slovenia, contained in documents FCCC/ARR/2010/SVN, FCCC/ARR/2011/SVN, FCCC/ARR/2012/SVN, FCCC/ARR/2013/SVN, FCCC/ARR/2014/SVN, FCCC/ARR/2015/SVN, FCCC/ARR/2016/SVN, FCCC/ARR/2018/SVN and FCCC/ARR/2020/SVN, respectively.

Other

Aggregate information on greenhouse gas emissions by sources and removals by sinks for Parties included in Annex I to the Convention. Note by the secretariat. Available at https://unfccc.int/documents/510888.

Annual status report for Slovenia for 2022. Available at https://unfccc.int/sites/default/files/resource/asr2022_SVN.pdf.

Conclusions and recommendations from the 16th meeting of greenhouse gas inventory lead reviewers, 2019. Available at https://unfccc.int/process-and-meetings/transparency-and-reporting/reporting-and-review-under-the-convention/greenhouse-gas-inventories-annex-i-parties/review-process.

Conclusions and recommendations from the 19th meeting of greenhouse gas inventory lead reviewers, 2022. Available at https://unfccc.int/process-and-meetings/transparency-and-reporting/reporting-and-review-under-the-convention/greenhouse-gas-inventories-annex-i-parties/review-process.

Report on the review of the report to facilitate the calculation of the assigned amount for the second commitment period of the Kyoto Protocol of Slovenia (FCCC/IRR/2016/SVN). Available at https://unfccc.int/documents/28191.

Report of the technical assessment of the forest management reference level submission of Slovenia submitted in 2011 (FCCC/TAR/2011/SVN). Available at https://unfccc.int/documents/6956.

C. Other documents used during the review

Responses to questions during the review were received from Tajda Mekinda Majaron (Slovenian Environment Agency), including additional material on the methodology and assumptions used. The following references may not conform to UNFCCC editorial style as some have been reproduced as received:

Česen M. 2020. Analiza emisijskih faktorjev za zgorevanje lesne biomase (Analysis of emission factors for wood biomass combustion). Final report No. IJS-DP-13075 (in Slovenian). Institut "Jožef Stefan", Energy Efficiency Center, Ljubljana, Slovenija.

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Menzi H., Frick R., Kaufmann R. 1997. *Ammoniak-Emissionen in der Schweiz: Ausmass und technische Beurteilung des Reduktionspotentials*. Zürich, FAL.

Ozgen, S., Caserini, S. 2018. *Methane emissions from small residential wood combustion appliances: experimental emission factors and warming potential.* Atmospheric Environment, vol. 189, pp.164-173. Available at https://doi.org/10.1016/j.atmosenv.2018.07.006.

Regina C. (EPA), Jim M. (EPA), Jonathan D. (EPA), Oliver G. (RPS), Una F. (RPS). 2011. *Protocol For The Evaluation Of Biodegradable Municipal Waste Sent To Landfill*. Office of Environmental Enforcement - Environmental Protection Agency.

Regulation on the protection of waters against pollution caused by nitrates from agricultures sources. Slovenia. 2009. https://www.ecolex.org/details/legislation/regulation-on-the-protection-of-waters-against-pollution-caused-by-nitrates-from-agricultural-sources-lex-faoc097962/.

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WISDOM Slovenia. 2006. Spatial woodfuel production and consumption analysis applying the Woodfuel Integrated Supply / Demand Overview Mapping (WISDOM) methodology. Slovenia Forest Service, FAO. http://www.wisdomprojects.net/global/csdetail.asp?id=8#.