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Report on the individual review of the annual submission of Austria 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 Austria, 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 26 September to 1 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.



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Abbreviations and acronyms

2006 IPCC Guidelines	<i>2006 IPCC Guidelines for National Greenhouse Gas Inventories</i>
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”
CER	certified emission reduction
CH ₄	methane
CM	cropland management
CO ₂	carbon dioxide
CO ₂ eq	carbon dioxide equivalent
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”
CPR	commitment period reserve
CRF	common reporting format
EF	emission factor
ERT	expert review team
ERU	emission reduction unit
EU ETS	European Union Emissions Trading System
FM	forest management
FMRL	forest management reference level
GHG	greenhouse gas
GM	grazing land management
HFC	hydrofluorocarbon
HWP	harvested wood products
IE	included elsewhere
IEF	implied emission factor
IPCC	Intergovernmental Panel on Climate Change
IPPU	industrial processes and product use
KP-LULUCF	activities under Article 3, paragraphs 3–4, of the Kyoto Protocol
LULUCF	land use, land-use change and forestry
N ₂ O	nitrous oxide
NA	not applicable
NE	not estimated
NF ₃	nitrogen trifluoride
NFI	national forest inventory
NIR	national inventory report
NMVOC	non-methane volatile organic compound
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

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	<i>2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands</i>

I. Introduction

1. This report covers the review of the 2022 annual submission of Austria, 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 26 September to 1 October 2022 in Bonn and was coordinated by Jongikhaya Witi and Tomoyuki Aizawa (secretariat). Table 1 provides information on the composition of the ERT that conducted the review for Austria.

Table 1

Composition of the expert review team that conducted the review for Austria

<i>Area of expertise</i>	<i>Name</i>	<i>Party</i>
Generalist	Sorin Deaconu	Romania
	Hlobosile Patricia Sikhosana	Eswatini
Energy	Ana Carolina Avzaradel Szklo	Brazil
	Lawrence Kotoe	Ghana
	John David Watterson	United Kingdom
	Songli Zhu	China
IPPU	Jet Chong	Australia
	Kristina Gonchar	Belarus
	Ingrid Person Rocha e Pinho	Brazil
Agriculture	Kingsley Kwako Amoako	Ghana
	Hongmin Dong	China
LULUCF and KP-LULUCF	Helen Karu	Estonia
	Thiago de Araújo Mendes	Brazil
	Admore Mureva	Zimbabwe
	Atsushi Sato	Japan
Waste	Richard Claxton	United Kingdom
	Igor Ristovski	North Macedonia
Lead reviewers	Thiago de Araújo Mendes	
	John David Watterson	

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 Austria resolve identified findings, including issues¹ designated as problems.² Other findings, and, if applicable, the encouragements of the ERT to Austria to resolve related issues, are also included in this report.

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

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.

5. Annex I presents the annual GHG emissions of Austria, including totals excluding and including LULUCF, indirect CO₂ emissions, and emissions by gas and by sector, and 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 Austria

<i>Assessment</i>	<i>Issue/problem ID#(s) in table 3 or 5^a</i>	
Date of submission	Original submission: NIR, 15 April 2022; CRF tables (version 3), 15 April 2022; SEF tables, 15 April 2022	
Review format	Centralized	
Application of the requirements of the UNFCCC	Have any issues been identified in the following areas:	
Annex I inventory reporting guidelines and the Wetlands Supplement (if applicable)	(a) Identification of key categories?	No
	(b) Selection and use of methodologies and assumptions?	Yes I.6
	(c) Development and selection of EFs?	Yes I.8
	(d) Collection and selection of AD?	Yes E.3
	(e) Reporting of recalculations?	Yes I.9
	(f) Reporting of a consistent time series?	No
	(g) Reporting of uncertainties, including methodologies?	No
	(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 I.7, L.1, L.2
	(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?	NA The Party did not report any insignificant categories as "NE"
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
	Have any issues been identified related to the national registry:	
	(a) Overall functioning of the national registry?	No

<i>Assessment</i>	<i>Issue/problem ID#(s) in table 3 or 5^a</i>		
	(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.3
	(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?	No	
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?	Yes	
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?	No	Austria 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 1 April 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 Austria

<i>ID#</i>	<i>Issue/problem classification^{a, b}</i>	<i>Recommendation from previous review report</i>	<i>ERT assessment and rationale</i>
General			
G.1	Other (G.4, 2020) Comparability	Update the reporting of indirect CO ₂ emissions from the energy sector in CRF table 6 by using the correct notation keys in accordance with paragraph 37 of the UNFCCC Annex I inventory reporting guidelines.	Resolved. The Party provided in its NIR (chap. 9, p.563) information on indirect CO ₂ emissions from the energy sector, including the reasons for choosing the notation keys reported in CRF table 6. The Party also corrected the reporting of indirect CO ₂ emissions in CRF table 6 by using the correct notation keys ("IE", "NE").
G.2	Other (G.4, 2020) Comparability	Update the information about indirect CO ₂ emissions from the energy sector in the NIR (chap. 9), including by revising the statement that only indirect CO ₂ emissions from solvents (IPPU sector) were reported in the inventory.	Addressing. The Party stated in its NIR (chap. 9, p.563) that it "does not report any indirect CO ₂ emissions from the atmospheric oxidation of CH ₄ , CO and NMVOCs". On the same page, in NIR table 308, indirect CO ₂ emissions for the energy and IPPU sectors are reported as "IE" ("NE" for fugitive emissions) and an explanation for the choice of notation key is provided. The ERT noted that the statement is inconsistent with the information reported in table 6. During the review, the Party clarified that it does not calculate indirect emissions separately or report indirect emissions explicitly and the statement in chapter 9 of the NIR (p.563) will be updated to reflect this in the next annual submission.
G.3	Other (G.4, 2020) Comparability	Present the national totals with and without indirect CO ₂ in the CRF tables and in the NIR, in accordance with paragraph 29 of the UNFCCC Annex I inventory reporting guidelines.	Not resolved. The Party did not provide national totals with indirect CO ₂ emissions in the NIR and the CRF tables. During the review, the Party noted that, according to paragraph 29 of the UNFCCC Annex I inventory reporting guidelines, this is not a mandatory reporting requirement. The ERT noted that paragraph 29 states that for Parties that decide to report indirect CO ₂ the national totals shall be presented with and without indirect CO ₂ , thus making the reporting mandatory.

³ FCCC/ARR/2020/AUT. The ERT notes that the report on the review of Austria'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.

<i>ID#</i>	<i>Issue/problem classification^{a, b}</i>	<i>Recommendation from previous review report</i>	<i>ERT assessment and rationale</i>
G.4	QA/QC and verification (G.1, 2020) (G.4, 2018) (G.6, 2016) (G.6, 2015) Convention reporting adherence	Enhance the QC practices, or the application of the existing practices, in order to ensure consistency between the NIR and the CRF tables.	Resolved. The Party reported in its NIR (section 1.23, pp.31–37) the general QA/QC and verification procedures it follows when preparing the GHG inventory. In addition, the Party provided information (NIR p.38) on the activities undertaken after preparation of the inventory to enhance QA/QC and verification, including circulating the NIR for comment after publication to all actors involved in estimating Austria's GHG emissions, including experts from federal provinces (some of whom prepare a partly independent emissions inventory for their province and compare it with the disaggregated national inventory) and data providers from, for example, industrial facilities and associations of industries.
G.5	Uncertainty analysis (G.3, 2020) Convention reporting adherence	Include in the NIR an uncertainty analysis for the base year under the Convention (1990).	Resolved. The Party reported in its NIR (p.66) total uncertainties of 5.6 and 5.1 per cent for the base year (1990) and the reporting year (2020) respectively (excluding LULUCF) and 18.5 and 16.2 per cent for the base year and reporting year respectively (including LULUCF). The Party provided information on the uncertainty level for the base year in annex 2.2 to the NIR (p.37 of the annexes).
Energy			
E.1	1.A.3.a Domestic aviation – jet kerosene – CO ₂ , CH ₄ and N ₂ O (E.5, 2020) Consistency	Ensure time-series consistency of the emission estimates for civil aviation and explain any recalculations in the NIR.	Resolved. The Party reported in its NIR (p.141) that since the 2021 submission, Austria has applied the tier 3a methodology for 2000–2020 and trend extrapolation (as described in the 2006 IPCC Guidelines (vol. 1, chap. 5.3.3)) for 1990–1999 in estimating emissions from civil aviation.
E.2	1.A.3.e Other transportation – liquid fuels – CO ₂ , CH ₄ and N ₂ O (E.6, 2020) Comparability	Report emissions from ground activities at airports under category 1.A.3.e.ii in line with the 2006 IPCC Guidelines (vol. 2, chap. 3.3, table 3.1.1).	Resolved. The Party reported emissions from ground activities at airports under category 1.A.3.e.ii in its NIR (p.176).
E.3	1.A.5.b Mobile – liquid fuels – CO ₂ , CH ₄ and N ₂ O (E.7, 2020) Accuracy	Make efforts to improve the accuracy of the estimates by developing more efficient cooperation with the Austrian Ministry of Defence to resolve confidentiality issues. If linear extrapolation continues to be used for the estimates, demonstrate the validity of the trend in the NIR.	Addressing. The Party continued to report the estimates from 1999 onward based on linear trend extrapolation of fuel combustion for military aviation activities. The Party reported in its NIR (p.192) that no data were provided by the Austrian Ministry of Defence for this subcategory (1.A.5.b) even though several official requests were made. Austria, as part of its planned improvements (NIR p.195), will renew its request for AD from the Ministry for its next annual submission. The Party re-evaluated data on kerosene consumption by military aviation in response to the recommendation of the previous ERT by improving its methodology for estimating emissions from military aviation for 2000–2018 (NIR p.192). The Party interpolated fuel consumption data from 2009 according to the trend until 2020. However, the Party continued to use the previously applied method, linear extrapolation, for 1999–2008. This led to a recalculation for 2009–2019 as a result of using AD that the Party sourced

ID#	Issue/problem classification ^{a, b}	Recommendation from previous review report	ERT assessment and rationale
E.4	1.B.2 Oil, natural gas and other emissions from energy production – oil and natural gas – CH ₄ (E.8, 2020) Transparency	Explain in the NIR what percentage of CH ₄ emissions for category 1.B.2.b was estimated using a tier 2 methodology and make efforts to report the emissions for category 1.B.2 disaggregated into categories 1.B.2.a.i and 1.B.2.b.i.	<p>by assessing military stock levels between 2008 and 2020 and assuming constant flying hours. The recalculations resulted in a reduction in emissions of 17.7 kt CO₂ eq for 2019. The ERT considers that the approach followed by Austria does not result in an underestimation of emissions as it uses a tier 1 methodology, actual population of military aircraft stock and constant flying hours, which slightly overestimates fuel consumption, and therefore the methodology is unlikely to underestimate emissions.</p> <p>The ERT considers that to fully address this issue, Austria should replace the linear extrapolation method with the use of actual AD obtained from the Ministry of Defence.</p> <p>Addressing. The Party reported in its NIR (p.209) that about 63 per cent of the CH₄ emissions for category 1.B.2.b (natural gas) were estimated using a tier 2 method for combined oil, oil gas and natural gas. Austria, as part of its planned improvements (NIR p.218) to increase the transparency of its reporting, will investigate the possibility of disaggregating emissions currently reported under category 1.B.2.b into subcategories 1.B.2.a.i and 1.B.2.b.i.</p> <p>During the review, the Party indicated that a switch to separate reporting of oil and gas production (under subcategories 1.B.2.a.ii and 1.B.2.b.ii respectively) has already been discussed with the Austrian representatives of international oil and gas suppliers, and a corresponding request for disaggregated AD and emission data has been initiated. The Party plans to include disaggregated emissions in the 2023 submission.</p>
E.5	1.B.2.c Venting and flaring – natural gas – CO ₂ (E.9, 2020) Transparency	Include in the NIR the explanation provided during the review related to the reporting of CO ₂ emissions from gas flaring in category 1.A.1.b (petroleum refining) instead of category 1.B.2.c.2.ii (flaring (gas)).	Resolved. The Party included in its NIR (p.210) an explanation for reporting CO ₂ emissions from gas flaring in category 1.A.1.b (petroleum refining) instead of category 1.B.2.c.2.ii (flaring (gas)). The ERT noted that the information is consistent with the explanation for the use of the notation key “IE” for CO ₂ emissions for category 1.B.2.c.2.ii (flaring gas) in CRF table 9.
E.6	1.B.2.c Venting and flaring – natural gas – CO ₂ (E.9, 2020) Transparency	Provide in the NIR the specific basis, including the legal basis, for designating the information on CO ₂ emissions from flaring as confidential.	<p>Not resolved. No explanation as to why detailed EU ETS data on flaring emissions are considered confidential and thus reported as “IE” was provided in the NIR.</p> <p>During the review, the Party acknowledged that it assumed “legal basis” to mean the reporting obligation of the Party arising from European Union regulation 601/2012 on the monitoring and reporting of GHG emissions pursuant to directive 2003/87/EC and not to the designation of emissions from flaring as confidential. The ERT clarified that “legal basis” refers to the designation of emissions from flaring as confidential.</p>
IPPU			
I.1	2.A.2 Lime production – CO ₂ (I.6, 2020) Comparability	Report all lime production, whether the lime is produced as a marketed or non-marketed product, under category 2.A.2 (lime production).	Addressing. The Party reported in its NIR (p.239) that emissions from lime production associated with calcium carbide production and desulfurization are reported under categories 2.B.5 (carbide production) and 2.A.4 (other process uses of carbonates) respectively. The ERT noted that this is not consistent with good practice recommendations in the 2006 IPCC Guidelines for calcium carbide (vol. 3, chap. 3, p.3.41, box 3.5) and other uses of lime (vol. 3, chap. 2, p.2.33).

<i>ID#</i>	<i>Issue/problem classification^{a, b}</i>	<i>Recommendation from previous review report</i>	<i>ERT assessment and rationale</i>
			During the review, the Party clarified that emissions from lime production associated with carbide production and desulfurization will be reported under category 2.A.2 (lime production) in future annual submissions.
I.2	2.B.1 Ammonia production – CO ₂ (I.7, 2020) Transparency	Describe in the NIR the methodology used to estimate CO ₂ recovered by incorporating carbon into melamine.	Addressing. The Party reported in its NIR (section 4.3.1.2, p.253) that CO ₂ emissions reported as removals owing to their use in the production of melamine are stoichiometrically calculated without transparently explaining the calculation. During the review, the Party provided the ERT with information on its working calculations showing how the stoichiometric ratio method is used to estimate CO ₂ recovery. The ERT considers that this issue can be resolved if the Party includes in the NIR the information it provided during the review on the methodology it used to estimate CO ₂ recovered by incorporating carbon into melamine.
I.3	2.C.1 Iron and steel production – CH ₄ (I.9, 2020) Transparency	(a) Report CH ₄ emissions from iron and steel production, including sintering and pig iron production, under category 2.C.1 (or the category where those emissions are reported) for the entire time series using a methodology consistent with the decision tree in the 2006 IPCC Guidelines (vol. 3, chap. 4, figure 4.8). (b) Include a description of the methodologies, AD and EFs used in the estimation. (c) Alternatively, if these emissions are considered to be insignificant, report them as “NE” and demonstrate that the likely level of emissions is below the significance threshold mentioned in paragraph 37 of the UNFCCC Annex I inventory reporting guidelines. (d) Review and, if necessary, revise the title of NIR table 138 (section 4.4.1.2, p.246) to make it consistent with the table’s content.	(a) Resolved. The Party reported in NIR table 142 (pp.266–267) (under iron and steel production) and CRF table 2(I).A-Hs2 (under 2.C.1.b pig iron production) CH ₄ emissions from iron and steel production for the entire time series. (b) Resolved. Emissions of CH ₄ reported under pig iron production are, in fact, from sinter production and those emissions were described in the NIR (p.265) to be site-specific measurements for the iron ore sintering process. This means that no explanation of the methodology and EF used is required in the NIR. AD in this case are the measurements of CH ₄ emissions made by the only iron and steel company in the country. The ERT considered that using measurements of emissions is acceptable and likely to be accurate. (c) Resolved. The CH ₄ emissions were reported based on site-specific measurements (see items (a) and (b) above). (d) Not resolved. In the 2022 submission, the Party did not revise the title of table 142 (formerly NIR table 138) to make it consistent with its content (CO ₂ and CH ₄ emission estimates for iron and steel production). The ERT considers that adding the text “and CH ₄ ” to the title of this table in the next annual submission would resolve the issue.
I.4	2.C.4 Magnesium production – SF ₆ (I.10, 2020) Convention reporting adherence	Correct NIR tables 123 (on key categories in the IPPU sector) and 124 (on uncertainty analysis for the IPPU sector) by including the information that only SF ₆ emissions from magnesium foundries are reported in category 2.C.4.	Resolved. The Party reported in NIR table 127 (p.227) (IPPU sector key categories) and NIR table 128 (p.228) (IPPU sector uncertainty analysis) (formerly NIR tables 123 and 124 respectively) that only SF ₆ emissions from magnesium production are reported under category 2.C.4.

<i>ID#</i>	<i>Issue/problem classification^{a, b}</i>	<i>Recommendation from previous review report</i>	<i>ERT assessment and rationale</i>
I.5	2.C.7 Other (metal industry) – SF ₆ (I.11, 2020) Convention reporting adherence	Correct NIR table 124 (on uncertainty analysis for the IPPU sector) by deleting the uncertainty values for AD, EFs and SF ₆ emissions for this category.	Resolved. The Party reported in NIR table 128 (p.228) (formerly NIR table 124) the IPPU sector uncertainty analysis. This table does not refer to AD, EFs or SF ₆ emissions for category 2.C.7.
Agriculture No issues were identified that remained unresolved at the time of publication of the previous review report.			
LULUCF			
L.1	4.A.1 Forest land remaining forest land – CO ₂ (L.2, 2020) (L.2, 2018) (L.2, 2016) (L.2, 2015) (57, 2014) (60, 2013) (73, 2012) Completeness	Provide estimates of the carbon stock changes in living biomass for forests not in yield when the new NFI data become available and use the correct notation key until then.	Addressing. The Party did not provide estimates of the carbon stock changes in living biomass for forests not in yield and, pending the availability of new NFI data, reported these carbon stock changes as “NE” in NIR table 238 (p.426) and CRF table 4.A. The Party reported in its NIR (p.428) that the NFI that commenced in 2016 will provide estimates for forests not in yield. The ERT noted that justification for the use of “NE” is missing from CRF tables 4.A and 9. During the review, the Party clarified that the analysis of the new NFI data has been completed and the results for forests not in yield will be reported in the 2023 submission. The ERT considers that the recommendation has not yet been addressed because the Party has not yet estimated the carbon stock changes in living biomass for forests not in yield.
L.2	4.A.1 Forest land remaining forest land – CO ₂ (L.3, 2020) (L.3, 2018) (L.3, 2016) (L.3, 2015) (58, 2014) Completeness	Provide estimates of the carbon stock changes in mineral soils for forests not in yield using the best available data. Alternatively, use the appropriate notation key and provide information justifying its use in the annual submission.	Addressing. In the 2020 NIR, the Party committed to calculating the carbon stock changes in mineral soils for forests not in yield using data from the NFI that was anticipated to be completed in time for the 2022 submission; however, the data were not available in time. The Party reported in its current NIR (p.428) that the NFI that commenced in 2016 will provide estimates for forests not in yield. During the review, the Party clarified that the analysis of the new NFI data has been completed and the results for forests not in yield will be reported in the 2023 submission. The ERT considers that the recommendation has not yet been addressed because the Party has not yet estimated the carbon stock changes in mineral soils for forests not in yield.
L.3	4.A.2.1 Cropland converted to forest land – CO ₂ (L.4, 2020) Transparency	Explain how the estimates of carbon stock gains in the deadwood pool take into account the deadwood already present in perennial cropland before the transition to forest land.	Resolved. The Party explained in its NIR (p.447) that between 2011 and 2013 a reduced NFI was carried out only in NFI plots that had afforestation, reforestation or deforestation activities according to previous NFIs. The reduced NFI provided detailed measurements for carbon stock changes of standing deadwood in areas of conversion to and from forest land over time. Measurements of changes in deadwood stocks in the transition period, which are already present in the conversion areas in the year of the land-use change, were also provided by the NFI.

<i>ID#</i>	<i>Issue/problem classification^{a, b}</i>	<i>Recommendation from previous review report</i>	<i>ERT assessment and rationale</i>
Waste			
W.1	5. General (waste) – CO ₂ , CH ₄ and N ₂ O (W.1, 2020) (W8, 2018) Transparency	Correct NIR figure 40 to reflect the true mass waste flow, with an explanation in the NIR text of why the mass flow may not sum across its parts.	<p>Resolved. The Party, in an updated, quality-checked NIR figure 41 (p.527) (formerly figure 40), showed treatment and disposal routes for waste from households and similar sources, indicating the amounts of rotting losses in a note to the figure. The current ERT considered the issue detected by the previous ERT, namely that the values for waste collected separately and for mechanical and mechanical-biological treatment do not match the sum of their parts, were considered and noted that the sum for waste collected separately does match. However, there is still discrepancy in the sum for mechanical and mechanical-biological treatment.</p> <p>During the review, the Party provided the ERT with its version of the IPCC landfill waste model, which confirms the true mass waste flow. The discrepancy in the mass flow sum for mechanical and mechanical-biological treatment is explained by rotting losses of 0.071 Mt not being considered in the calculations, as indicated in the footnote to NIR figure 41.</p>
W.2	5.B.1 Composting – CH ₄ and N ₂ O (W.2, 2020) Transparency	Describe in more detail in the NIR the mechanical-biological and composting treatment of waste and how the data and EFs presented in the NIR relate to the data and IEFs reported in CRF table 5.B.	<p>Addressing. The Party reported in its NIR (section 7.3.2.4, p.543) an explanation of its mechanical-biological and composting treatment of waste, including the conversion factor for dry matter. However, the ERT noted that the NIR text indicated a CH₄ IEF of 1.83 kg CH₄/t for composting of municipal solid waste, while the value in CRF table 5.B for 2020 is 1.82 kg CH₄/t.</p> <p>During the review, the Party clarified that the correct value is that captured in CRF table 5.B and that the value in the NIR was due to a quality control error. The ERT, noting that the IEF of 1.83 kg CH₄/t stated in the NIR refers to inventory year 2019 from the 2021 submission, indicated that the Party should update the background information in CRF table 5.B on the CRF IEF with data from the most recent inventory year in its next annual submission.</p>
W.3	5.B.2 Anaerobic digestion at biogas facilities – N ₂ O (W.3, 2020) Comparability	Report N ₂ O emissions for category 5.B.2 as “NE” in CRF tables 5 and 5.B and the NIR, consistently with paragraph 37(b) of the UNFCCC Annex I inventory reporting guidelines, and justify this reporting by explaining that the 2006 IPCC Guidelines (vol. 5, p.4.4 and table 4.1) do not include a default EF but indicate that N ₂ O emissions from anaerobic digestion of organic waste are assumed to be negligible.	Resolved. The Party reported in its NIR (section 7.3.2.2, p.540) and in CRF table 5.B an explanation of the notation key applied for reporting on N ₂ O emissions for category 5.B.2 (anaerobic digestion at biogas facilities), including a note that the 2006 IPCC Guidelines do not include a default EF and indicate that N ₂ O emissions from the anaerobic digestion of organic waste are assumed to be negligible (vol. 5, p.4.4 and table 4.1).
W.4	5.C.1 Waste incineration – CO ₂ , CH ₄ and N ₂ O (W.4, 2020) Comparability	Report emissions from incineration of clinical waste and waste oil separately from emissions from municipal waste incineration.	Resolved. The Party reported in its NIR (section 7.4.3, p.549) and in CRF table 5.C emissions from the incineration of clinical waste and waste oil separately from the emissions from municipal waste incineration.

<i>ID#</i>	<i>Issue/problem classification^{a, b}</i>	<i>Recommendation from previous review report</i>	<i>ERT assessment and rationale</i>
W.5	5.D.1 Domestic wastewater – CH ₄ (W.5, 2020) Convention reporting adherence	Provide consistent information in CRF table 5.D and the NIR (either estimates or the correct notation key for the recovered and flared CH ₄ from domestic wastewater).	Addressing. The Party changed the notation key previously used (“NA”) for both flared and recovered CH ₄ from domestic wastewater. It reported “IE” for recovery and stated in footnote 120 in its NIR (section 7.5.2.1, p.552) that the emissions are reported under category 1.A. The information is also included in CRF table 9 for industrial wastewater. The use of notation key “NA” for recovered and flared CH ₄ from domestic wastewater was not explained in the NIR. During the review, the Party clarified that the “NA” reported additionally under category 5.D.1 in CRF table 5.D only refers to the emissions source “cesspools”, where no recovery takes place.
W.6	5.D.2 Industrial wastewater – CH ₄ (W.6, 2020) Accuracy	Review the assumption of the chosen coefficient (1 per cent) for all the industrial wastewater plants, exploring the shares of the industrial wastewater plants with and without anaerobic pre-treatment, and improve the transparency of reporting by specifying in the NIR the scope and results of the research conducted in 2019 by Environment Agency Austria.	Resolved. The Party reported in its NIR (section 7.5.2.2, p.558) more details on the scope of the study conducted by Environment Agency Austria (Umweltbundesamt, 2019) as well as on the assumption that 1 per cent of the CH ₄ generated during the anaerobic treatment of wastewater is emitted.
W.7	5.D.2 Industrial wastewater – CH ₄ (W.6, 2020) Accuracy	For the industrial wastewater plants and industries (meat and milk production) that do not practise anaerobic pre-treatment, (1) use a more appropriate EF according to the type of treatment used in the industrial wastewater plants, as indicated in the 2006 IPCC Guidelines (vol. 5, chap. 6.2.3.2), (2) report the estimated emissions instead of reporting “NA” for AD as in CRF table 5.D of the 2020 submission and (3) report the results of the review in the NIR and, if applicable, explain in the NIR any recalculations.	Resolved. The Party provided more detailed information on its methodological approach as well as on the on-site industrial wastewater treatment practices in its NIR (chap. 7.5.2.2, pp.558–559). Bottom-up data on CH ₄ generated (measurements from point sources) as well as on wastewater and sludge treatment practices (whether or not a plant practises anaerobic pre-treatment) were collected in a comprehensive survey in 2019, covering industrial branches in Austria with significant carbon loading. The survey also showed that only a few industrial wastewater sites in Austria carry out anaerobic pre-treatment of their wastewater, with the CH ₄ produced being used for energy (all plants practising anaerobic pre-treatment have gas collection systems with subsequent energy recovery). The survey also proved that digestion of the resulting sludge takes place only in a very few cases, with the biogas produced being used for energy production. Nevertheless, diffuse emissions from these sites cannot be excluded, for example, during subsequent aerobic treatment of the anaerobically pre-treated wastewater (CH ₄ stripping), and therefore an EF of 1 per cent was applied for all these plants with an anaerobic pre-treatment. For plants not practising anaerobic pre-treatment at all (for example, milk and meat production) a methane correction factor of zero is assumed, which is in accordance with the 2006 IPCC Guidelines. The ERT noted that no recalculations are needed.

<i>ID#</i>	<i>Issue/problem classification^{a, b}</i>	<i>Recommendation from previous review report</i>	<i>ERT assessment and rationale</i>
KP-LULUCF			
KL.1	HWP – CO ₂ (KL.2, 2020) Transparency	<p>Explain how the shares of harvest originating from FM, AR and deforestation that are used in the estimation of the emissions and removals from HWP are obtained, by including in the NIR the following information:</p> <p>(a) The share of harvest is estimated on the basis of the above-ground biomass loss, including harvest and mortality, for each of the three activities;</p> <p>(b) The above-ground biomass loss for the activities, which is calculated from single tree cuttings in most cases, is directly measured at the NFI plots that belong to the activities;</p> <p>(c) The total above-ground biomass loss for all forests in Austria and those at the AR and deforestation areas are measured values;</p> <p>(d) The above-ground biomass loss at the FM areas is estimated as a balance, by subtracting the measured above-ground biomass loss at the AR and deforestation areas from the measured total above-ground biomass loss for all Austrian forests.</p>	Resolved. The Party provided in NIR table 327 the shares of harvest originating from AR, deforestation and FM and included in its NIR (p.604) the information listed in the recommendation.
KL.2	HWP – CO ₂ (KL.2, 2020) Transparency	Report disaggregated data for annual above-ground biomass loss (in kt carbon) and respective areas of each KP-LULUCF activity (i.e. not the areas of harvest but the areas of each KP-LULUCF activity used to obtain the share of harvest) and the source of the data.	Not resolved. The Party did not report the disaggregated data for annual above-ground biomass loss and the areas of each KP-LULUCF activity used to obtain the share of harvest. The ERT noted that the Party should also include the source of these data.

^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 Austria 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, 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 Austria, 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 Austria

<i>ID#</i>	<i>Previous recommendation for issue</i>	<i>Number of successive reviews issue not addressed^a</i>
General		
G.3	Present the national totals with and without indirect CO ₂ in the CRF tables and in the NIR, in accordance with paragraph 29 of the UNFCCC Annex I inventory reporting guidelines.	4 (2015/2016–2022)
Energy	No issues identified.	
IPPU	No issues identified.	
Agriculture	No issues identified.	
LULUCF		
L.1	Provide estimates of the carbon stock changes in living biomass for forests not in yield when the new NFI data become available and use the correct notation key until then.	7 (2012–2022)
L.2	Provide estimates of the carbon stock changes in mineral soils for forests not in yield using the best available data. Alternatively, use the appropriate notation key and provide information justifying its use in the annual submission.	5 (2014–2022)
Waste	No issues identified.	
KP-LULUCF	No issues identified.	

^a Reports on the reviews of the 2017, 2019 and 2021 annual submissions of Austria 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 Austria that are additional to those identified in table 3.

Table 5

Additional findings made during the individual review of the 2022 annual submission of Austria

<i>ID#</i>	<i>Finding classification</i>	<i>Description of finding with recommendation or encouragement</i>	<i>Is finding an issue/problem?^a</i>
General		No general findings additional to those included in table 3 were made by the ERT during the review.	
Energy		No findings for the energy sector additional to those included in table 3 were made by the ERT during the review.	
IPPU			
I.6	2.B.1 Ammonia production – CO ₂	<p>The Party reported in its NIR (p.252) that the production of melamine, an input to resin and plastic manufacturing with a stable chemical structure, is a subprocess output of urea produced at Austria’s only ammonia plant. The chemical reaction for melamine production requires ammonia and CO₂ to produce urea, which is decomposed to form melamine. Stoichiometrically, half of the carbon molecule inputs remain in the melamine molecule. The Party reported CO₂ chemically bonded in melamine under CO₂ recovery for category 2.B.1 (ammonia production) in CRF table 2(I).A-Hs1. Other sources of CO₂ recovery from ammonia production reported in CRF table 2(I).A-Hs1 are fertilizer production and urea production and application, including in catalysts.</p> <p>The ERT noted that the 2006 IPCC Guidelines do not provide a methodology for accounting for carbon incorporated in melamine in inventory reporting. The use of CO₂ for melamine production is also not discussed in the IPCC report <i>Carbon dioxide Capture and Storage</i> (IPCC, 2005) and no lifetime for melamine is provided in table 7.2 (p.332) of that report, which details characteristics of several industrial applications of CO₂. The ERT also noted that the 2006 IPCC Guidelines (vol. 3, chap. 3, p.3.12) state that “when a deduction is made for CO₂ used in urea production it is good practice to ensure that emissions from urea use are included elsewhere in the inventory” for the purposes of CO₂ recovery reported under category 2.B.1. As urea is subsequently converted into melamine under the reported process, the ERT considers that this principle applies also to CO₂ deductions due to use in melamine production.</p> <p>During the review, the Party clarified that the melamine produced in the country is used for the manufacture of resins used in products with long lifespans (10–30 years), primarily wood panels, kitchenware and homeware. The Party also clarified that carbon deducted from ammonia production emissions because it is bonded in melamine will be accounted for at the melamine product’s end of life, consistent with other plastic waste, forming part of the fossil carbon content of waste. As such, it is accounted for in the waste sector under solid waste disposal (category 5.A) or in the energy sector under other fossil fuels (category 1.A).</p> <p>The ERT recommends that the Party include in its NIR a detailed carbon balance for the life cycle of melamine produced from ammonia, which should indicate carbon bonded in melamine at production and any emissions that may occur during the lifespan of the melamine product or during its disposal, and a description of the inventory reporting arrangements for all relevant emissions sources. The provision of a transparent, complete carbon balance,</p>	Yes. Transparency

ID#	Finding classification	Description of finding with recommendation or encouragement	Is finding an issue/problem? ^a
1.7	2.B.5 Carbide production – CO ₂	<p>supported by any available studies or research underpinning assumptions about emissions or material properties, will justify the estimates for the CO₂ recovery mechanism and ensure that emissions from ammonia production are complete and accurate.</p> <p>The Party reported in its NIR (p.258) that calcium carbide production occurs in Austria at a single plant and emissions are estimated using a country-specific EF. No information or estimates were reported for emissions from acetylene production and use. The ERT noted that methods for estimating emissions from acetylene production and use are provided in the 2006 IPCC Guidelines (vol. 3, chap. 3, p.3.40). The ERT noted that the Party's reporting is not in accordance with the 2006 IPCC Guidelines (vol. 3, chap. 3, p.3.42), which specify that the estimation of emissions from calcium carbide needs to include emissions of CO₂ indirectly attributable to calcium carbide that is used in acetylene production.</p> <p>During the review, the Party confirmed that acetylene production occurs, but emissions for this activity have not yet been estimated or reported. The Party indicated that emissions from this source, estimated using tier 1 default EFs in the 2006 IPCC Guidelines (vol. 3, chap. 3, table 3.8, p.3.44), are approximately 19 kt CO₂ for 2020. The ERT assessed the magnitude of emissions from this source for 2020 to be below the significance threshold for application of an adjustment in accordance with decision 22/CMP.1, annex, paragraph 80(b), in conjunction with decision 4/CMP.11 (36.80 kt CO₂ eq in 2020) and therefore not included in the list of potential problems and further questions raised by the ERT.</p> <p>The ERT recommends that the Party estimate and report emissions from acetylene production and use arising from calcium carbide production.</p>	Yes. Completeness
1.8	2.B.5 Carbide production – CO ₂	<p>The Party reported in its NIR (p.258) that emissions from calcium carbide production are estimated using a country-specific industry-sourced EF. The EF reported for the reduction process is 0.5804 t CO₂/t carbide produced. Information on how this EF was derived was not reported. The ERT noted that this value is significantly lower than the default EF of 1.090 t CO₂/t carbide produced provided in the 2006 IPCC Guidelines (vol. 3, chap. 3, table 3.8, p.3.44).</p> <p>During the review, the Party explained that Austria's carbide production facility utilizes a production process that is less reliant on coke inputs than traditional production methods and that this is the reason for the default EF not being used. The country-specific EF was determined using a stoichiometric approach and accounts for impurities in the final carbide produced. The Party clarified that the EF used does not account for reduction of excess petroleum coke in the reduction process step, which is identified in the 2006 IPCC Guidelines (vol. 3, chap. 3, p.3.44) as a potential issue with the stoichiometric calculation approach.</p> <p>During the review, the Party supplied a revised EF of 0.763 t CO₂/t carbide produced based on a carbon balance of production inputs, including coke, and disregarding abatement activities. The ERT considered that this revised EF addressed the issue of excess petroleum coke being unaccounted for. When comparing carbide emission estimates between the revised EF and originally reported EF, the ERT calculated a potential underestimation of 6.38 kt CO₂ for 2020. The ERT assessed the magnitude of emissions from this source for 2020 to be below the significance threshold for application of an adjustment in accordance with decision 22/CMP.1, annex, paragraph 80(b), in conjunction with decision 4/CMP.11 (36.80 kt CO₂ eq in 2020) and therefore not included in the list of potential problems and further questions raised by the ERT.</p>	Yes. Accuracy

ID#	Finding classification	Description of finding with recommendation or encouragement	Is finding an issue/problem? ^a
I.9	2.C.1 Iron and steel production – CO ₂ and CH ₄	<p>The ERT recommends that the Party review the accuracy of the country-specific EF used to estimate emissions for category 2.B.5 (carbide production), revise the EF, if necessary, taking into account emissions associated with the reduction of excess petroleum coke in the reduction process stage, and clearly document how the EF was derived.</p> <p>The Party reported in its NIR (p.268) recalculations of CO₂ emissions from iron and steel production that were made owing to updates in AD from the energy balance. The recalculations caused a redistribution of emissions between categories 2.C.1 and 1.A.2.a (iron and steel (fuel combustion)). Recalculations of CH₄ emissions occurred owing to a new reporting estimate of CH₄ for the sintering process, which was made following a recommendation in the previous review report (see ID#I.3 in table 3). As such, CH₄ emissions from sinter production were reported for the first time in the 2022 submission. However, for CO₂ emissions, Austria reported the impact of the recalculations only for 2019. With regard to CH₄ emissions, the ERT is of the view that the NIR text can be improved to explain transparently the effects of including the newly added CH₄ emission estimates for the whole time series. The ERT noted that, for both gases, no discussion of the impact of the recalculation and new emission estimates on sectoral or national GHG emissions is provided in the NIR, which is not in accordance with paragraph 43 of the UNFCCC Annex I inventory reporting guidelines.</p> <p>The ERT recommends that the Party report in the NIR (section 4.4.1.5) the effects of recalculations of CO₂ and CH₄ emissions from iron and steel production on national total GHG emissions, for the whole time series, in accordance with paragraphs 43–45 and 50(h) of the UNFCCC Annex I inventory reporting guidelines.</p>	Yes. Convention reporting adherence
I.10	2.C.1 Iron and steel production – CO ₂	<p>The Party stated in its NIR (p.265) that emissions from coke ovens and on-site power plants at integrated iron and steel production facilities are reported under the energy sector. However, no details about carbon mass flows for iron and steel production processes, including for residual fuel gases from on-site power plants and stationary combustion at iron and steel production facilities, were provided for the IPPU sector in NIR section 4.4.1.</p> <p>During the review, the Party explained that the carbon balance AD available for emission estimates cover all integrated processes. The Party clarified that residual fuel gas emissions described as being from on-site power plants can also refer to stationary combustion occurring within integrated iron and steel production facilities, but the Party has no access to the detailed carbon flows required to calculate accurately the stationary combustion emissions from these integrated facilities. Without clear carbon flows, the ERT was not able to determine whether all emissions have been accounted for and was not able to check if feedstock or reductant requirements of processes are in balance with the non-energy use or feedstock supply recorded in the national energy statistics. The total emissions for iron and steel production come from EU ETS monitoring reports that are verified by third parties that have access to detailed AD. From the EU ETS monitoring reports, the Party split CO₂ emissions between the energy and IPPU sectors, according to the information provided by the Party during the review week. In the NIR (p.266), Austria stated that plant operators calculate emissions with a mass balance approach (regulated by the Austrian monitoring, reporting and verification ordinance, “Federal Law Gazette II No. 339/2007”) and that detailed data on carbon content are available in annex 2 to the NIR. The ERT did not find any carbon content information in annex 2, which relates to uncertainty, but this information was provided to the ERT by the Party during the review.</p> <p>The ERT recommends that the Party provide accurate information and data (e.g. detailed carbon balances and carbon contents) in the NIR (section 4.4.1) to enhance the transparency of its reporting on carbon flows for iron and steel production activities related to the IPPU and energy sectors.</p>	Yes. Transparency

ID#	Finding classification	Description of finding with recommendation or encouragement	Is finding an issue/problem? ^a
I.11	2.C.1 Iron and steel production – CO ₂ and CH ₄	<p>The Party stated in its NIR (p.265) that in the 2022 submission, CH₄ emissions (from operator-measured plant data) were reported under pig iron production (category 2.C.1.b) for the whole time series. However, in CRF table 2(I).A-Hs2, “NO” was used to report both CH₄ and CO₂ emissions from sinter (category 2.C.1.d).</p> <p>During the review, the Party clarified that both gases are reported for the integrated sinter plant at one of the iron and steel production sites. CO₂ emissions cannot be separated from iron and steel carbon balances and this is the reason that they are reported under category 2.C.1.a (steel). The EU ETS monitoring reports, which contain the carbon balances, are externally verified by a third party. In addition, Austria informed the ERT that there are no stand-alone sinter plants in the country, which is the reason behind the use of “NO”. CH₄ emissions from sintering are instead reported under pig iron production (category 2.C.1.b).</p> <p>The ERT recommends that the Party either correct the reporting of CH₄ emissions from sintering in CRF table 2(I).A-Hs2, reallocating them from category 2.C.1.b (pig iron) to 2.C.1.d (sinter) or, if the Party decides to continue reporting them under category 2.C.1.b, change the notation key in category 2.C.1.d from “NO” to “IE” for both CH₄ and CO₂ emissions and improve the relevant explanatory text in the NIR.</p>	Yes. Comparability
I.12	2.C.4 Magnesium production – SF ₆	<p>The Party reported in CRF table 2(I).A-Hs2 under AD for category 2.C.4 (magnesium production) that 3.60 kt cast magnesium was produced each year for 1999–2020.</p> <p>During the review, the Party clarified that the magnesium production AD have not been updated, therefore, the 1999 value was used for 2000–2020. The Party explained that the quantity of magnesium cast does not affect emission estimates for this category because SF₆ emissions are estimated using a tier 2 method involving direct reporting of plant consumption of SF₆. The Party noted that SF₆ is only consumed in the production of particular magnesium products as other cover gases are now used, so emissions will not correlate with total magnesium production, and that there is only a single magnesium producer consuming SF₆, so reporting of production would be hampered by confidentiality concerns.</p> <p>The ERT noted the Party’s explanation that magnesium production data have no impact on emission estimates and that barriers exist to collecting and reporting annual magnesium production data. However, the ERT considers that the current reporting approach used by the Party is not transparent and may result in the misinterpretation of reported data.</p> <p>The ERT encourages the Party to revise its reporting of AD for category 2.C.4 (magnesium production) in order to improve the comparability of its inventory, for example, allowing nationwide and inter-annual comparisons of IEFs, or including appropriate justification for reporting the magnesium production AD in CRF table 2(I).A-Hs2. The Party may further wish to consider revising the description of AD provided for category 2.C.4 in CRF table 2(II)B-Hs1 such that it shows SF₆ consumed instead of the amount of magnesium cast.</p>	Not an issue/problem
I.13	2.F Product uses as substitutes for ozone-depleting substances – HFCs	<p>The Party reported in CRF table 2(II)B-Hs2 that HFC recovery occurs for categories 2.F.1 (refrigeration and air conditioning) and 2.F.3 (fire protection). However, no information is reported in the NIR about how recovery of HFCs from these categories is estimated.</p> <p>During the review, the Party clarified that specific data on recovery amounts are not available and that a country-specific EF is used to estimate recovery on the basis of the difference between HFCs remaining in products at end of life and disposal emissions. The net result is an effective recovery efficiency of 70 per cent. The ERT noted that</p>	Yes. Transparency

<i>ID#</i>	<i>Finding classification</i>	<i>Description of finding with recommendation or encouragement</i>	<i>Is finding an issue/problem?^{2a}</i>
		<p>a 70 per cent recovery efficiency is at the upper limit of the default EFs of many refrigeration sub-applications provided in the 2006 IPCC Guidelines (vol. 3, chap. 7, p.7.52).</p> <p>The ERT recommends that the Party transparently document in the NIR how HFC recovery for categories 2.F.1 (refrigeration and air conditioning) and 2.F.3 (fire protection) is estimated, including by providing a clear explanation of any assumptions made and data sources used and a justification as to why the recovery efficiency applied as a country-specific EF is at the upper end of the range of default EFs provided for refrigeration sub-applications in the 2006 IPCC Guidelines (vol. 3, chap. 7, p.7.52).</p>	
I.14	2.F.1 Refrigeration and air conditioning – HFC-134a	<p>The Party reported in its NIR (pp.297–298) EFs for estimating HFC-134a emissions from manufacturing, stocks and disposal for category 2.F.1.e (mobile air conditioning) disaggregated by six classes: passenger cars; trucks; buses; agricultural machines; railway, tramway and metro rail vehicles; and vehicles used at construction sites. The ERT commends the Party for the high level of transparency resulting from detailed, disaggregated reporting of this category.</p> <p>The ERT noted that stock and disposal EFs were not reported for vehicles used at construction sites, and manufacturing EFs were not reported for buses.</p> <p>During the review, the Party clarified that good data on the construction site vehicle class were not available because these vehicles do not carry registration plates, limiting statistical information on stocks, and as a result, emissions were not estimated. The Party provided a rough estimate based on domestic construction vehicle production, assuming zero net exports, of 17 kt CO₂ eq for this class for 2020. The ERT assessed the magnitude of emissions from this source for 2020 to be below the significance threshold for application of an adjustment in accordance with decision 22/CMP.1, annex, paragraph 80(b), in conjunction with decision 4/CMP.11 (36.80 kt CO₂ eq in 2020) and therefore not included in the list of potential problems and further questions raised by the ERT.</p> <p>The ERT recommends that the Party revise its estimate of HFC-134a emissions from manufacturing, stocks and disposal for the bus and construction vehicle classes of category 2.F.1.e (mobile air conditioning), using appropriate default EFs provided in the 2006 IPCC Guidelines (vol. 3, chap. 7, p.7.52) for the estimations if more accurate EFs are not available and transparently documenting any assumptions about vehicle AD, in order to improve the accuracy of emission estimations from these sources.</p> <p>ERT encourages the Party to include the first estimate based on manufacturing data and the assumption of zero net import/export in its next annual inventory.</p>	Yes. Accuracy
	Agriculture	No findings for the agriculture sector additional to those included in table 3 were made by the ERT during the review.	
	LULUCF	No findings for the LULUCF sector additional to those included in table 3 were made by the ERT during the review.	
	Waste	No findings for the waste sector additional to those included in table 3 were made by the ERT during the review.	
	KP-LULUCF		
KL.3	FM – CO ₂ , CH ₄ and N ₂ O	The Party did not report in the NIR information on the main factors generating the accounting quantity (i.e. the difference in net emissions between reporting of FM during the second commitment period of the Kyoto Protocol and the FMRL) and on whether the accounting quantity (equal to FM minus FMRL) is consistent with those factors,	Yes. Transparency

ID#	Finding classification	Description of finding with recommendation or encouragement	Is finding an issue/problem? ^a
		<p>with the aim of showing that the accounting quantity can be explained as deviations in actual policies from the historical policies included in the FMRL rather than as differences in methodological elements such as factors and parameters, including increments, used in constructing the FMRL and in estimating the actual GHG emissions and removals. The ERT noted that this is not in accordance with IPCC good practice (page 2.97 of the <i>2013 Revised Supplementary Methods and Good Practice Guidance Arising from the Kyoto Protocol</i>).</p> <p>During the review, the Party clarified that there are several factors, but probably a single main factor, for the difference between the FMRL and the GHG inventory result for FM. The consequences of the economic crisis in 2008 changed the expected upward trend in wood demand from Austrian forests, which was represented by a continued drop in the HWP (particularly sawn wood) production trend on the basis of the Austrian harvest in 2009. The continuation of this decreasing trend was also influenced by low wood prices in the second half of the last decade (partly caused by natural disturbances in forest land that led to cheap imported wood), which provided a low incentive to increase the harvest in Austrian forests (particularly of better assortments). Equally important was the poorer than expected outcome of a wood mobilization strategy and initiative of the government for small-scale forest owners, which was considered in the FMRL projection (see the Austrian FMRL submission, available at https://unfccc.int/files/meetings/ad_hoc_working_groups/kp/application/pdf/awgkp_austria_2011.pdf). More than half of Austrian forests belong to small-scale forest owners who do not live near their forests and as a consequence do not regularly manage them. Therefore, these forests have significantly less harvest than increment per year. The initiative aimed to mobilize more harvesting and wood from these forests but was only partly successful. As a further consequence, the decrease in increment was lower than expected (on average, 29.3 million m³ in the FMRL versus 29.7 million m³ in the GHG inventory), which also contributed to the deviation. The ERT noted that the accounting quantity does not lead to overestimation of removals or underestimation of emissions because it can be explained by deviation in actual policies rather than methodological differences.</p> <p>Based on the information provided during the review, the ERT concluded that the lack of transparency in the NIR does not impact the Party's ability to fulfil its commitments for the second commitment period of the Kyoto Protocol and therefore the issue was not included in the list of potential problems and further questions raised by the ERT.</p>	

^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 Austria.

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 Austria and the final values agreed by the ERT. The final quantities of units to be issued and 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 Austria in its 2022 annual submission

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

Table I.1

Total greenhouse gas emissions and removals for Austria, base year–2020

(kt CO₂ eq)

	<i>Total GHG emissions excluding indirect CO₂ emissions</i>		<i>Total GHG emissions and removals including indirect CO₂ emissions^d</i>		<i>Land-use change (Article 3.7 bis as contained in the Doha Amendment)^b</i>	<i>KP-LULUCF (Article 3.3 of the Kyoto Protocol)^c</i>	<i>KP-LULUCF (Article 3.4 of the Kyoto Protocol)</i>	
	<i>Total including LULUCF</i>	<i>Total excluding LULUCF</i>	<i>Total including LULUCF</i>	<i>Total excluding LULUCF</i>			<i>CM, GM, RV, WDR</i>	<i>FM</i>
FMRL								–6 516.00
Base year ^d	66 369.12	78 433.73	NA	NA	NA		NA	
1990	66 358.61	78 423.22	NA	NA				
1995	66 006.60	79 283.43	NA	NA				
2000	63 523.56	80 085.03	NA	NA				
2010	80 372.54	84 150.23	NA	NA				
2011	77 848.51	82 007.46	NA	NA				
2012	75 803.62	79 309.94	NA	NA				
2013	77 234.52	79 772.02	NA	NA		–1 480.93	NA	–1 633.90
2014	73 849.42	76 235.15	NA	NA		–1 506.45	NA	–1 825.83
2015	76 285.63	78 486.74	NA	NA		–1 546.67	NA	–1 671.84
2016	77 423.91	79 468.30	NA	NA		–1 586.30	NA	–1 520.19
2017	79 002.76	81 792.16	NA	NA		–1 636.65	NA	–2 049.73
2018	75 419.52	78 558.03	NA	NA		–1 682.06	NA	–2 255.47
2019	77 111.43	79 740.74	NA	NA		–1 714.88	NA	–1 723.46
2020	72 339.10	73 592.02	NA	NA		–1 733.25	NA	–431.41

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 CO₂ 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 1990 for all gases except NF₃, for which the base year is 2000. Austria 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 Austria, excluding land use, land-use change and forestry, 1990–2020

(kt CO₂ eq)

	CO ₂ ^a	CH ₄	N ₂ O	HFCs	PFCs	Unspecified mix of HFCs and PFCs	SF ₆	NF ₃
1990	62 145.25	10 110.68	4 511.46	2.44	1 182.79	NA, NO	470.61	NO, NA
1995	64 023.07	9 382.09	4 337.62	350.75	83.35	NA, NO	1 100.11	6.44
2000	66 149.78	8 224.69	4 355.29	682.37	87.87	NA, NO	574.53	10.51
2010	72 006.41	7 007.82	3 388.73	1 329.22	78.05	NA, NO	335.87	4.12
2011	69 893.11	6 800.73	3 493.37	1 435.28	73.51	NA, NO	307.35	4.10
2012	67 265.91	6 680.69	3 464.01	1 528.18	50.72	NA, NO	311.88	8.56
2013	67 759.45	6 572.80	3 446.72	1 628.75	49.23	NA, NO	305.32	9.75
2014	64 160.00	6 431.70	3 538.43	1 727.44	53.03	NA, NO	313.98	10.56
2015	66 348.82	6 353.78	3 555.14	1 856.45	49.55	NO, NA	309.55	13.46
2016	67 210.74	6 282.52	3 655.10	1 870.57	50.39	NO, NA	392.84	6.14
2017	69 592.82	6 256.43	3 593.01	1 893.87	44.09	NO, NA	399.93	12.01
2018	66 557.18	6 047.18	3 552.57	1 965.74	32.52	NO, NA	386.32	16.51
2019	67 936.19	5 914.33	3 550.73	1 851.03	38.45	NO, NA	436.42	13.61
2020	62 037.45	5 819.44	3 497.99	1 756.59	29.89	NO, NA	438.63	12.04
Percentage change 1990– 2020	–0.2	–42.4	–22.5	71 963.3	97.5	NA	–6.8	NA

Note: Emissions and removals reported for the sector other (sector 6) are not included in this table.

^a Austria did not report indirect CO₂ emissions in CRF table 6.

Table I.3

Greenhouse gas emissions and removals by sector for Austria, 1990–2020

(kt CO₂ eq)

	Energy	IPPU	Agriculture	LULUCF	Waste	Other
1990	52 804.84	13 573.52	8 118.59	–12 064.61	3 926.27	NO
1995	54 279.45	13 513.81	7 837.48	–13 276.83	3 652.69	NO
2000	55 253.35	14 491.01	7 375.64	–16 561.46	2 965.02	NO

	<i>Energy</i>	<i>IPPU</i>	<i>Agriculture</i>	<i>LULUCF</i>	<i>Waste</i>	<i>Other</i>
2010	59 419.06	15 680.40	6 926.14	-3 777.68	2 124.63	NO
2011	57 088.86	15 901.56	7 022.23	-4 158.95	1 994.81	NO
2012	54 942.37	15 516.84	6 968.51	-3 506.32	1 882.22	NO
2013	55 147.96	15 908.11	6 962.37	-2 537.50	1 753.57	NO
2014	51 424.02	16 063.10	7 106.30	-2 385.73	1 641.74	NO
2015	53 071.38	16 729.61	7 134.97	-2 201.11	1 550.79	NO
2016	54 299.65	16 447.94	7 256.35	-2 044.39	1 464.36	NO
2017	56 004.70	17 200.70	7 201.64	-2 789.40	1 385.12	NO
2018	54 573.37	15 584.35	7 089.50	-3 138.51	1 310.81	NO
2019	54 976.93	16 519.26	6 984.71	-2 629.31	1 259.84	NO
2020	49 929.24	15 489.29	6 964.25	-1 252.91	1 209.24	NO
Percentage change 1990–2020	-5.4	14.1	-14.2	-89.6	-69.2	NA

Notes: (1) Austria did not report emissions or removals for the sector other (sector 6); the corresponding cells in the CRF tables were left blank; (2) Austria did not report indirect CO₂ 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 Austria
(kt CO₂ eq)

	<i>Article 3.7 bis as contained in the Doha Amendment^a</i>	<i>Activities under Article 3.3 of the Kyoto Protocol</i>		<i>FM and elected activities under Article 3.4 of the Kyoto Protocol</i>				
	<i>Land-use change</i>	<i>AR</i>	<i>Deforestation</i>	<i>FM</i>	<i>CM</i>	<i>GM</i>	<i>RV</i>	<i>WDR</i>
FMRL				-6 516.00				
Technical correction				5 773.94				
Base year ^b	NA				NA	NA	NA	NA
2013		-2 017.41	536.48	-1 633.90	NA	NA	NA	NA
2014		-2 031.23	524.77	-1 825.83	NA	NA	NA	NA
2015		-2 065.00	518.33	-1 671.84	NA	NA	NA	NA
2016		-2 098.19	511.89	-1 520.19	NA	NA	NA	NA
2017		-2 142.10	505.45	-2 049.73	NA	NA	NA	NA
2018		-2 181.06	499.01	-2 255.47	NA	NA	NA	NA
2019		-2 207.45	492.56	-1 723.46	NA	NA	NA	NA
2020		-2 219.37	486.12	-431.41	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 Austria has not elected to report on 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.

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 Austria

(kt CO₂ eq)

GHG source/sink activity	Base year ^a	Net emissions/removals									Accounting parameters	Accounting quantities ^c
		2013	2014	2015	2016	2017	2018	2019	2020	Total ^b		
A.1. AR		-2 017.412	-2 031.225	-2 065.000	-2 098.186	-2 142.100	-2 181.062	-2 207.446	-2 219.375	-16 961.806		-16 961.806
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		NA	NA	NA	NA	NA	NA	NA	NA	NA		NA
A.2. Deforestation		536.481	524.772	518.330	511.889	505.447	499.006	492.564	486.123	4 074.612		4 074.613
B.1. FM										-13 111.840		-7 175.386
Net emissions/removals		-1 633.905	-1 825.828	-1 671.839	-1 520.193	-2 049.729	-2 255.474	-1 723.458	-431.414	-13 111.840		
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		NA	NA	NA	NA	NA	NA	NA	NA	NA		NA
Any debits from newly		-	-	-	-	-	-	-	-	-		-

GHG source/sink activity	Net emissions/removals										Accounting parameters	Accounting quantities ^c	
	Base year ^a	2013	2014	2015	2016	2017	2018	2019	2020	Total ^b			
established forest													
FMRL ^e												-6 516.000	
Technical corrections to FMRL												5 773.943	
FM cap												22 079.438	-7 175.386
B.2. CM (if elected)	NA	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		NA
B.4. RV (if elected)	NA	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		NA

^a 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.

^b Cumulative net emissions and removals for all years of the commitment period reported in the annual submission under review.

^c The accounting quantity is the total quantity of units to be issued or cancelled for a particular activity.

^d The Party indicated in its report to facilitate the calculation of the assigned amount for the second commitment period of the Kyoto Protocol its intention to apply the provisions from natural disturbances to its accounting of AR and FM at the end of the commitment period. The Party decided not to exclude emissions and subsequent removals from natural disturbances in its accounting for the 2022 annual submission.

^e As inscribed in the appendix to the annex to decision 2/CMP.7 in kt CO₂ eq per year.

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

Table I.6

Key data for Austria under Article 3, paragraphs 3–4, of the Kyoto Protocol from its 2022 annual submission

<i>Parameter</i>	<i>Data</i>
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	Yes, for FM ^a
3.5% of total base-year GHG emissions, excluding LULUCF	2 759.930 kt CO ₂ eq (22 079.438 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	Issue 16 961 806 RMUs
2. Deforestation	Cancel 4 072 613 units
3. FM	Issue 7 175 386 RMUs

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.

^a The Party decided not to exclude emissions and subsequent removals from natural disturbances in its accounting for the 2022 submission.

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 Austria. 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 Austria

(t CO₂ eq)

	<i>Original submission</i>	<i>Revised submission</i>	<i>Adjustment</i>	<i>Final value</i>
CPR	365 141 085	–	–	365 141 085
Annex A emissions				
CO ₂	62 037 447	–	–	62 037 447
CH ₄	5 819 441	–	–	5 819 441
N ₂ O	3 497 987	–	–	3 497 987
HFCs	1 756 585	–	–	1 756 585
PFCs	29 891	–	–	29 891
Unspecified mix of HFCs and PFCs	NA, NO	–	–	NA, NO
SF ₆	438 625	–	–	438 625
NF ₃	12 040	–	–	12 040
Total Annex A sources^a	73 592 017	–	–	73 592 017
Activities under Article 3, paragraph 3, of the Kyoto Protocol				
AR	–2 219 375	–	–	–2 219 375
Deforestation	486 123	–	–	486 123
FM and elected activities under Article 3, paragraph 4, of the Kyoto Protocol				
FM	–431 414	–	–	–431 414

^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 Austria

(t CO₂ eq)

	<i>Original submission</i>	<i>Revised submission</i>	<i>Adjustment</i>	<i>Final value</i>
Annex A emissions				
CO ₂	67 936 185	–	–	67 936 185
CH ₄	5 914 329	–	–	5 914 329
N ₂ O	3 550 726	–	–	3 550 726
HFCs	1 851 029	–	–	1 851 029
PFCs	38 445	–	–	38 445
Unspecified mix of HFCs and PFCs	NA, NO	–	–	NA, NO
SF ₆	436 418	–	–	436 418
NF ₃	13 605	–	–	13 605
Total Annex A sources^a	79 740 739	–	–	79 740 739
Activities under Article 3, paragraph 3, of the Kyoto Protocol				
AR	–2 207 446	–	–	–2 207 446
Deforestation	492 564	–	–	492 564
FM and elected activities under Article 3, paragraph 4, of the Kyoto Protocol				

	<i>Original submission</i>	<i>Revised submission</i>	<i>Adjustment</i>	<i>Final value</i>
FM	-1 723 458	-	-	-1 723 458

^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 Austria(t CO₂ eq)

	<i>Original submission</i>	<i>Revised submission</i>	<i>Adjustment</i>	<i>Final value</i>
Annex A emissions				
CO ₂	66 557 180	-	-	66 557 180
CH ₄	6 047 181	-	-	6 047 181
N ₂ O	3 552 569	-	-	3 552 569
HFCs	1 965 743	-	-	1 965 743
PFCs	32 519	-	-	32 519
Unspecified mix of HFCs and PFCs	NA, NO	-	-	NA, NO
SF ₆	386 323	-	-	386 323
NF ₃	16 512	-	-	16 512
Total Annex A sources^a	78 558 027	-	-	78 558 027
Activities under Article 3, paragraph 3, of the Kyoto Protocol				
AR	-2 181 062	-	-	-2 181 062
Deforestation	499 006	-	-	499 006
FM and elected activities under Article 3, paragraph 4, of the Kyoto Protocol				
FM	-2 255 474	-	-	-2 255 474

^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 Austria(t CO₂ eq)

	<i>Original submission</i>	<i>Revised submission</i>	<i>Adjustment</i>	<i>Final value</i>
Annex A emissions				
CO ₂	69 592 825	-	-	69 592 825
CH ₄	6 256 427	-	-	6 256 427
N ₂ O	3 593 011	-	-	3 593 011
HFCs	1 893 868	-	-	1 893 868
PFCs	44 090	-	-	44 090
Unspecified mix of HFCs and PFCs	NA, NO	-	-	NA, NO
SF ₆	399 930	-	-	399 930
NF ₃	12 006	-	-	12 006
Total Annex A sources^a	81 792 156	-	-	81 792 156
Activities under Article 3, paragraph 3, of the Kyoto Protocol				
AR	-2 142 100	-	-	-2 142 100
Deforestation	505 477	-	-	505 477
FM and elected activities under Article 3, paragraph 4, of the Kyoto Protocol				
FM	-2 049 729	-	-	-2 049 729

^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 Austria(t CO₂ eq)

	<i>Original submission</i>	<i>Revised submission</i>	<i>Adjustment</i>	<i>Final value</i>
Annex A emissions				

	<i>Original submission</i>	<i>Revised submission</i>	<i>Adjustment</i>	<i>Final value</i>
CO ₂	67 210 743	–	–	67 210 743
CH ₄	6 282 521	–	–	6 282 521
N ₂ O	3 655 098	–	–	3 655 098
HFCs	1 870 567	–	–	1 870 567
PFCs	50 390	–	–	50 390
Unspecified mix of HFCs and PFCs	NA, NO	–	–	NA, NO
SF ₆	392 837	–	–	392 837
NF ₃	6 140	–	–	6 140
Total Annex A sources^a	79 468 297	–	–	79 468 297
Activities under Article 3, paragraph 3, of the Kyoto Protocol				
AR	–2 098 186	–	–	–2 098 186
Deforestation	511 889	–	–	511 889
FM and elected activities under Article 3, paragraph 4, of the Kyoto Protocol				
FM	–1 520 193	–	–	–1 520 193

^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 Austria(t CO₂ eq)

	<i>Original submission</i>	<i>Revised submission</i>	<i>Adjustment</i>	<i>Final value</i>
Annex A emissions				
CO ₂	66 348 823	–	–	66 348 823
CH ₄	6 353 775	–	–	6 353 775
N ₂ O	3 555 141	–	–	3 555 141
HFCs	1 856 448	–	–	1 856 448
PFCs	49 549	–	–	49 549
Unspecified mix of HFCs and PFCs	NA, NO	–	–	NA, NO
SF ₆	309 547	–	–	309 547
NF ₃	13 459	–	–	13 459
Total Annex A sources^a	78 486 744	–	–	78 486 744
Activities under Article 3, paragraph 3, of the Kyoto Protocol				
AR	–2 065 000	–	–	–2 065 000
Deforestation	518 330	–	–	518 330
FM and elected activities under Article 3, paragraph 4, of the Kyoto Protocol				
FM	–1 671 839	–	–	–1 671 839

^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 Austria(t CO₂ eq)

	<i>Original submission</i>	<i>Revised submission</i>	<i>Adjustment</i>	<i>Final value</i>
Annex A emissions				
CO ₂	64 160 000	–	–	64 160 000
CH ₄	6 431 701	–	–	6 431 701
N ₂ O	3 538 432	–	–	3 538 432
HFCs	1 727 444	–	–	1 727 444
PFCs	53 029	–	–	53 029
Unspecified mix of HFCs and PFCs	NA, NO	–	–	NA, NO
SF ₆	313 983	–	–	313 983
NF ₃	10 563	–	–	10 563

	<i>Original submission</i>	<i>Revised submission</i>	<i>Adjustment</i>	<i>Final value</i>
Total Annex A sources^a	76 235 152	–	–	76 235 152
Activities under Article 3, paragraph 3, of the Kyoto Protocol				
AR	–2 031 225	–	–	–2 031 225
Deforestation	524 772	–	–	524 772
FM and elected activities under Article 3, paragraph 4, of the Kyoto Protocol				
FM	–1 825 828	–	–	–1 825 828

^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 Austria
(t CO₂ eq)

	<i>Original submission</i>	<i>Revised submission</i>	<i>Adjustment</i>	<i>Final value</i>
Annex A emissions				
CO ₂	67 759 445	–	–	67 759 445
CH ₄	6 572 801	–	–	6 572 801
N ₂ O	3 446 724	–	–	3 446 724
HFCs	1 628 747	–	–	1 628 747
PFCs	49 229	–	–	49 229
Unspecified mix of HFCs and PFCs	NA, NO	–	–	NA, NO
SF ₆	305 320	–	–	305 320
NF ₃	9 752	–	–	9 752
Total Annex A sources^a	79 772 019	–	–	79 772 019
Activities under Article 3, paragraph 3, of the Kyoto Protocol				
AR	–2 017 412	–	–	–2 017 412
Deforestation	536 481	–	–	536 481
FM and elected activities under Article 3, paragraph 4, of the Kyoto Protocol				
FM	–1 633 905	–	–	–1 633 905

^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 categories for which estimation methods are included in the 2006 IPCC Guidelines that were 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 are the following:

- (a) 2.B.5 carbide production – acetylene production and use (CO₂) (see ID# I.7 in table 5);
- (b) 4.A.1 forest land remaining forest land – carbon stock change in living biomass for forests not in yield (CO₂) (see ID# L.1 in table 3);
- (c) 4.A.1 forest land remaining forest land – carbon stock change in mineral soils for forests not in yield (CO₂) (see ID# L.2 in table 3).

Annex IV

Reference documents

A. Reports of the Intergovernmental Panel on Climate Change

IPCC. 2005. *Carbon Dioxide Capture and Storage*. B Metz, O Davidson, H de Coninck, et al. (eds). Cambridge: Cambridge University Press. Available at <https://www.ipcc.ch/report/carbon-dioxide-capture-and-storage/>.

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

IPCC. 2014. *2013 Revised Supplementary Methods and Good Practice Guidance Arising from the Kyoto Protocol*. T Hiraishi, T Krug, K Tanabe, et al. (eds.). Hayama, Japan: Institute for Global Environmental Strategies. Available at <https://www.ipcc.ch/publication/2013-revised-supplementary-methods-and-good-practice-guidance-arising-from-the-kyoto-protocol/>.

IPCC. 2014. *2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands*. T Hiraishi, T Krug, K Tanabe, et al. (eds.). Geneva: IPCC. Available at <https://www.ipcc.ch/publication/2013-supplement-to-the-2006-ipcc-guidelines-for-national-greenhouse-gas-inventories-wetlands/>.

B. UNFCCC documents

Annual review reports

Reports on the individual reviews of the 2012, 2013, 2014, 2015, 2016, 2018 and 2020 annual submissions of Austria, contained in documents FCCC/ARR/2012/AUT, FCCC/ARR/2013/AUT, FCCC/ARR/2014/AUT, FCCC/ARR/2015/AUT, FCCC/ARR/2016/AUT, FCCC/ARR/2018/AUT and FCCC/ARR/2020/AUT 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 Austria for 2022. Available at https://unfccc.int/sites/default/files/resource/asr2022_AUT.pdf.

C. Other documents used during the review

Responses to questions during the review were received from Günther Schmidt (Environment Agency Austria), including additional material on the methodology and assumptions used.