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

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

Developed country Parties were requested by decision 6/CP.25 to submit their fifth biennial report to the secretariat by no later than 31 December 2022. This report presents the results of the technical review of the fifth biennial report of Czechia, conducted by an expert review team in accordance with the "Guidelines for the technical review of information reported under the Convention related to greenhouse gas inventories, biennial reports and national communications by Parties included in Annex I to the Convention".

The review of these submissions took place in Prague from 11 to 15 September 2023.

Contents

Abbreviations and acronyms

AD	activity data
AEA	annual emission allocation
Annex II Party	Party included in Annex II to the Convention
AR	Assessment Report of the Intergovernmental Panel on Climate Change
BR	biennial report
CBM-CFS3	Carbon Budget Model of the Canadian Forest Sector
CH_4	methane
CHMI	Czech Hydrometeorological Institute
CO_2	carbon dioxide
CO_2 eq	carbon dioxide equivalent
COPERT	software tool for calculating road transport emissions
COVID-19	coronavirus disease 2019
CTF	common tabular format
CZK	Czech koruna
EFISCEN	European Forest Information Scenario (model)
ERT	expert review team
ESD	European Union effort-sharing decision
ESR	European Union effort-sharing regulation
EU	European Union
EU ETS	European Union Emissions Trading System
F-gas	fluorinated gas
GDP	gross domestic product
GHG	greenhouse gas
GWP	global warming potential
HFC	hydrofluorocarbon
ICAO	International Civil Aviation Organization
IE	included elsewhere
IPPU	industrial processes and product use
LULUCF	land use, land-use change and forestry
MESSAGE	Model for Energy Supply Strategy Alternatives and their General Environmental Impact
MoE	Ministry of the Environment of Czechia
N_2O	nitrous oxide
NA	not applicable
NC	national communication
NECP	national energy and climate plan
NF_3	nitrogen trifluoride
NGO	non-governmental organization
NIR	national inventory report
NO	not occurring
PaMs	policies and measures
PERUN	Prediction, Evaluation and Research for Understanding National sensitivity and impacts of drought and climate change for Czechia
PFC	perfluorocarbon
reporting guidelines for supplementary information	“Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol. Part II: Reporting of supplementary information under Article 7, paragraph 2”
RES	renewable energy source(s)

SF_6	sulfur hexafluoride
TIMES	The Integrated Market Allocation–Energy Flow Optimization Model System
UNFCCC reporting guidelines on BRs	"UNFCCC biennial reporting guidelines for developed country Parties"
UNFCCC reporting guidelines on CTF tables	"Common tabular format for 'UNFCCC biennial reporting guidelines for developed country Parties'"
UNFCCC reporting guidelines on NCs	"Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications"
WAM	'with additional measures'
WEM	'with measures'
WOM	'without measures'

I. Introduction and summary

A. Introduction

1. This is a report on the in-country technical review of the NC8 and BR5 of Czechia. The review was organized by the secretariat in accordance with the "Guidelines for the technical review of information reported under the Convention related to greenhouse gas inventories, biennial reports and national communications by Parties included in Annex I to the Convention", particularly "Part IV: UNFCCC guidelines for the technical review of biennial reports from Parties included in Annex I to the Convention" and "Part V: UNFCCC guidelines for the technical review of national communications from Parties included in Annex I to the Convention" (annex to decision 13/CP.20), and the "Guidelines for review under Article 8 of the Kyoto Protocol" (annex to decision 22/CMP.1 and annex I to decision 4/CMP.1).

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

3. The review was conducted from 11 to 15 September 2023 in Prague by the following team of nominated experts from the UNFCCC roster of experts: Jeremie Carles (Monaco), Olivier Juvyns (EU), Sayeda Ali Ahmed Khalil (Sudan), Mwangi James Kinyanjui (Kenya) and Janis Rekis (Latvia). Mwangi James Kinyanjui and Janis Rekis were the lead reviewers. The review was coordinated by Agnieszka Patoka-Janowska and Jamie Howland (secretariat).

B. Summary

4. The ERT conducted a technical review of the information reported in the NC8 of Czechia in accordance with the UNFCCC reporting guidelines on NCs,[1] the reporting guidelines for supplementary information, in particular the supplementary information required under Article 7, paragraph 2, and on the minimization of adverse impacts under Article 3, paragraph 14, of the Kyoto Protocol[2] and of the information reported in the BR5 of Czechia in accordance with the UNFCCC reporting guidelines on BRs.[3]

1. Timeliness

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

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

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

8. Czechia did not inform the secretariat about its difficulties with making a timely BR5 submission. In accordance with decision 13/CP.20, a Party should inform the secretariat thereof by the due date of the submission in order to facilitate the arrangement of the review process. The ERT noted with concern the delay in the submission.

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

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

9. Issues and gaps identified by the ERT related to the information reported by Czechia in its NC8 are presented in tables 1–2. The information reported, including the supplementary information under the Kyoto Protocol, mostly adheres to the UNFCCC reporting guidelines on NCs. The ERT concludes that the issues of a mandatory nature related to supplementary information under the Kyoto Protocol do not influence the Party's ability to fulfil its commitments for the second commitment period of the Kyoto Protocol.

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

(a) The completeness of the information reported on national circumstances relevant to GHG emissions and removals by reporting information on building stock and urban structure;

(b) The transparency of the GHG inventory information reported by improving the clarity of the information and figures, such as those concerning ESD emissions;

(c) The transparency and completeness of the information reported on PaMs by organizing the reporting of all of its PaMs by sector and by gas and including information on all the subjects listed in the UNFCCC reporting guidelines on NCs (e.g. the GHG affected and type of policy or measure);

(d) The transparency and completeness of the information reported on projections and the total effects of PaMs by providing information on which PaMs (planned, adopted or implemented) are included in each projection scenario; providing diagrams illustrating projected GHG emissions for all inventory sectors; and providing information on the models used to project GHG emissions and removals, including information to facilitate a basic understanding of the models and changes in the models used to prepare the GHG projections;

(e) The transparency and completeness of the information reported on vulnerability assessment, climate change impacts and adaptation measures by reporting on the updated Strategy on Adaptation to Climate Change of Czechia and the National Action Plan on Adaptation to Climate Change containing a list of adaptation measures, relevant funding sources and estimates of the costs of implementing measures;

(f) The transparency and completeness of the information reported on research and systematic observation by reporting on long-term research projects such as the PERUN project;

(g) The transparency and completeness of the information reported on education, training and public awareness by providing more and updated information, including on the integration of climate change issues into basic education and the creation of opportunities to enable more actors to support awareness-raising, including NGOs.

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

Section of NC	*Completeness*	*Transparency*	*Reference to description of recommendation*
Executive summary	Complete	Transparent	
National circumstances relevant to GHG emissions and removals	Complete	Transparent	
GHG inventory	Complete	Transparent	
PaMs	Mostly complete	Mostly transparent	Issues 2 and 4 in table I.2
Projections and the total effect of PaMs	Mostly complete	Transparent	Issue 4 in table I.3

Section of NC	*Completeness*	*Transparency*	*Reference to description of recommendation*
Vulnerability assessment, climate change impacts and adaptation measures	Complete	Transparent	
Financial resources and transfer of technology[a]	NA	NA	NA
Research and systematic observation	Complete	Transparent	
Education, training and public awareness	Complete	Transparent	

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

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

Table 2

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

Supplementary information under the Kyoto Protocol	*Completeness*	*Transparency*	*Reference to description of recommendation*
National system	Complete	Transparent	
National registry	Mostly complete	Transparent	Issue 1 in table I.7
Supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17	Complete	Transparent	
PaMs in accordance with Article 2	Complete	Transparent	
Domestic and regional programmes and/or arrangements and procedures	Mostly complete	Transparent	Issue 2 in table I.7
Information under Article 10[a]	NA	NA	NA
Financial resources[b]	NA	NA	NA
Minimization of adverse impacts in accordance with Article 3, paragraph 14	Complete	Transparent	

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

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

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

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

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

(a) The transparency of the information reported on GHG emissions and trends by improving the clarity of the information and figures and providing information on changes to national inventory arrangements since its last BR;

(b) The transparency of the information reported on its quantified economy-wide emission reduction target and related assumptions, conditions and methodologies by providing some additional information on the possible scale of contribution of market-based mechanisms in the form of footnotes to CTF table 2(e)I;

(c) The transparency of the information reported in relation to progress in achievement of quantified economy-wide emission reduction target by reporting the correct figure in CTF table 4 for base-year GHG emissions excluding emissions and removals from the LULUCF sector;

(d) The completeness of the information reported on projections by providing information on the models used to project GHG emissions and removals, including information to facilitate a basic understanding of the models and their strengths and weaknesses; and providing relevant information on factors and activities underlying projected emission trends for each sector to enable understanding of emission trends in 1990–2020.

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

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

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

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

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

A. National circumstances relevant to greenhouse gas emissions and removals

1. Technical assessment of the reported information

13. The NC8 contains key data on legislation, population trends, geography and land use, climate and climate change, economic developments, energy, transport, the buildings sector, industry, trade, the services sector, agriculture, forestry, resource efficiency and wastewater.

14. Czechia had a population of 10,682,029 as at 30 September 2021, equating to a population density of 136 inhabitants per km^2, and its population is projected to grow to 10.8 million in the next 10 years. During the review, the Party explained that there are an estimated 1.6 million single-family houses and 210,000 multi-apartment buildings in the country, which had an average income per capita of USD 41,660 in 2022. The high population density and high proportion of urban dwellers (70.0 per cent of the total population) mean that a large number of inhabitants are exposed to emissions, such as those from heavy traffic and use of solid fuels for household heating.

15. On 19 April 2017 the Czech Government adopted an overarching strategic document that sets out goals and targets to be accomplished by 2030, which includes a detailed sustainable development analysis that should be reflected in all sectoral and regional strategies. The document explains the active participation of Czechia in international organizations taking into account national priorities, supports good governance for sustainable development (Sustainable Development Goal 16) and ensures policy coherence

and the mainstreaming of the 2030 Agenda for Sustainable Development, as well as emission reduction targets, in both national and foreign policies.

16. Like the rest of the world, the economy of Czechia was deeply affected by the COVID-19 pandemic, which resulted in GDP falling by 5.6 per cent between 2019 and 2020, the most significant fall in the history of the country. However, the projections of the Czech National Bank for post-COVID-19 recovery are that GDP will grow by 3.0 per cent annually, which, coupled with the strengthening of the national currency in 2023, points to vibrant economic growth into the future.

17. Czechia's economy is largely based on the industrial sector, which accounted for 31.0 per cent of GDP in 2020, and the mining sector, with about half of the country's electricity historically generated using fossil fuel sources. Solid fossil fuels, primarily domestically extracted coal, are still an important source of energy (29.1 per cent of total primary energy consumption and 38.1 per cent of total electricity generation), but their role is gradually diminishing and it is estimated that hard coal deposits will be depleted by 2030. The Party declared in 2022 its intention to phase out the use of coal in the energy sector by 2033. However, this goal has not yet been embodied in any legal or strategic documents and a substitute for coal is not clearly stipulated although the Party has a clear intention of enhancing use of RES.

18. Czechia reported a decrease in energy intensity of 34.8 per cent between 2010 and 2020, reaching 7.8 MJ/EUR in 2020, and it is expected to continue to fall as energy efficiency measures targeting, among others, the industry and residential sectors are adopted and in the light of the intended phasing out of coal for energy production by 2033. The ERT also noted efforts to reduce emissions through the development of RES, the use of which has been steadily growing; the share of RES in national electricity production reached 17.5 per cent in 2020, which is 7.0 per cent higher than the 2010 level. The biggest contribution to energy produced using renewable sources comes from bioenergy (43.8 per cent) in the form of biogas (22.3 per cent) and biomass (21.5 per cent), followed by hydropower (29.5 per cent), photovoltaics (19.7 per cent), wind (6.0 per cent) and renewable waste (biological municipal waste) (1.0 per cent).

19. The ERT also noted trends in Czechia's transport sector, specifically an increase in individual automobile transportation and road freight and a general decline in the use of the railway mass transportation system. The share of freight transported by railway fell from 70.0 per cent in 1990 to 21.0 per cent in 2020, mainly due to the poor condition of the railway infrastructure. During the review, the Party explained that without proper implementation of its transport policy for 2021–2027, negative trends in the use of climate-friendly modes of transport are expected to continue, which would result in an increase in GHG emissions from the transport sector.

2. Assessment of adherence to the reporting guidelines

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

B. Greenhouse gas inventory information[4]

1. Technical assessment of the reported information

21. Czechia reported information in its BR5 and NC8 on its historical GHG emissions and inventory arrangements using GWP values from the AR4. More recent information on GHG emissions was reported in Czechia's 2023 annual submission, which uses GWP values

[4] GHG emission data in this section, for which GWP values from the AR5 are used, are based on Czechia's 2023 annual submission, version 1, which has not yet been subject to review. All emission data in subsequent chapters are based on Czechia's BR5 CTF tables, which use GWP values from the AR4 unless otherwise noted.

from the AR5. Total GHG emissions[5] excluding emissions and removals from LULUCF decreased by 43.1 per cent between 1990 and 2020, while total GHG emissions including net emissions or removals from LULUCF decreased by 34.6 per cent over the same period. Emissions peaked in 1990 and decreased thereafter. The changes in total emissions were driven mainly by factors such as economic transition in 1990–1995 and the financial crisis of 2008. In 2010–2020, GHG emissions decreased by 5.0 per cent, which was linked to investment in environmental protection and energy efficiency, fuel switching and increasing use of RES.

22. The energy sector is by far the largest contributor to total GHG emissions (75.1 per cent in 2020), although emissions from the sector fell by 48.0 per cent in 2020 compared with the 1990 level. The LULUCF sector was a net sink until 2017. Since 2018, owing to an exceptionally high sanitation harvest following an unprecedented drought and a bark beetle outbreak in Czech forests, the LULUCF sector has been a net emitter and was responsible for emitting 11,267.8 kt CO_2 eq in 2020.

23. Between 2020 and 2021, total GHG emissions increased by 4.7 per cent excluding LULUCF and 1.9 per cent including LULUCF. This was mainly due to the energy and IPPU sectors, which were responsible for increases of 4.4 and 9.5 per cent, respectively, linked mainly to the economy rebounding following the COVID-19 pandemic. In the same period, GHG emissions from the LULUCF sector decreased by 25.8 per cent following significant annual increases since 2015.

24. Table 4 illustrates the emission trends by sector and by gas for Czechia. The emissions reported in the 2023 annual submission differ from the data reported in CTF table 1 in that the recalculations applied in the 2023 annual submission led to a decrease in 2020 total GHG emissions including LULUCF of 1,123 kt CO_2 eq and an increase in 2020 total GHG emissions excluding LULUCF of 381 kt CO_2 eq. These recalculations were done mainly because of methodological improvements for calculating emissions for the LULUCF and IPPU sectors. Moreover, the GWP values from the AR5 were applied to calculate total emissions in the 2023 annual submission.

Table 4
Greenhouse gas emissions by sector and by gas for Czechia for 1990–2021

	GHG emissions (kt CO_2 eq)					*Change (%)*		*Share (%)*	
	1990	*2000*	*2010*	*2020*	*2021*	*1990–2020*	*2020–2021*	*1990*	*2021*
Sector									
1. Energy	163 204.26	123 740.91	113 218.32	84 914.69	88 662.03	–48.0	4.4	82.1	74.9
A1. Energy industries	56 830.03	62 034.93	62 175.65	41 591.71	41 053.53	–26.8	–1.3	28.6	34.7
A2. Manufacturing industries and construction	47 105.11	23 422.11	12 112.49	10 266.13	12 892.67	–78.2	25.6	23.7	10.9
A3. Transport	11 249.60	12 238.29	16 795.00	17 721.56	18 937.28	57.5	6.9	5.7	16.0
A4. and A5. Other	34 184.23	17 497.12	15 699.26	12 712.78	13 163.27	–62.8	3.5	17.2	11.1
B. Fugitive emissions from fuels	13 835.30	8 548.46	6 435.93	2 622.51	2 615.28	–81.0	–0.3	7.0	2.2
C. CO_2 transport and storage	NO	NO	NO	NO	NO	–	–	–	–
2. IPPU	17 115.22	15 136.89	14 880.08	14 763.80	16 173.01	–13.7	9.5	8.6	13.7
3. Agriculture	15 136.37	8 281.61	7 146.92	7 717.83	7 844.54	–49.0	1.6	7.6	6.6
4. LULUCF	–8 585.74	–9 167.87	–7 154.86	11 267.85	8 358.01	231.2	–25.8	NA	NA
5. Waste	3 319.42	3 979.80	4 922.25	5 675.72	5 702.11	71.0	0.5	1.7	4.8

[5] In this report, the term “total GHG emissions” refers to the aggregated national GHG emissions expressed in terms of CO_2 eq excluding LULUCF and including indirect CO_2 emissions, unless otherwise specified.

	GHG emissions (kt CO_2 eq)					*Change (%)*		*Share (%)*	
	1990	*2000*	*2010*	*2020*	*2021*	*1990–2020*	*2020–2021*	*1990*	*2021*
6. Other[a]	NO	NO	NO	NO	0.00	–	–	–	0.0
Gas[b]									
CO_2	164 250.44	127 235.99	117 490.71	91 697.36	96 665.23	–44.2	5.4	82.6	81.7
CH_4	26 813.57	17 614.70	15 709.87	13 098.13	13 223.99	–51.2	1.0	13.5	11.2
N_2O	7 624.44	5 372.59	4 399.11	4 472.13	4 683.99	–41.3	4.7	3.8	4.0
HFCs	NO	799.77	2 438.10	3 734.29	3 711.40	–	–0.6	–	3.1
PFCs	NO	4.43	44.34	0.97	30.95	–	3 098.9	–	0.0
SF_6	86.83	111.73	85.30	67.16	64.68	–22.7	–3.7	0.0	0.1
NF_3	NO	NO	0.14	2.02	1.46	–	–27.8	–	0.0
Total GHG emissions excluding LULUCF	**198 775.27**	**151 139.21**	**140 167.57**	**113 072.05**	**118 381.69**	**–43.1**	**4.7**	**100.0**	**100.0**
Total GHG emissions including LULUCF	**190 189.53**	**141 971.34**	**133 012.72**	**124 339.90**	**126 739.70**	**–34.6**	**1.9**	**NA**	**NA**
Total GHG emissions excluding LULUCF, including indirect CO_2	**200 727.48**	**152 392.44**	**141 156.01**	**113 719.52**	**119 035.64**	**–43.3**	**4.7**	**NA**	**NA**
Total GHG emissions including LULUCF, including indirect CO_2	**192 141.74**	**143 224.56**	**134 001.15**	**124 987.37**	**127 393.65**	**–35.0**	**1.9**	**NA**	**NA**

Source: GHG emission data: Czechia's 2023 annual submission, version 1.
[a] Emissions and removals reported under the sector other (sector 6) are not included in total GHG emissions.
[b] Emissions by gas without LULUCF and including indirect CO_2.

25. In brief, Czechia's national inventory arrangements were established in accordance with the national inventory system approved by the MoE. The changes in these arrangements since the BR4 include changes in the coordinator and national inventory compiler and the addition of two new sector experts for IPPU. CHMI, under the supervision of the MoE, is designated as the coordinating and managing organization responsible for compiling the national GHG inventory and reporting its results. Sectoral inventories are prepared by sectoral experts from sector-specific institutions such as the Crop Research Institute for the agriculture sector and CzechGlobe for the LULUCF sector, which are coordinated and controlled by CHMI. The annual inventory is prepared for submission by CHMI and approved for submission by the MoE.

2. Assessment of adherence to the reporting guidelines

26. The ERT assessed the information reported in the NC8 and BR5 of Czechia and identified an issue relating to completeness, and thus adherence to the UNFCCC reporting guidelines on NCs. The finding is described in table I.1.

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

(a) Technical assessment of the reported information

27. Czechia provided in the NC8 a description of how its national system for the estimation of anthropogenic emissions by sources and removals by sinks of all GHGs not controlled by the Montreal Protocol is performing the general and specific functions defined in the annex to decision 19/CMP.1 in conjunction with decisions 3/CMP.11 and 4/CMP.11. The description includes all the elements mandated by paragraph 30 of the annex to decision 15/CMP.1. The national system has been in operation since 2005 and was established in accordance with Article 5, paragraph 1, of the Kyoto Protocol. In addition, the national system responds to the requirements of the EU regulation on the governance of the Energy Union and climate action (regulation 2018/1999). The ERT noted that the organizational

changes to the national system reported in the NC8, which mainly relate to staff appointments at CHMI, did not affect the functions of the national system.

(b) Assessment of adherence to the reporting guidelines

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

4. National registry

(a) Technical assessment of the reported information

29. In its NC8 Czechia provided information on how its national registry performs the functions in accordance with the annex to decision 13/CMP.1 in conjunction with decision 3/CMP.11 and the annex to decision 5/CMP.1 and complies with the requirements of the technical standards for data exchange between registry systems. The ERT also took note of the Consolidated System of EU Registries, which Czechia is part of.

(b) Assessment of adherence to the reporting guidelines

30. The ERT assessed the information reported in the NC8 of Czechia and identified an issue relating to completeness, and thus adherence to the reporting guidelines for supplementary information. The finding is described in table I.7.

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

1. Technical assessment of the reported information

31. Czechia reported information on its economy-wide emission reduction target in its BR5. For Czechia the Convention entered into force on 21 March 1994. Under the Convention Czechia committed to contributing to the achievement of the joint EU economy-wide emission reduction target of 20 per cent below the 1990 level by 2020. The ERT noted that the Party describing in its next submission how the EU target translates into its national target for emissions not covered by the EU ETS in terms of t CO_2 eq would increase the transparency of the reporting on the target.

32. The target for the EU and its member States is formalized in the EU 2020 climate and energy package. The legislative package regulates emissions of CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 using GWP values from the AR4 to aggregate the GHG emissions of the EU until 2020. Emissions and removals from the LULUCF sector are not included in the quantified economy-wide emission reduction target under the Convention.

33. The EU-wide targets are primarily implemented through the EU ETS and ESD. The EU ETS covers mainly point emissions sources in the energy, industry and aviation sectors. An EU-wide emission cap was put in place for 2013–2020 for the EU ETS with the goal of reducing emissions by 21 per cent below the 2005 level by 2020. For 2030, a reduction target of 62 per cent below the 2005 level has been set for emissions covered by the EU ETS. The ESD became operational in 2013 and covers sectors outside the EU ETS, including transport (excluding aviation and international maritime transport), residential and commercial buildings, agriculture, small industry and waste. The ESD is regulated through targets for each member State that add up to a reduction at the EU level of 10 per cent below the 2005 level by 2020. The ESR, the successor to the ESD, was adopted in 2018 and amended in 2023 with the target of reducing emissions covered under the ESR by 40 per cent below the 2005 level by 2030.

34. The EU generally allows its member States to use units from the Kyoto Protocol mechanisms for compliance purposes, subject to a number of restrictions in terms of origin and type of project and up to an established limit. Operators and airline operators can use

such units to fulfil their requirements under the EU ETS, and member States can use such units for their national ESD targets, within specific limitations.

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

36. Czechia has a national target of limiting its emission growth to 9 per cent above the 2005 level by 2020 for ESD sectors. This target has been translated into binding quantified AEAs for 2013–2020. Czechia's AEAs change following a linear path from 62,474.35 kt CO_2 eq in 2013 to 67,204.65 kt CO_2 eq in 2020.[6] Under the ESR, Czechia has a national target of reducing emissions from covered sectors to 26 per cent below the 2005 level by 2030. This differs from the 14 per cent reduction target reported in its BR5 as the ESR was revised and new targets were adopted for EU member States on 19 April 2023 under EU regulation 2023/857 amending regulation 2018/842 on binding annual GHG emission reductions by member States from 2021 to 2030. The amendment was adopted as part of a package of proposals aimed at reducing the emissions of the EU by 55 per cent by 2030 (compared with the 1990 level) and delivering the European Green Deal.

37. In addition to its ESD target, Czechia committed to achieving a domestic target of a 20 per cent (32 Mt CO_2 eq) reduction in total emissions below the 2005 level by 2020, which it achieved under the Climate Protection Policy of the Czech Republic. Czechia also reported on its longer-term target of a 30 per cent (44 Mt CO_2 eq) reduction in total emissions below the 2005 level by 2030. The 2020 and 2030 targets do not include the LULUCF sector. Czechia also provided the long-term indicative targets of its aforementioned climate protection policy, namely to achieve an indicative emission level of 70 Mt CO_2 eq by 2040 and 39 Mt CO_2 eq by 2050 (corresponding to an 80 per cent reduction compared with the 1990 level). The 2040 and 2050 indicative targets include the LULUCF sector. The Party reported in its NC8 that following an evaluation in 2021, the policy will be updated by 2023 to reflect the new "Fit for 55" package and the EU 2050 climate neutrality target. The Party further clarified that the update should be completed by the end of 2023 and is expected to be adopted in 2024 following the completion of the strategic environmental impact assessment.

2. Assessment of adherence to the reporting guidelines

38. The ERT assessed the information reported in the BR5 of Czechia and identified an issue relating to transparency, and thus adherence to the UNFCCC reporting guidelines on BRs. The finding is described in table II.1.

D. Information on policies and measures

1. Technical assessment of the reported information

39. Czechia provided in its NC8 and BR5 information on its PaMs[7] implemented, adopted and planned to fulfil its commitments under the Convention. Czechia's set of PaMs is similar to that previously reported, with a few exceptions, notably the Modernisation Fund (a dedicated funding programme to support 10 lower-income EU member States in their transition to climate neutrality by helping to modernize their energy systems and improve energy efficiency, with an estimated mitigation impact in 2030 of 17,500.00 kt CO_2 eq), the energy efficiency measures in the industry, residential, commercial and institutional sectors

[6] According to the EU transaction log.

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

for 2021–2030 and the soft energy efficiency measures for 2021–2030, all with a 2021 implementation start date. A key policy instrument is the Climate Protection Policy of the Czech Republic, which defines the national GHG reduction targets for 2020 and 2030 and the indicative trajectories and objectives for 2040 and 2050 and identifies PaMs for specific sectors at the national level, namely energy, transport, industry, agriculture, LULUCF and waste. The policy was implemented in 2017 and evaluated in 2021, with an update scheduled for 2023.

40. Czechia reported on its policy context and legal and institutional arrangements in place for implementing its commitments and monitoring and evaluating the effectiveness of its PaMs. Czechia also indicated that there have been no significant changes to its institutional, legal, administrative and procedural arrangements used for domestic compliance, monitoring, reporting, archiving of information and evaluation of progress towards its target, apart from personnel changes, including with regard to the role of the national inventory system coordinator. The MoE is responsible for ensuring compliance with the Convention, its Kyoto Protocol and the Paris Agreement, and the climate change agenda is addressed primarily within its Department of Energy and Climate Protection. Climate change issues are of a cross-sectoral nature and affect many other departments. The MoE is primarily responsible for drafting national policies in the areas of mitigation and adaptation. Individual state departments and ministries, such as the MoE, the Ministry of Industry and Trade, the Ministry of Transport, the Ministry of Agriculture and the Ministry of Regional Development are then responsible for drafting and implementing sector-specific PaMs aimed at reducing GHG emissions and/or adapting to climate change impacts. The regions of Czechia do not have direct responsibility in terms of protecting the climate system by the means of taking specific actions. Nevertheless, the regional bodies remain responsible for overall development of their territory and for addressing the needs of the region's population in general.

41. Czechia has in place a national system for reporting on PaMs and projections of emissions and sinks and plans to further enhance its system in line with the EU governance regulation of the Energy Union and climate action, which requires member States to report on their progress towards and compliance with targets. The arrangements also include the interministerial working group on climate change issues, which is tasked with, among other things, assessing progress and sharing the information in this regard with different stakeholders.

42. Czechia's assessment of the economic and social consequences of its response measures is described in its 2020 NIR submitted in April 2022, and its NC8 also refers to the EU-wide assessment procedure described in the BR5 of the EU. The Party reported information on providing technology support and capacity development through development assistance. Czechia also reported on its participation in several bilateral development assistance projects that focus on reducing dependence on fossil fuels and enhancing use of RES. The European Council recommendation of 16 June 2022 on ensuring a fair transition towards climate neutrality provides an EU framework for the development and implementation of policy measures to ensure that no one is left behind in the green transition. The assessment of the economic and social consequences of PaMs is a key component of the policymaking process of the EU. Impact assessments are carried out on all initiatives that are expected to have significant economic, social or environmental impacts, and the findings are summarized in an impact assessment report, which sets out the environmental, social and economic impacts, the stakeholders that will be affected by the initiative and the ways in which they will be affected. The report also provides information on the consultation strategy and its results and is published with the legislative proposals or with acts adopted by the European Commission.

43. In its reporting on PaMs, Czechia provided the estimated emission reduction impacts for many of its PaMs. Where estimated impacts were not provided, the Party reported "IE" in CTF table 3. During the review the Party explained that estimated impacts were not provided for some framework measures for which mitigation effects were accounted for under other measures.

44. The key overarching cross-sectoral policy in the EU is the 2020 climate and energy package, adopted in 2009, which includes the revised EU ETS and the ESD. The package is

supplemented by renewable energy and energy efficiency legislation and legislative proposals on the 2020 targets for CO_2 emissions from cars and vans, the carbon capture and storage directive, and the general programmes for environmental conservation, namely the 7th Environment Action Programme and the clean air policy package. The 2021 European Climate Law, which forms part of the European Green Deal, made climate neutrality by 2050 legally binding and raised the EU-wide 2030 emissions reduction target to at least 55 per cent compared with the 1990 level. In 2023, the EU adopted several pieces of legislation that were part of the "Fit for 55" package intended to help achieve the new 2030 target. These new laws strengthened both the ESR and EU ETS 2030 targets, extended the EU ETS to include maritime shipping in 2024 and established the Social Climate Fund to address equitability of mitigation impacts. They also created the EU ETS 2 to cover at the point of distribution most fuel used in sectors not covered by the EU ETS, beginning in 2027.

45. The 2021–2030 EU-wide policies are operationalized through the NECPs of EU member States, which should set out national objectives for each of the five dimensions of the Energy Union, namely energy security; the internal energy market; energy efficiency; decarbonization; and research, innovation and competitiveness. The NECPs are periodically updated to reflect changes to EU policy, such as the implementation of the European Green Deal. Czechia's NECP specifies that its main target is to reduce total GHG emissions by 30.0 per cent by 2030 compared with the 2005 level, corresponding to a reduction in emissions of 44 Mt CO_2 eq and, for the share of RES in gross final energy consumption, the Party proposes a 22.0 per cent contribution to the EU RES target by 2030 (an increase of 9.0 percentage points compared with the Czech national RES target of 13.0 per cent for 2020). The main policies for delivering the proposed contribution include those enshrined in the draft amendment to act 165/2012 on supported energy sources. Czechia's NECP also specifies that there were three energy efficiency targets for 2021–2030: indicative targets for primary energy sources (1,735 PJ in 2030), final consumption (990 PJ) and energy intensity (0.157 MJ/CZK); a binding energy savings target for public sector buildings; and a binding year-on-year rate of final consumption savings.

46. Czechia submitted its draft NECP update to the European Commission in October 2023. The draft of the NECP update includes a RES target of 30.0 per cent, in accordance with the WAM scenario. With regard to energy efficiency, in accordance with Article 7 of the EU energy efficiency directive, the Party proposes increasing its commitment from 462 to 669 PJ cumulative savings by 2030. The aim is to reach primary energy consumption of 1,206 PJ (updated from 1,735 PJ) and final energy consumption of 846 PJ (previously 990 PJ) in 2030. The PaMs in Czechia's NECP go into more detail on energy efficiency and RES, but there is a significant overlap with the summary of information on PaMs reported in table 5.

47. Czechia introduced national-level policies to achieve its targets under the ESD, the ESR and domestic emission reduction targets. The policy frameworks and cross-sectoral measures adopted by the Party with mitigation impacts include the Climate Protection Policy of the Czech Republic. The key policies reported are the New Green Savings Programme (2015–2020), which supports energy efficiency improvements and increased use of renewable energy in residential and commercial buildings; preferential feed-in tariffs for electricity produced from RES; the emission limits in act 201/2012 Coll. on air protection and EU regulation 517/2014 on F-gases. The mitigation effect of the policy on preferential feed-in tariffs is the most significant. Other policies that have delivered significant emission reductions are the Rural Development Programme in the agriculture sector and the Waste Management Plan in the waste sector.

48. Czechia highlighted the domestic mitigation actions that are under development, such as those being revised to align with the more ambitious 2030 target of the EU to reduce domestic emissions by at least 55 per cent compared with the 1990 level. Among the mitigation actions that provide a foundation for significant additional action are the Modernisation Fund (identified by the ERT as a mitigation action of particular interest); the energy efficiency measures in the industry, residential, commercial and institutional sectors for 2021–2030; and the soft energy efficiency measures for 2021–2030 (awareness-raising and educational activities, energy consultancy centres and expert training). Table 5 provides a summary of the reported information on the PaMs of Czechia.

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

Sector	*Key PaMs*[a]	*Estimated mitigation impact in 2020 (kt CO_2 eq)*	*Estimated mitigation impact in 2030 (kt CO_2 eq)*
Policy framework and cross-sectoral measures	Modernisation Fund	0	17 500.00
	EU ETS	2 740.00	6 624.00
	Effort-sharing legislation (ESD, ESR)	IE	IE
	Climate Protection Policy of the Czech Republic	IE	IE
	Act 201/2012 Coll. on air protection – framework legislation	IE	IE
Energy			
Energy efficiency	Operational Programme Environment 2014–2020	372.00	426.00
	Operational Programme Enterprise and Innovation for Competitiveness (2014–2020)	899.00	1 381.00
Energy supply and renewable energy	EU directive 2009/28/EC on the promotion of the use of energy from renewable sources (preferential feed-in tariffs for electricity produced from RES)	3 242.00	4 047.00
	New Green Savings Programme	529.50	437.83
Transport	EU regulation 2019/631 on setting CO_2 emission performance standards for new passenger cars and for new light commercial vehicles	723.00	1 590.00
	Operational Programme Transport	150.00	390.00
IPPU	Act 201/2012 Coll. on air protection	2 600.00	2 746.00
	EU regulation 517/2014 on F-gases	552.00	2 029.00
	The Kigali Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer	IE	IE
Agriculture	Nitrates Directive (1991/676/EEC) – Czech Republic's 4th Action Programme	IE	IE
	Czech Rural Development Programme for 2014–2020	200.00	357.00
LULUCF	Updated recommendations for implementing the proposed measures under the National Forest Plan II	458.00	395.00
Waste	Waste Management Plan for 2015–2024	330.00	330.00
	Circular Economy Package	IE	IE

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

[a] Names of PaMs reproduced as reported in Czechia's BR5.

2. Assessment of adherence to the reporting guidelines

49. The ERT assessed the information reported in the NC8 and BR5 of Czechia and identified issues relating to completeness and transparency, and thus adherence to the UNFCCC reporting guidelines on NCs and the UNFCCC reporting guidelines on BRs. The findings are described in tables I.2 and II.2.

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

(a) Technical assessment of the reported information

50. In its NC8, Czechia reported that the implementation of the Kyoto Protocol is underpinned by the Climate Protection Policy of the Czech Republic, under which the Party aims to reduce emissions by 32 Mt CO_2 eq compared with the 2005 level by 2020 and by 44 Mt CO_2 eq compared with the 2005 level by 2030. The overall responsibility for climate change policymaking lies with the MoE, which coordinates the activities of all other

ministries and central State administrative bodies in all matters relating to the environment, and a number of national institutions are involved in policy implementation. More specifically, ministries such as the MoE, the Ministry of Industry and Trade, the Ministry of Transport, the Ministry of Agriculture, the Ministry of Education, Youth and Sports, the Ministry of Health and the Ministry of Regional Development are responsible for drafting, implementing and monitoring relevant sector-specific PaMs aimed at reducing emissions and/or adapting to climate change impacts.

51. For the second commitment period of the Kyoto Protocol, from 2013 to 2020, Czechia committed to contributing to the joint EU effort to reduce GHG emissions by 20 per cent below the base-year level (see paras. 31–33 above).

52. The Party has arrangements and enforcement procedures to meet its commitments under the Kyoto Protocol, including procedures for addressing non-compliance. These include act 383/2012 Coll. on conditions for trading of emission allowances. There are no specific national rules for the ESD/ESR sectors since the EU legislation covering them is directly applicable. Non-compliance at the national level could result in infringement procedures and a possible penalty payment.

53. Czechia stated during the review that it has provisions in place to make information on legislative arrangements and administrative procedures related to compliance and enforcement publicly accessible, such as those that fall under relevant EU legislation, namely the EU regulation on the governance of the Energy Union and climate action and the EU ETS.

54. Czechia has national legislative arrangements and administrative procedures in place that seek to ensure that the implementation of activities under Article 3, paragraph 3, and any elected activities under Article 3, paragraph 4, of the Kyoto Protocol also contributes to the conservation of biodiversity and the sustainable use of natural resources. Forestry in Czechia is regulated by the Forest Act (act 289/1995 Coll., as amended), which constitutes the fundamental legislative instrument for this sector, regulating carbon stocks and the reduction of GHG emissions and determining conditions for the preservation, upkeep and regeneration of forests as national assets. Czechia's forestry policy is aimed at adapting forest ecosystems to environmental change, including as a result of both climate and societal factors.

(b) Assessment of adherence to the reporting guidelines

55. The ERT assessed the information reported in the NC8 of Czechia and identified an issue relating to completeness, and thus adherence to the reporting guidelines for supplementary information. The finding is described in table I.7.

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

(a) Technical assessment of the reported information

56. In the NC8 Czechia reported information on how it strives to implement PaMs under Article 2 of the Kyoto Protocol in such a way as to minimize adverse effects, including the adverse effects of climate change and effects on international trade and social, environmental and economic impacts on other Parties, especially developing country Parties. Czechia referred to the approach of the EU described in the BR5 of the EU, which is largely based on taking into account possible adverse consequences at the impact assessment stage for EU-wide legislative proposals. In Czechia legislative impact assessments rarely take into account possible adverse effects on an international scale since no relevant methodology or guidance is available. Czechia clarified that it considers the information related to Article 3, paragraph 14, of the Kyoto Protocol, as provided in its 2022 annual submission, to be up to date.

57. The NC8 includes information on how Czechia promotes and implements the decisions of ICAO and the International Maritime Organization to limit emissions from aviation and marine bunker fuels. Czechia, which is an ICAO member, reported that measures to limit or reduce GHG emissions from aviation bunker fuels are implemented under the EU ETS and that its "ICAO Agreement" measure relates to the agreement by the 191 ICAO member States of October 2016 to use the Carbon Offsetting and Reduction

Scheme for International Aviation. The scheme did not take effect until 2021 and will be voluntary until 2027. Under the agreement, the global aviation emission target is a 50 per cent reduction by 2050 relative to 2005. Czechia also reported that it is a member of the International Maritime Organization and does not have any GHG emissions from marine bunker fuels.

58. Further information on how Czechia strives to implement its commitments under Article 3, paragraph 14, of the Kyoto Protocol in such a way as to minimize adverse social, environmental and economic impacts on developing country Parties was reported in its 2022 annual submission, which also includes a reference to the BR5 of the EU. The Party reported information on what it prioritized in implementing its commitments under Article 3, paragraph 14, including participation in several bilateral development assistance projects focused on reducing dependence on fossil fuels and developing RES. Czechia supports technology and capacity development by providing development assistance. An example of this is its involvement in establishing a technical training centre for the power sector at the International University of Ulaanbaatar in Mongolia.

(b) Assessment of adherence to the reporting guidelines

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

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

1. Technical assessment of the reported information

60. Czechia reported in its BR5 that it did not use units from market-based mechanisms under the Kyoto Protocol to meet its commitment under the ESD. It reported in CTF tables 4 and 4(b) that it did not use any units from market-based mechanisms in 2019 or 2020. Given that the contribution of LULUCF activities is not included in the joint EU target under the Convention, reporting thereon is not applicable to Czechia. Table 6 illustrates Czechia's ESD emissions and use of units from market-based mechanisms for achieving its ESD target. Czechia transferred 3,789,668 AEAs to Germany in 2022. The Party clarified that the revenue will be used exclusively for the New Green Savings Programme and that this only represented a small portion of its surplus, which reached some 34 million AEAs for 2013–2020. This transaction was also reflected in the international transaction log with regard to the transfer of assigned amount units and the required share of the proceeds.

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

Year	*ESD emissions*	*AEA*	*Use of units from market-based mechanisms*	*AEAs transferred to (–) or from (+) other Parties*[a]	*Annual AEA surplus/deficit*	*Cumulative AEA surplus/deficit*
2013	61 457.57	62 474.35	0	–	1 016.78	1 016.78
2014	57 620.66	63 214.37	0	–	5 593.71	6 610.49
2015	61 282.02	63 954.38	0	–	2 672.36	9 282.85
2016	62 816.96	64 694.39	0	–	1 877.44	11 160.29
2017	62 395.18	65 212.31	0	–	2 817.13	13 977.42
2018	60 616.48	65 876.42	0	–	5 259.94	19 237.36
2019	60 543.28	66 540.54	0	–	5 997.26	25 234.62
2020	58 650.33	67 204.65	0	–3 789.67	4 764.65	29 999.27

Sources: Czechia's BR5 and BR5 CTF table 4(b) and EU transaction log (AEAs).

Note: For a given year, a positive number (surplus) indicates that annual or cumulative ESD emissions were lower than the corresponding AEA or cumulative AEAs, while a negative number (deficit) indicates that annual or cumulative ESD emissions were higher than the corresponding AEA or cumulative AEAs.

[a] The transfer of AEAs to another EU member State occurred in 2022 but is applicable to the 2020 accounting year.

2. Assessment of adherence to the reporting guidelines

61. The ERT assessed the information reported in the BR5 of Czechia and identified an issue relating to transparency, and thus adherence to the UNFCCC reporting guidelines on BRs. The finding is described in table II.3.

3. Assessment of achievement of the quantified economy-wide emission reduction target

62. In assessing the Party's contribution towards achievement of the 2020 joint EU target on the basis of the information reported in its BR5, the ERT noted that, under the EU 2020 climate and energy package, Czechia committed to limiting its emissions growth under the ESD to 9 per cent above the 2005 level by 2020 (see para. 36 above). This target has been translated into binding quantified AEAs for 2013–2020. In 2020 Czechia's ESD emissions were 12.7 per cent (8,554.32 kt CO_2 eq) below the AEA. Czechia had a cumulative surplus of 33,788.94 kt CO_2 eq with respect to its AEAs between 2013 and 2020 before it transferred part of its surplus to Germany in 2022 (see para. 60 above). The ERT noted that the Party did not make use of units from market-based mechanisms in 2020.

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

64. The ERT noted that the Party's ESD emissions in 2020 do not exceed its AEA for 2020.

F. Projections

1. Projections overview, methodology and results

(a) Technical assessment of the reported information

65. Czechia reported in its BR5 and NC8 updated projections for 2030–2050 relative to actual inventory data for 2018 under the WEM scenario, using GWP values from the AR4. The WEM scenario reported by Czechia includes PaMs implemented and adopted until July 2020.

66. In addition to the WEM scenario, Czechia reported the WAM scenario. The WAM scenario includes planned PaMs. Czechia provided a definition of its scenarios, explaining that its WEM scenario includes 43 PaMs, where the four most significant are the EU ETS, preferential feed-in tariffs for electricity produced from RES, emission limits in act 201/2012 Coll. on air protection and the implementation of the EU regulation on F-gases, while its WAM scenario includes additional PaMs implemented by the means of the Modernisation Fund. The definition indicates that the scenarios were prepared in accordance with the UNFCCC reporting guidelines on BRs.

67. The projections are presented on a sectoral basis, using the same sectoral categories as those used in the reporting on mitigation actions, and on a gas-by-gas basis for CO_2, CH_4, N_2O, PFCs, HFCs and SF_6 (treating PFCs and HFCs collectively in each case) as well as NF_3 for 2030–2050. The projections are also provided in an aggregated format for each sector and for a Party total using GWP values from the AR4. Czechia reported on factors and activities affecting emissions for each sector.

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

68. The methodology used for the preparation of the projections is different from that used for the preparation of the emission projections for the NC7. Czechia provided information on changes since the submission of its NC7 in the assumptions, methodologies, models and approaches used for the projection scenarios.

69. The Party decided to use, where possible, new or more advanced tools for preparing its projections covering the energy and transport sectors, F-gases within the IPPU sector and the LULUCF sector. For the energy sector (not including transport), since its NC7, the Party has changed the model used for projecting GHG emissions from fuel combustion, switching from MESSAGE to a data-driven model structure. New national PaMs linked to the implementation of the European Green Deal and the increasing prices of emission allowances under the EU ETS have been integrated into the model. For the transport sector, the changes cover the approach for estimating emission projections and applying the results of a new dedicated study (the R-project) instead of using the COPERT model. For the IPPU, agriculture and waste sectors, Czechia projected GHG emissions using the methodologies that were applied for the 2020 annual submission for all subcategories except F-gases, for which the national Phoenix model was used. For the LULUCF sector, CBM-CFS3 was used instead of EFISCEN to project forest resources and the associated ecosystem carbon balance. The incorporated changes had some impact on the projected emissions, such as a slight increase in CH_4 emissions in the waste sector (5.A category) and the pace of decrease in F-gas emissions; however, the Party did not provide specific quantitative information.

70. To prepare its projections, Czechia relied on key underlying assumptions relating to population, GDP and energy consumption. The assumptions were updated on the basis of the most recent economic developments known at the time of the preparation of the projections.

71. Sensitivity analyses were conducted for a number of important assumptions, such as the change in consumption of F-gases for category 2.F.1 refrigeration and air conditioning, the CH_4 emission factor for enteric fermentation for agriculture, and the change in AD for the waste sector. The Party reported that changing the estimates of the consumption of F-gases by ±5.0 per cent resulted in a ±4.08 per cent change in emission estimates for category 2.F.1. Sensitivity analyses were also performed for the other sectors or categories, but the Party did not specify which parameters were changed.

(c) Results of projections

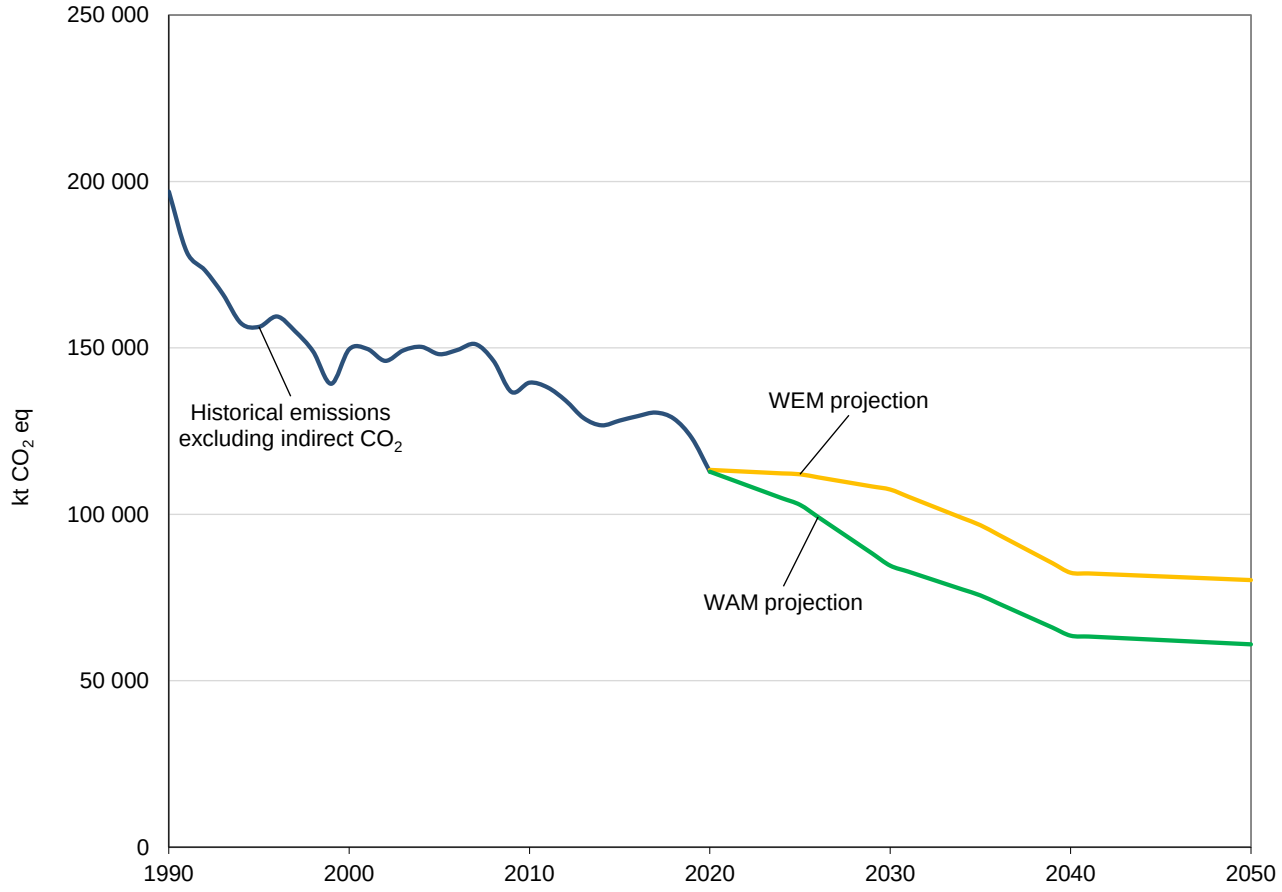
72. The projected emission levels under different scenarios are presented in table 7 and figure 1.

Table 7
Summary of greenhouse gas emission projections for Czechia

	GHG emissions (kt CO_2 eq/year)	*Change in relation to 1990 level (%)*	*Change in relation to 2020 level (%)*
Inventory data 1990	196 955.24	NA	NA
Inventory data 2020	112 788.58	NA	NA
WEM projections for 2030	107 442.02	–45.4	–4.7
WAM projections for 2030	84 583.99	–57.1	–25.0
WEM projections for 2050	80 229.87	–59.3	–28.9
WAM projections for 2050	60 952.44	–69.1	–46.0

Sources: Czechia's NC8 and BR5 CTF tables 1 and 6, which use GWP values from the AR4.
Note: The projections are of GHG emissions excluding LULUCF and excluding indirect CO_2.

Figure 1
Greenhouse gas emission projections reported by Czechia

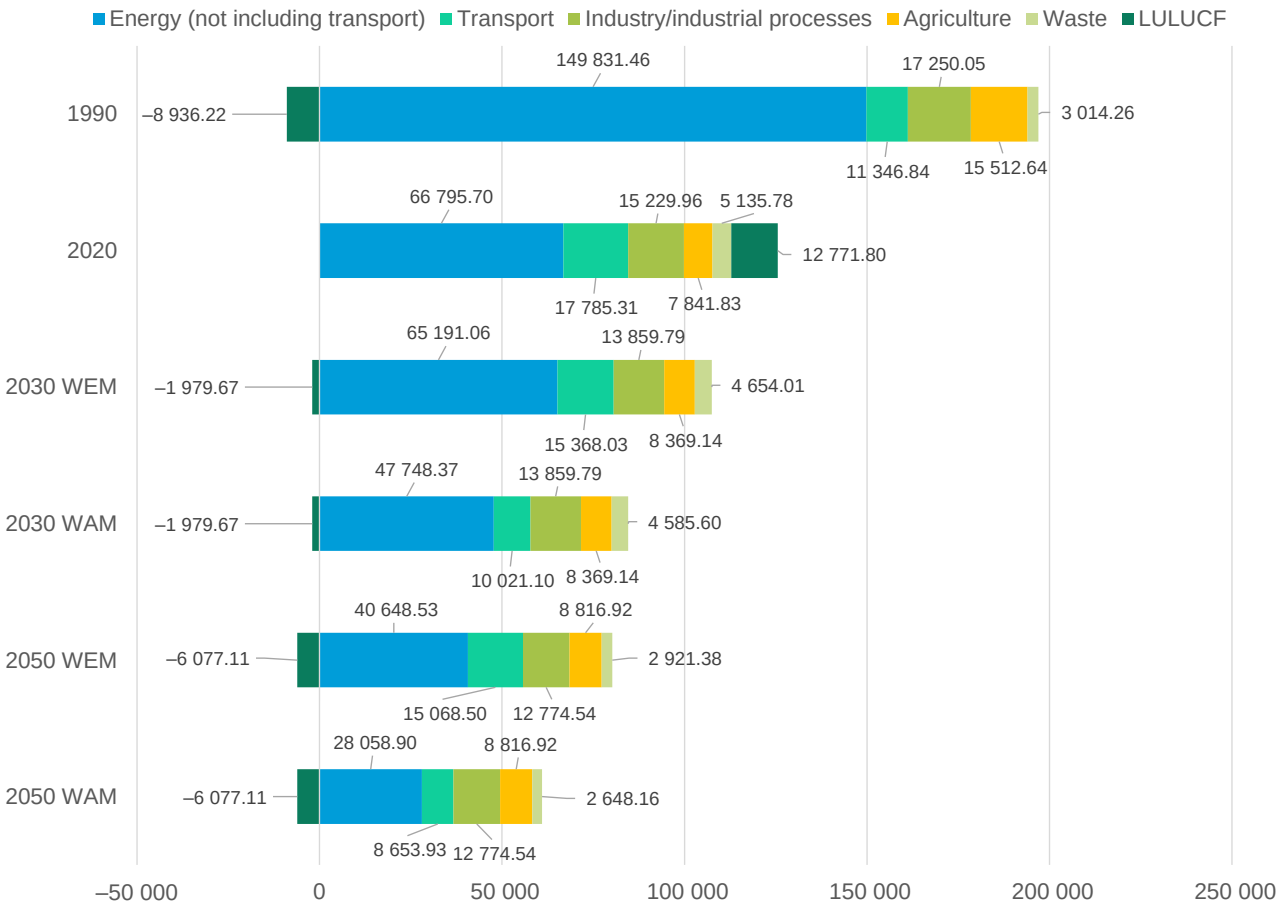


Sources: Czechia's NC8 and BR5 CTF tables 1 and 6 (total GHG emissions excluding LULUCF), which use GWP values from the AR4.

73. Czechia's total GHG emissions excluding LULUCF are projected under the WEM scenario to decrease by 45.4 and 59.3 per cent respectively below the 1990 level in 2030 and 2050. When including LULUCF, total GHG emissions are projected under the WEM scenario to decrease by 43.9 and 60.6 per cent respectively below the 1990 level in 2030 and 2050. Under the WAM scenario, emissions excluding LULUCF in 2030 and 2050 are projected to be lower than those in 1990 by 57.1 and 69.1 per cent respectively.

74. Czechia presented the WEM and WAM scenarios by sector for 2030 and 2050, as summarized in figure 2 and table 8.

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



Sources: Czechia's NC8 and BR5 CTF tables 1 and 6, which use GWP values from the AR4. Transport data for 2050 were provided by Czechia during the review.

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

	GHG emissions and removals (kt CO_2 eq)					*Change (%)*			
		2030		*2050*		*1990–2030*		*1990–2050*	
Sector	*1990*	*WEM*	*WAM*	*WEM*	*WAM*	*WEM*	*WAM*	*WEM*	*WAM*
Energy (not including transport)	149 831.46	65 191.06	47 748.37	40 648.53	28 058.90	–56.5	–68.1	–72.9	–81.3
Transport	11 346.84	15 368.03	10 021.10	15 068.50	8 653.93	35.4	–11.7	32.8	–23.7
Industry/industrial processes	17 250.05	13 859.79	13 859.79	12 774.54	12 774.54	–19.7	–19.7	–25.9	–25.9
Agriculture	15 512.64	8 369.14	8 369.14	8 816.92	8 816.92	–46.0	–46.0	–43.2	–43.2
LULUCF	–8 936.22	–1 979.67	–1 979.67	–6 077.11	–6 077.11	77.8	77.8	32.0	32.0
Waste	3 014.26	4 654.01	4 585.60	2 921.38	2 648.16	54.4	52.1	–3.1	–12.1
Other	NO	NO	NO	NO	NO	–	–	–	–
Total GHG emissions excluding LULUCF	**196 955.24**	**107 442.02**	**84 583.99**	**80 229.87**	**60 952.44**	**–45.4**	**–57.1**	**–59.3**	**–69.1**

Sources: Czechia's NC8 and BR5 CTF tables 1 and 6, which use GWP values from the AR4. Transport data for 2050 were provided by Czechia during the review.

75. According to the projections reported for 2030 under the WEM scenario, the most significant absolute emission reductions are expected to occur in the energy sector (not including transport) (84,640.40 kt CO_2 eq) and the agriculture sector (7,143.50 kt CO_2 eq), amounting to projected reductions of 56.5 and 46.0 per cent respectively between 1990 and 2030. The pattern of projected emissions in the energy sector (not including transport) reported for 2050 under the same scenario slightly changes owing to the absence of PaMs that affect emissions after 2030. Projected emissions reported for 2050 are slightly higher for the agriculture sector under the same scenario owing to faster changes in AD (faster increase of livestock populations) compared with the effect of the implemented PaMs by 2030. The similar trend towards emission increase is observed in the transport sector under the WEM scenario, where emission increases of 35.4 and 32.8 per cent respectively are expected in 2030 and 2050 compared with the 1990 level.

76. Czechia presented the WEM and WAM scenarios by gas for 2030 and 2050, as summarized in table 9.

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

	GHG emissions and removals (kt CO_2 eq)					*Change (%)*			
		2030		*2050*		*1990–2030*		*1990–2050*	
Gas[a]	*1990*	*WEM*	*WAM*	*WEM*	*WAM*	*WEM*	*WAM*	*WEM*	*WAM*
CO_2	164 210.75	89 694.93	66 937.16	65 816.39	46 846.46	–45.4	–59.2	–59.9	–71.5
CH_4	23 372.30	10 477.37	10 408.96	8 013.53	7 740.30	–55.2	–55.5	–65.7	–66.9
N_2O	9 287.95	5 548.04	5 516.19	5 763.32	5 729.05	–40.3	–40.6	–37.9	–38.3
HFCs	NO	1 664.99	1 664.99	593.86	593.86	–	–	–	–
PFCs	NO	1.02	1.02	1.67	1.67	–	–	–	–
SF_6	84.24	50.50	50.50	32.53	32.53	–40.1	–40.1	–61.4	–61.4
NF_3	NO	5.17	5.17	8.57	8.57	–	–	–	–
Total GHG emissions without LULUCF	**196 955.24**	**107 442.02**	**84 583.99**	**80 229.87**	**60 952.44**	**–45.4**	**–57.1**	**–59.3**	**–69.1**

Sources: Czechia's NC8 and BR5 CTF table 6, which use GWP values from the AR4.
[a] Czechia did not include indirect CO_2 emissions in its projections.

77. During the review Czechia presented information on an ongoing update to its projections, including a transition from AR4 GWP values to those from the AR5 for the update of its NECP. The Party informed the ERT that a new approach was used for projections for energy sector categories 1.A.1 and 1.A.4 involving the use of TIMES.

78. According to information on the new projections presented during the review, Czechia's total GHG emission reductions including LULUCF are expected to be more ambitious than under the scenarios included in the NC8. After the update, GHG emissions including LULUCF are projected to decrease by 56.0 and 72.0 per cent in 2030 and 2050 respectively below the 1990 level under the WEM scenario compared with the 43.9 and 60.6 per cent reductions reported in the NC8. Under the WAM scenario, emissions in 2030 and 2050 are projected to be below the 1990 level by 56.9 and 75.8 per cent respectively compared with the respective reductions of 56.1 and 70.8 per cent reported in the NC8.

79. The projected total GHG emissions under the WEM scenario reported in the BR4 for 2030 are at the same level as those reported in the BR5. However, owing to the higher number of planned PaMs included under the WAM scenario in the BR5 compared with the BR4, projected emissions are lower by 12.4 percentage points (emission reductions in 2030 compared with the 1990 level under the WAM scenario are reported as 44.7 and 57.1 per cent in the BR4 and BR5 respectively).

(d) Assessment of adherence to the reporting guidelines

80. The ERT assessed the information reported in the NC8 and BR5 of Czechia and identified issues relating to completeness and transparency, and thus adherence to the

UNFCCC reporting guidelines on NCs and the UNFCCC reporting guidelines on BRs. The findings are described in tables I.3 and II.4.

2. Assessment of the total effect of policies and measures

(a) Technical assessment of the reported information

81. In its NC8 Czechia presented the estimated and expected total effect of implemented and adopted PaMs (NC8 table 5.48). Information is presented in terms of GHG emissions avoided or sequestered, on a CO_2 eq basis, in 2020 and 2030. It also presented relevant information on factors and activities for each sector for 1990–2030.

82. The ERT noted that in order to improve the transparency of reporting, the table presenting the total effect of PaMs included in the NC8 could more clearly indicate which figures represent the total effect of implemented and adopted PaMs and which represent the total effect of planned PaMs.

83. Czechia reported that the total estimated effect of its implemented and adopted PaMs is 24,241 kt CO_2 eq in 2030. According to the information reported in its NC8, PaMs implemented in the energy sector will deliver the largest emission reductions. The additional estimated effect of Czechia's planned PaMs is 22,093 kt CO_2 eq in 2030. Table 10 provides an overview of the total effect of PaMs as reported by Czechia.

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

	2030	
Sector	*Effect of implemented and adopted measures*	*Effect of planned measures*
Energy (without transport)	7 884	4 451
Transport	2 347	142
Industry/industrial processes	4 775	–
Agriculture	912	–
Land-use change and forestry	395	–
Waste management	1 304	–
Cross-sectoral measures	6 624	17 500
Total	**24 241**	**22 093**

Source: Czechia's NC8 and CTF table 3, which use GWP values from the AR4.
Note: The total effect of implemented and adopted PaMs is defined as the sum of the effects of implemented and adopted PaMs; the total effect of planned PaMs is defined as the difference between the WEM and the WAM scenarios.

(b) Assessment of adherence to the reporting guidelines

84. The ERT assessed the information reported in the NC8 of Czechia and identified an issue relating to completeness, and thus adherence to the UNFCCC reporting guidelines on NCs. The finding is described in table I.3.

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

(a) Technical assessment of the reported information

85. In the NC8 Czechia reported that it does not plan to use market-based mechanisms to meet its Kyoto Protocol target. The ERT notes that reporting on the supplementarity of such mechanisms is therefore not relevant for Czechia.

(b) Assessment of adherence to the reporting guidelines

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

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

87. Czechia is not an Annex II Party and is therefore not obliged to adopt measures and fulfil obligations defined in Article 4, paragraphs 3–5, of the Convention. However, Czechia voluntarily provided information in its NC8 and BR5 on its provision of financial, technological and capacity-building support to developing country Parties. The ERT commends Czechia for reporting this information and suggests that it continue to do so in future NCs.

88. Czechia described in NC8 its commitment as an EU member State and a Party to the 2009 Copenhagen Accord goal of jointly mobilizing USD 100 billion annually by 2020 to address the needs of developing countries, which it has been contributing to since 2010. Czech bilateral and multilateral development cooperation, coordinated by the Ministry of Foreign Affairs, is the main means through which climate financing and technology transfer support has been delivered to developing countries in accordance with the methodology of the Development Assistance Committee of the Organisation for Economic Co-operation and Development. The support is guided by the Development Cooperation Strategy of the Czech Republic 2018–2030, which defines territorial and sectoral priorities for foreign development cooperation and reflects international commitments and challenges in development cooperation.

89. The Party demonstrated provision of financial support for bilateral and multilateral development cooperation categorized into mitigation, adaptation and cross-cutting activities (NC8 table 7.2), which increased gradually from EUR 7,065,152 in 2017 to EUR 11,725,343 in 2020. Through bilateral cooperation, the Czech Development Agency disbursed CZK 462.30 million to support climate change activities in priority partner countries, namely Bosnia and Herzegovina, Cambodia, Ethiopia, Georgia, the Republic of Moldova and Zambia, in 2020. In the same year, the Ministry of Foreign Affairs disbursed CZK 23.96 million to support 60 small-scale projects in 39 developing countries. In addition, CZK 7.94 million was disbursed to strengthen the capacities of public higher education institutions in partner countries, CZK 40.00 million was donated to Afghanistan for development and security programmes, CZK 50.00 million was donated to support the International Development Cooperation Guarantee programme, and CZK 86.67 million was disbursed to projects supporting human rights and democracy.

H. Vulnerability assessment, climate change impacts and adaptation measures

1. Technical assessment of the reported information

90. In its NC8 Czechia provided information on the expected impacts of climate change in the country; the adaptation policies covering regional, sectoral and cross-sectoral vulnerabilities and considerations; and an outline of the action taken to implement Article 4, paragraph 1(b) and (e), of the Convention with regard to adaptation. Czechia provided a description of climate change vulnerability and impacts on agriculture and food security, biodiversity and natural ecosystems, forests, human health, infrastructure and economy, transport and water resources, and highlighted the adaptation response actions taken and planned at different levels of government.

91. Czechia addressed adaptation matters through the adoption in 2017 of its Strategy on Adaptation to Climate Change and National Action Plan on Adaptation to Climate Change, which provided further direction to government agencies on enhancing preparedness for climate change. The strategy presents observed climate change impacts and defines the Party's adaptation measures, including their mutual linkages to the anticipated impacts of climate change, whereas the action plan further elaborates on the measures determined in the strategy and indicates responsibilities for implementation, deadlines, information on relevant funding sources and an estimate of the costs of implementing the measures. Both documents were updated in 2021. In addition, Czechia's strategy builds on the EU Adaptation Strategy adopted in 2021 (succeeding the 2013 EU Adaptation Strategy), which established a

framework and mechanisms aimed at improving EU preparedness and enhancing coordination of adaptation activities. Table 11 summarizes the information on vulnerability and adaptation to climate change presented in the NC8 of Czechia.

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

Vulnerable area	*Examples/comments/adaptation measures reported*
Agriculture and food security	Vulnerability: Decrease in crop yields; quality of the yields and the size crop production; and pests and diseases caused by drought, higher temperatures and changes to the water balance.
	Adaptation: Increase in the availability of an early warning system; support for farming systems and landscape design; support for establishing a risk management system to combat pests and diseases threatening agricultural crops; research on mitigating the impacts of climate change and reducing water disturbances and wind erosion; conserving genetic resources; support for organic farming; and application of technologies and methods for promoting efficient use of soil moisture by crops.
Biodiversity and natural ecosystems	Vulnerability: Increased risk of extinction of protected species; endangered plant species in alpine and grassland ecosystems; spread of invasive non-indigenous species significantly endangering biological diversity, biotopes and entire ecosystems; decrease in the number of northern species of birds, with a corresponding increase in southern bird populations; and changes in species and population biodiversity triggering the emergence of new ecosystem types.
	Adaptation: Relocation or reintroduction of endangered species or restoration of entire habitats and ecosystems; sustainable ecosystem management and the maintenance of ecosystem resilience; implementation of measures against the spread of invasive non-indigenous species of plants and animals and their regulation or eventual eradication, ensuring active management; integration of ecosystem services with measures implemented in agricultural, forest and water ecosystems; and conservation of genetic resources.
Forests	Vulnerability: Forest fires caused by drought; appearance of pests owing to the high frequency of climate-related disasters such as destructive storms, winds and wet snow; landslides after heavy rains; forest fires contributing to weakened resistance; weakened biological resistance of forests, especially to bark beetles, which increase the rate of tree mortality.
	Adaptation: Use of natural processes to promote forest regeneration; change in the preference of forest tree species and their ecotypes to optimize species composition; stabilization of carbon volumes bound in forest ecosystems through forestry techniques that provide permanent soil protection; increase in the availability of genetic resources of forest tree species to increase biological diversity, ecological stability and resilience of forests; use of protection techniques for vegetation in nurseries, plantations and crops, protecting the genetic resources of forest tree species; protection against insects and harmful effects of game and small rodents; adjustment of forestry policies and legislation; sufficient levels of education and dissemination of information; and use of mixed stand to reduce rates of tree mortality.
Human health	Vulnerability: Drought putting drinking water sources at risk and unsatisfactory groundwater quality owing to pesticide content; increased risk of overheating of organisms, heat stroke and dehydration, as well as cardiovascular, renal, respiratory and metabolic disorders owing to an increase in cases of temperatures exceeding 30 °C; and a significant rise in diseases transmitted between animals and people, affecting both the animal host and the agent.
	Adaptation: Reduction in the incidence or elimination of infectious and non-communicable diseases (definition and specification of risk areas, ensuring quality diagnosis and treatment); and awareness-raising and implementation of an effective early warning system.
Infrastructure and economy	Vulnerability: Infrastructure for water, roads, tourism, transport and the urban environment affected by temperature increases, which may have a negative impact on the national economy.

Vulnerable area	*Examples/comments/adaptation measures reported*
	Adaptation: Use of appropriate materials and technologies in construction; reduction in the risks associated with a changing climate through infrastructure design; and protection and support for planning, establishing and maintaining infrastructure.
Transport	Vulnerability: Extreme weather fluctuations significantly affecting roads, railways and river and air transport systems.
	Adaptation: Good planning and ensuring the reliability and flexibility of the transport sector; ensuring operation and functionality after extreme weather events; taking into account changing climate needs in construction; selection of appropriate solutions for storm water drainage; resilience to temperature fluctuations; appropriate shading of roads by vegetation; and adequate levels of cooling or heating.
Water resources	Vulnerability: Continuous increase in temperature leading to an increase in evapotranspiration and affecting water availability (stream flow, standing water volume and groundwater supplies); water demand during dry periods; and changes in design variables determining the management of water and other sensitive infrastructure.
	Adaptation: Increase in the stability of the water regime; systems for managing and reusing rainwater; river basin and flood risk management plans and water supply and sewerage development plans; development of water supply systems; development of wastewater treatment plants and sewerage systems; ensuring proper functioning of existing reservoirs and water management systems; rehabilitation of small reservoirs and increasing their reliability; modification of water courses and floodplains; rationalization of the water abstraction and discharge licensing system; protection of existing and prospective water sources; measures to infiltrate surface water into groundwater; and water transfers and implementation of reservoirs in areas protected for surface water storage.

92. Czechia provided a detailed description of international adaptation activities, including the EU Adaptation Strategy, which is aimed at accelerating the process of adaptation to climate change, strengthening data collection and deepening Czechia's cooperation with the financial and insurance sectors. Czechia also provided information on bilateral cooperation with developing countries on adaptation, including in relation to direct financial support, technology development and transfer, training courses and capacity-building.

2. Assessment of adherence to the reporting guidelines

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

I. Research and systematic observation

1. Technical assessment of the reported information

94. In its NC8 Czechia provided information on its general policy and funding relating to research and systematic observation and both domestic and international activities, including contributions to the World Climate Programme and the International Geosphere–Biosphere Programme. However, the description of its general policy did not include information on overall policy strategy and goals. Czechia also provided information on the identification of opportunities for and barriers to free and open international exchange of data, but the Party did not provide information on action taken to overcome barriers such as the occurrence of technical problems related to accessing data from international sources.

95. Czechia has implemented international and domestic policies and programmes on climate change research, systematic observation and climate modelling that aim to advance capabilities to predict and observe the physical, chemical, biological and human components of the Earth's system over space and time. One of the key ongoing projects in this area is PERUN, a long-term research project running in 2020–2026 and coordinated by CHMI. In addition, in 2018–2021, a total of 112 climate change related projects were implemented, covering research, experimental development and innovation.

96. In terms of activities related to systematic observation, Czechia reported on national plans, programmes and support for ground- and space-based climate observing systems, including satellite and non-satellite climate observation. Czechia also reported on challenges related to the maintenance of a consistent and comprehensive observation system. Czechia became a full member of the European Organization for the Exploitation of Meteorological Satellites, which monitors weather, climate and the environment, in 2010. The organization's satellite data provide the basis for Czechia's climate forecasting and warning system.

97. Systematic observation is mainly provided through CHMI, which acts as the central State institute in the areas of air quality, hydrology, water quality, climatology and meteorology. Its activities also encompass the establishment of a State monitoring and observation network for the quantitative and qualitative condition of the atmosphere and hydrosphere; the creation and administration of relevant databases; and the provision of up-to-date information on the state of the atmosphere and hydrosphere. CHMI also acts as the national communication centre in the World Weather Watch system coordinated by the World Meteorological Organization.

98. In the framework of the Global Climate Observing System, Czechia contributes to global meteorological atmospheric observations through its observations in the Milešovka, Hradec Králové and Košetice observatory centres. Czechia is also a member of the intergovernmental Group on Earth Observations and EU Copernicus programme, the main objective of which is to ensure continuous, independent and reliable access to data and information from the Earth observations for the EU. The CHMI observatory in Hradec Králové acts as the European Dobson spectrophotometry calibration centre and, together with the Slovak Hydrometeorological Institute, is active in the area of measuring ozone and solar radiation levels.

99. The NC8 reflects actions taken to support capacity-building and the establishment and maintenance of observation systems and related data and monitoring systems in developing countries. Czechia provided funding for scientists from developing countries working on global climate change research. The support covered training for students and experts (researchers, technicians and public administration) from various developing countries and the provision of various forms of regular assistance to developing countries, namely direct financial support, technology development and transfer (mostly on a bilateral basis) and capacity-building support.

100. As part of a project under the Horizon 2020 EU funding programme entitled Supporting EU–African Cooperation on Research Infrastructures for Food Security and Greenhouse Gas Observations, which ran from 2017 to 2019, training and knowledge transfer was carried out for African experts working in the public sector and academia in countries including Ghana, Kenya and Sudan in relation to climate change adaptation and climate services related to food security. CzechGlobe (the Institute of Global Change Research of the Czech Academy of Sciences) has also conducted relevant research across Europe and beyond, including in Ghana, Peru and South Africa. It has also taken part in numerous high-profile research projects within extensive international networks and provides regular visiting lectures and training at universities in the Plurinational State of Bolivia and Columbia on biodiversity research and protection in the context of climate and global change.

2. Assessment of adherence to the reporting guidelines

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

J. Education, training and public awareness

1. Technical assessment of the reported information

102. In its NC8 Czechia provided information on its actions relating to education, training and public awareness at the domestic and international level. The Party provided information on the general policy on education, training and public awareness; primary, secondary and

higher education; public information campaigns; training programmes; education materials; resource or information centres; the involvement of the public and NGOs; and its participation in international activities.

103. Czechia reported in its NC8 that the obligation to promote environmental education and public awareness arises from legislation, including act 123/1998 on the right to information on the environment and act 561/2004 on education. The State Programme of Environmental Education and Eco-counselling for 2016–2025 is a key national strategy which gives a structured vision and defines strategic areas, objectives, and measures and their implementation. A key topic of this programme is "climate change in context", which is primarily aimed at raising awareness of the causes of climate change and its negative impacts on Czechia and the rest of the world and teaching how to implement measures for both mitigation and adaptation.

104. Czechia reported in its NC8 on the integration of climate change information into basic and higher education. During the review, the Party provided materials that are used in schools, including books such as *Climate is changing – and what about us?*, a basic online educational resource (https://www.mzp.cz/cz/zmena_klima_publikace), and further explained how teachers' pedagogical skills on climate change are supported to enable them to provide appropriate information to learners at various levels. To promote interest in this area, Czechia organizes specialized support for a number of initiatives, including eco-centres for elementary schools; a working group for climate education; Enviwiki, an online encyclopedia (http://www.enviwiki.cz) for higher-grade learners; and the Universities for Climate movement.

105. NGOs in Czechia, including Greenpeace, the DUHA Movement, the Centre for Transport and Energy and the Czech Biomass Association, also play an important role in climate change awareness-raising through, for example, awareness campaigns, public debates on climate change matters, workshops and seminars. The Party reported on its involvement in a number of international projects concerned with environmental communication, education and public awareness, including a model climate conference, the BEACON project, Schools for Sustainable Development, the Eco-Schools programme, the Global Learning and Observations to Benefit the Environment programme and the United Nations Educational, Scientific and Cultural Organization Associated Schools Network. The ERT noted that the Party reported relevant challenges, including the complexity of the subject matter and resistance among communities to adapting to new climate-friendly innovations.

2. Assessment of adherence to the reporting guidelines

106. The ERT assessed the information reported in the NC8 of Czechia and identified an issue relating to completeness, and thus adherence to the UNFCCC reporting guidelines on NCs. The finding is described in table I.6.

III. Conclusions and recommendations

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

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

109. The ERT conducted a technical review of the information reported in the BR5 and BR5 CTF tables of Czechia in accordance with the UNFCCC reporting guidelines on BRs. The ERT concluded that the reported information mostly adheres to the UNFCCC reporting guidelines on BRs and that the BR5 and its CTF tables provide an overview of emissions and removals related to the Party's quantified economy-wide emission reduction target; assumptions, conditions and methodologies related to the attainment of the target; and the progress of Czechia towards achieving its target.

110. In its NC8 Czechia reported on its key national circumstances related to GHG emissions and removals, including gradual population growth and increasing demand in domestic consumption, in addition to a declaration to phase out coal-based energy by 2033, improvements in energy efficiency and increased use of RES, which are expected to reduce GHG emissions from the energy sector, which historically contributes the largest share of national GHG emissions. However, the decreasing trend in use of public transport since 1990 is expected to lead to an increase in emissions from the transport sector.

111. Czechia's total GHG emissions excluding LULUCF were estimated to be 43.1 per cent below its 1990 level in 2020, using GWP values from the AR5. Emissions peaked in 1990 and fell until 2008. Since 2009, emissions have been relatively stable. The changes in total emissions were driven mainly by factors such as economic transition (1990–1995) and the financial crisis in 2008. Thereafter, the trend is linked to investment in environmental protection, energy efficiency improvements, fuel switching from solid fuels to natural gas and increased use of renewable energies. The impact of the COVID-19 pandemic is reflected in the country's GHG emission levels, where a decrease was noted in 2020 and an increase in 2021. In addition, the LULUCF sector has been a net emitter since 2018 owing to the huge impact of the bark beetle outbreak on Czechia's forests.

112. As reported in the BR5, under the Convention Czechia committed to contributing to the achievement of the joint EU quantified economy-wide target of a 20 per cent reduction in emissions below the 1990 level by 2020. The target covers all sectors and CO_2, CH_4, N_2O, HFCs, PFCs and SF_6, expressed using GWP values from the AR4. Emissions and removals from the LULUCF sector are not included. Under the ESD Czechia has a target of limiting its emission growth to 9 per cent above the 2005 level by 2020.

113. In addition to its ESD target, Czechia committed to achieving a domestic target of a 20 per cent reduction in total GHG emissions below the 2005 level by 2020. The EU has a joint 2030 emission reduction target of at least 55 per cent below the 1990 level. This will be primarily implemented through the EU ETS and ESR, which have targets to reduce emissions by 2030 by 62 and 40 per cent respectively compared with the 2005 level. Czechia has a longer-term target of a GHG reduction of 44 Mt CO_2 eq below the 2005 level by 2030, and two longer-term indicative emission reduction targets that aim for an indicative emission level of 70 Mt CO_2 eq by 2040 and 39 Mt CO_2 eq by 2050.

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

115. The GHG emission projections provided by Czechia in its NC8 and BR5 correspond to the WEM and WAM scenarios. Under the WEM scenario, emissions in 2030 are projected to be 45.4 per cent below the 1990 level and 4.7 per cent below the 2020 level. Under the WAM scenario, emissions in 2030 are projected to be 57.1 per cent below the 1990 level and 25.0 per cent below the 2020 level.

116. Czechia's main policy framework relating to energy and climate change was the EU climate and energy policy framework for 2020 and the National Programme to Abate the Climate Change Impacts in the Czech Republic by 2020, which mainly dealt with mitigation and adaptation PaMs until 2020 and was replaced by the Climate Protection Policy of the Czech Republic in 2017. The Party described the mitigation actions that it has implemented to help it achieve its 2020 and longer-term targets, which include the cross-cutting EU ETS

and emission limits under act 201/2012 Coll. on air protection, in addition to EU directive 2009/28/EC on the promotion of the use of energy from renewable sources (offering preferential feed-in tariffs for electricity produced from RES). The combined effect of these PaMs accounts for about 54 per cent of the total estimated mitigation impact of all PaMs in 2020. The Modernisation Fund is a key additional action expected to deliver significant GHG emission reductions by 2030.

117. Czechia is not an Annex II Party and is therefore not obliged to adopt measures and fulfil obligations defined in Article 4, paragraphs 3–5, of the Convention. However, the Party provided information in its BR5 and NC8 on its provision of support to developing country Parties. The total bilateral and multilateral development cooperation support provided for adaptation, mitigation and cross-cutting activities was EUR 11,725,343 in 2020.

118. In its NC8 Czechia provided information on the expected impacts of climate change in the country; the adaptation policies covering regional, sectoral and cross-sectoral vulnerabilities and considerations; and an outline of the action taken to implement Article 4, paragraph 1(b) and (e), of the Convention with regard to adaptation. Czechia's Strategy on Adaptation to Climate Change presents the impacts of climate change and defines adaptation measures, including their mutual linkages with the expected impacts of climate change. The National Action Plan on Adaptation to Climate Change further elaborates the measures outlined in the strategy, dividing them into specific tasks which assign responsibilities and implementation deadlines and specify the relevance of the measures to individual climate change impacts and sources of financing.

119. In its NC8 Czechia provided information on its activities relating to research and systematic observation. The Party has implemented 112 research, development and innovation projects related to climate change. One of the key ongoing projects is a long-term research project called PERUN, implemented in 2020–2026 and coordinated by CHMI. Systematic observation in Czechia is mainly provided through CHMI, which acts as the central State institute in the areas of air quality, hydrology, water quality, climatology and meteorology. CHMI also acts as the national communication centre in the World Weather Watch system coordinated by the World Meteorological Organization. In the framework of the Global Climate Observing System, Czechia participates in meteorological atmospheric observations, which are conducted in three observatory centres.

120. In its NC8 Czechia provided information on its actions relating to education, training and public awareness. The Party provided detailed information with regard to policies guiding climate change education, their implementation at all levels of learning and awareness-raising activities. The integration of climate change topics within school education, the production of simplified and illustrative learning materials and collaboration at the national and international level are success stories that can be replicated elsewhere.

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

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

(i) Providing a brief description of methods for estimating the impact of all individual policies or measures (or collections of PaMs) (see issue 4 in table I.2);

(ii) Reporting the total estimated and expected effects of PaMs in accordance with the UNFCCC reporting guidelines on NCs and including information by gas and for all required years (see issue 4 in table I.3);

(b) To improve the transparency of its reporting by providing a summary of PaMs in tabular format, or if an NC is submitted in the same year as another report, including a clear reference in its NC to where the information is provided in the other report (see issue 2 in table I.2);

(c) To improve the timeliness of its reporting by submitting its next NC on time (see para. 6 above).

122. In the course of the review of Czechia's NC8, the ERT formulated the following recommendations relating to adherence to the reporting guidelines for supplementary information:

To improve the completeness of its reporting by:

(i) Providing information on measures taken to safeguard, maintain and recover data in order to ensure the integrity of data storage and the recovery of registry services in the event of a disaster (see issue 1 in table I.7);

(ii) Providing information on provisions to make publicly accessible information on legislative arrangements and enforcement and administrative procedures (e.g. rules on enforcement and administrative procedures, and action taken) (see issue 2 in table I.7).

123. In the course of the review of Czechia's BR5, the ERT formulated the following recommendations relating to adherence to the UNFCCC reporting guidelines on BRs:

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

(i) Providing consistent information on its use of market-based mechanisms across the CTF tables (see issue 1 in table II.1);

(ii) Ensuring consistency in the information reported on its mitigation actions between the textual part and the CTF tables (see issue 1 in table II.2);

(iii) Providing more detailed information on where the mitigation impacts of PaMs reported as "IE" are included (see issue 2 in table II.2);

(iv) Providing information on the contribution of market-based mechanisms through the use of numerical values, notation keys or appropriate footnotes, and providing further information as appropriate if multiple notation keys are reported (see issue 1 in table II.3);

(b) To improve the timeliness of its reporting (see para. 8 above).

Annex I

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

Tables I.1–I.7 summarize the ERT assessment of adherence to the UNFCCC reporting guidelines on NCs for Czechia's NC8.

Table I.1
Findings on greenhouse gas inventory information from the review of the eighth national communication of Czechia

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 7 Issue type: completeness Assessment: encouragement	The Party did not provide a description of the factors underlying emission trends. During the review Czechia provided information by sector on the main reasons for and factors underlying GHG emission trends in 1990–2020. The Party explained that for the LULUCF sector, a severe drought-induced bark beetle disaster in 2017 resulted in a significantly increased sanitary harvest and higher total wood extraction, whereas for the energy sector, the key factors underlying emission trends were the main steps in implementing its climate and energy policy (commissioning two nuclear power plants in 2002–2003 and coordinating the national energy and climate policy with the EU in 2004) and economic changes (end of communist regime in 1989 and the 2008 recession). The ERT encourages the Party to provide in its next NC information on key factors underlying emission trends, such as the implementation of significant PaMs or economic events impacting sectoral emission trends.

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

Table I.2
Findings on policies and measures from the review of the eighth national communication of Czechia

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 10 Issue type: completeness Assessment: encouragement	The Party did not report on PaMs that are innovative and/or effectively replicable by other Parties except for its description of an innovative approach to reducing the risk of tree mortality in NC8 section 6.3.3. During the review Czechia provided information on its successful and long-standing Green Savings/New Green Savings Programme for energy efficiency in households, which provided inspiration and examples of good practice to several EU member States designing similar programmes. It also noted that some examples of best practice could be found at the website for the annual Adapterra Awards (https://www.adapterraawards.cz/en). Czechia also mentioned that under the action "Operational Program Technology and application for competitiveness (OP TAC) 2021–2027", support could be targeted at innovative start-ups and that a condition for obtaining funding required projects to be sufficiently innovative. The ERT encourages Czechia to report in its next NC on PaMs that are innovative and/or effectively replicable by other Parties.
2	Reporting requirement specified in paragraph 14 Issue type: transparency Assessment: recommendation	The Party did not include a table listing a summary of PaMs in its NC8. This information was provided in CTF table 3 of the BR5, but no reference was included in the NC8. During the review Czechia clarified that a simplified summary table containing less information than CTF table 3 was included as annex 3 to the NC8. The ERT recommends that Czechia provide in its next NC a summary of PaMs in tabular format, or if the NC is submitted in the same year as another report, include a clear reference in its NC to where the information is provided in the other report.

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
3	Reporting requirement specified in paragraph 18 Issue type: transparency Assessment: encouragement	Although the Party provided some information on the way in which progress of PaMs for mitigating GHG emissions is monitored and evaluated as part of its reporting on the policy "4.2.4 Governance of the Energy Union", it did not mention the key role of the interministerial working group on climate change issues, also referred to as the Interministerial Working Group on Climate Protection, in monitoring the progress of mitigation PaMs. During the review Czechia explained that information on progress was collected from various government departments and compiled by the MoE. In 2021, the Government carried out an evaluation of the Climate Protection Policy of the Czech Republic, and similar evaluation is also required for other key policies and strategies, such as the State Energy Policy. As part of the ongoing update of the Climate Protection Policy of the Czech Republic, the Party plans to improve its system for monitoring, evaluation and indicators. The Party also confirmed the key role of the interministerial working group on climate change issues, also referred to as the Interministerial Working Group on Climate Protection, in monitoring progress of mitigation PaMs. The Party further explained that for many EU-wide PaMs and targets, progress is generally monitored in line with the EU regulation on the governance of the Energy Union and climate action, which requires EU member States to develop and implement integrated NECPs and regularly report on their progress of implementation. Czechia's first such report was submitted in 2023. With the adoption of the "Fit for 55" legislative package, further implementing acts and revisions of existing regulations will ensure that EU rules are fit for planning, monitoring and reporting progress towards the EU 2030 climate and energy targets and the Party's international commitments under the Paris Agreement. The ERT reiterates the encouragement from the previous review for the Party to increase transparency in reporting by ensuring that the next NC include information on the relevant institutional arrangements for monitoring GHG mitigation policy, including indicators and entities used to monitor and evaluate the progress of each of its PaMs over time, such as the newly established Interministerial Working Group on Climate Protection.
4	Reporting requirement specified in paragraph 20 Issue type: completeness Assessment: recommendation	The Party did not report a brief description of methods for estimating the impact of some individual policies or measures (or collections of PaMs). During the review Czechia provided a brief description of the estimation methods for a few PaMs, including information on the Modernisation Fund, for which the estimate of mitigation impact was based on a scoping study conducted by a consortium led by ICF in cooperation with the Czech company Enviros as part of the Directorate-General for Structural Reform Support programme. The ERT recommends that Czechia provide in its next NC a brief description of methods for estimating the impact of all individual policies or measures (or collections of PaMs).
5	Reporting requirement specified in paragraph 21 Issue type: completeness Assessment: encouragement	The Party did not report in its NC8 information on the costs of PaMs, non-GHG mitigation benefits or how a policy or measure interacts with other PaMs at the national level. During the review Czechia confirmed that such information was not included in its NC8 and provided information on estimates of costs for some PaMs (for six PaMs, gross costs in euros per t CO_2 eq reduced/sequestered and for 15 others, the projected absolute cost per year in euros). Czechia also explained that it has not yet reported on non-GHG mitigation benefits or interactions with other PaMs at the national level but it included information on the impacts of some PaMs on production of energy from renewable sources and energy savings, where available, in the NC8. The ERT encourages the Party to provide in its next NC information on costs of PaMs, non-GHG mitigation benefits and how a policy or measure interacts with other PaMs at the national level.

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

Table I.3
Findings on projections including aggregate effects of policies and measures reported in the eighth national communication of Czechia

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 25 Issue type: completeness Assessment: encouragement	The Party did not report WOM scenario projections in its NC8. During the review Czechia explained that it does not plan to report WOM scenario projections in the near future owing to the prioritization of resources for mandatory reporting. The ERT reiterates the encouragement from the previous review for the Party to report in its next NC projections under the WOM scenario or explain why they could not be reported.
2	Reporting requirement specified in paragraph 29 Issue type: transparency Assessment: encouragement	The Party provided projections for the WEM and WAM scenarios in its NC8. However, the starting point for these projections is 2018. During the review Czechia explained that this is due to the impacts of the COVID-19 pandemic and a lack of time to update the projections using the most recent inventory data. The ERT encourages Czechia to use the most recent inventory year as the starting point for the projections in its next NC.
3	Reporting requirement specified in paragraph 32 Issue type: completeness Assessment: encouragement	The Party did not report projections of the indirect GHGs carbon monoxide, nitrogen oxides and non-methane volatile organic compounds, or sulfur oxides, in its NC8. During the review Czechia explained that such projections are not available and there are no planned improvements in this regard for the near future owing to the prioritization of resources for elements of mandatory reporting. The ERT reiterates the encouragement from the previous review for the Party to include in its next NC projections of indirect GHG emissions or to provide an explanation as to why it is not possible to do so.
4	Reporting requirement specified in paragraph 37 Issue type: completeness Assessment: recommendation	The Party provided the total estimated and expected effects of its PaMs for 2020 and 2030 on a CO_2 eq basis but did not report the total effects in terms of GHG emissions avoided or sequestered by gas for 2025 and 2035. During the review Czechia stated that it will include in the next submission an estimate of the total effects of PaMs in accordance with the UNFCCC reporting guidelines on NCs. The ERT recommends that Czechia report in its next NC the total estimated and expected effects of PaMs in accordance with the UNFCCC reporting guidelines on NCs and include information by gas and for all required years.
5	Reporting requirement specified in paragraph 42 Issue type: completeness Assessment: encouragement	The Party did not report the main differences between the results of energy sector projections reported in the most recent NC and those previously reported, although information on significant methodological changes is provided in the NC8. During the review Czechia explained that information on changes in energy projections since the last submission is provided in the NC8 in chapter 5.1.2 (on p.184) and in table 5.49. However, the Party did not provide additional information concerning specifically differences in energy projections results. The ERT encourages the Party to report in its next NC information on the main differences between the results of projections reported in the most recent NC and those previously reported for all sectors.
6	Reporting requirement specified in paragraph 43 Issue type: transparency Assessment: encouragement	The Party reported a sensitivity analysis for the projections in its NC8 but for some sectors the sensitivity of the projections to underlying assumptions was not discussed qualitatively and, where possible, quantitatively. For example, reported information covered the ±5 per cent change of input AD for category 1.A fuel combustion in the energy sector, the Monte Carlo method used for category 1.A.3 in the transport sector, and the relatively small changes in harvest demand significantly affecting emissions from the LULUCF sector. During the review Czechia explained that when the projections were made, only AD for the energy sector were used as a parameter.

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
		The ERT encourages the Party to discuss in its next NC the sensitivity of the projections to underlying assumptions qualitatively and, where possible, quantitatively.

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

Table I.4
Findings on vulnerability assessment, climate change impacts and adaptation measures from the review of the eighth national communication of Czechia

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 46 Issue type: transparency Assessment: encouragement	Czechia reported in its NC8 on the use of relevant methodologies and guidelines for assessing climate change impacts, vulnerability and adaptation measures. However, it is not clear how the Party used the methodologies and guidelines to estimate the relevant impacts. During the review Czechia explained how the impacts of climate change and adaptation measures were estimated. The Party clarified that the methodology and data sources were based on the National Action Plan on Adaptation to Climate Change, and that data for the vulnerability indicators are regularly collected. The assessment was conducted in 2017 and 2019. Vulnerability was also evaluated on the basis of the updated National Action Plan on Adaptation to Climate Change and most of the climate change landscape of Czechia was considered, including drought, floods and flash floods, rising temperatures, extreme temperatures, extreme wind, vegetation fires and heavy rainfall. The ERT encourages the Party to increase the transparency of reporting in its next NC by showcasing the link between the methodologies and guidance referenced and the impacts reported.
2	Reporting requirement specified in paragraph 47 Issue type: completeness Assessment: encouragement	Czechia did not report in its NC8 information on the monitoring framework for implemented adaptation strategies or plans. During the review Czechia explained that the status of implementation of the adaptation strategies and plans is monitored through the implementation of the National Action Plan on Adaptation to Climate Change. The MoE conducts the evaluation once a year by collecting information from the relevant institutions and the MoE departments responsible for implementing a total of 350 measures under the action plan. The final evaluation will be undertaken in 2024 and should contribute to the update of both the Strategy on Adaptation to Climate Change of Czechia and the National Action Plan on Adaptation to Climate Change. The ERT encourages the Party to report in its next NC information on the monitoring framework for implemented adaptation strategies or plans.

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

Table I.5
Findings on research and systematic observation from the review of the eighth national communication of Czechia

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 64 Issue type: transparency Assessment: encouragement	The Party reported in its NC8 a list of projects; the total volume of funding provided to research and development projects, which reached CZK 1.3 billion in 2021; and the funding structure for 2018, 2019, 2020 and 2021. However, the Party's general policy on research and systematic observation was not sufficiently described; in particular, there was no description of the strategic goals. During the review Czechia explained that its science policy is outlined in a document entitled *National Research, Development and Innovation Policy of the Czech Republic 2021+*, which defines five strategic objectives and 28 actions for achieving them. Information on an action includes the timescales for implementation, fulfilment indicators and entities responsible or jointly responsible for its implementation. The

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
		objectives are as follows: (1) put in place a strategically managed and effectively funded system of research, development and innovation; (2) support research organizations in creating motivational working conditions and developing human capacity across the research and development spectrum; (3) improve the quality and international excellence of research and development in Czechia, make Czechia more open to and attractive for international research and development and intensify the integration of Czech research, development and innovation within the European Research Area; (4) promote broader cooperation between the research and application spheres in research, development and innovation; and (5) achieve the expansion of research, development and innovation in businesses and the public sector.
		The ERT encourages Czechia to increase the transparency of its reporting by providing in its next NC information on its general policy on research and systematic observation, including its policy strategy and goals.
2	Reporting requirement specified in paragraph 65	Czechia reported in its NC8 on international exchange of data and information. However, information on barriers to free and open international exchange of data and information was not provided.
	Issue type: completeness	During the review Czechia explained that it experienced a problem with receiving international data owing to technical issues with the Czech system. However, the Party did not provide any further information concerning possible solutions to this issue.
	Assessment: encouragement	The ERT encourages Czechia to provide in its next NC information on any barriers to the free and open international exchange of data and information and actions taken to overcome them.

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

Table I.6

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

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 68	The Party did not report on public participation in the preparation or domestic review of the NC8.
	Issue type: completeness	During the review Czechia explained that the NC8 was approved via email by the Interministerial Coordination Group, which includes several environmental NGOs in addition to industry and business representatives. The Party acknowledged that the general public was not consulted but stated that all NCs are publicly available on the MoE website.
	Assessment: encouragement	The ERT encourages the Party to provide in its next NC information regarding public participation in NC preparation or domestic review.

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

Table I.7

Findings on minimization of adverse impacts and supplementary information related to the Kyoto Protocol reported in the eighth national communication of Czechia

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation*
1	Reporting requirement specified in paragraph 32	The Party did not describe measures taken to safeguard, maintain and recover data in order to ensure the integrity of data storage and the recovery of registry services in the event of a disaster in its NC8. The Party reported that "The overview of security measures, list of publicly accessible information and description of disaster recovery plan is provided in chapter 15.2 of the NIR, which was submitted to the secretariat of the UNFCCC in April 2022, and separate annexes referenced in chapter 15.2 which were submitted together with NIR." However, the ERT did not find a description of a disaster recovery plan in Czechia's 2022 or 2023 NIRs.
	Issue type: completeness	
	Assessment: recommendation	

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation*
		During the review Czechia provided the disaster recovery plan and clarified that there have been no changes to the plan for several years. The ERT recommends that Czechia provide information on measures taken to safeguard, maintain and recover data in order to ensure the integrity of data storage and the recovery of registry services in the event of a disaster. The ERT concludes that this potential problem of a mandatory nature does not influence the Party's ability to fulfil its commitments for the second commitment period of the Kyoto Protocol.
2	Reporting requirement specified in paragraph 37 Issue type: completeness Assessment: recommendation	The Party did not report in its NC8 a description of any provisions to make information on legislative arrangements and enforcement and administrative procedures (e.g. rules on enforcement and administrative procedures, action taken) publicly accessible. During the review Czechia explained that a description of such provisions was not included in its NC8. The Party further explained that provisions to make publicly accessible information on legislative arrangements and enforcement and administrative procedures were mostly included in relevant EU legislation, namely the EU regulation on the governance of the Energy Union and climate action. Czechia also noted that regarding the EU ETS relevant information is available on the websites of the MoE and the Czech Emission Trading Registry, and that some information was published directly by the European Commission. The ERT reiterates the recommendation from the previous review report that Czechia provide information on provisions to make publicly accessible information on legislative arrangements and enforcement and administrative procedures (e.g. rules on enforcement and administrative procedures, and action taken). The ERT concludes that this potential problem of a mandatory nature does not influence the Party's ability to fulfil its commitments for the second commitment period of the Kyoto Protocol.

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

Annex II

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

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

Table II.1
Findings on the quantified economy-wide emission reduction target from the review of the fifth biennial report of Czechia

No.	*Reporting requirement and issue type*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 5 Issue type: transparency Assessment: recommendation	The Party reported a complete description of its economy-wide emission reduction target in its BR5. However, the Party did not report the same information in CTF table 2(e)I "Description of quantified economy-wide emission reduction target: market-based mechanisms under the Convention" or CTF table 4 "Reporting on progress"; the former includes empty cells, whereas the latter reports notation keys to indicate that market-based mechanisms would not be used for fulfilling Czechia's target under the Convention. During the review Czechia confirmed that it did not intend to use any market-based mechanisms for fulfilling its target under the Convention and had not used any. The ERT recommends that Czechia improve the transparency of its reporting in the next submission by providing consistent information on its use of market-based mechanisms across the CTF tables.

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

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

No.	*Reporting requirement and issue type*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 6 Issue type: transparency Assessment: recommendation	The ERT noted some inconsistencies in the information reported between CTF table 3 of the BR5 and the textual part of the BR5 (including reference to information on PaMs contained in the NC8), especially in relation to mitigation impacts of PaMs. For several mitigation actions, such as the "Modernisation Fund", "ICAO Agreement", "Waste Management Plan of the Czech Republic for the period 2015–2024", "Operational Programme Environment 2007–2013" and the "New Green savings programme 2013–2020 and 2014–2030", the quantified mitigation impacts reported in CTF table 3 differ from the values reported in the BR5. In addition, the quantified mitigation impacts were reported for some mitigation actions for 2020 and 2030 in CTF table 3, but for 2035 in the BR5. For the "Modernisation Fund" action, the mitigation impacts were reported in units of TJ instead of kt CO_2 eq, although the amounts matched those expressed in kt

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

No.	*Reporting requirement and issue type*	*Description of the finding with recommendation or encouragement*
		CO_2 eq, and while the starting date of implementation was 2021, some mitigation impacts were reported for 2020. During the review Czechia explained that during preparation of its NC8/BR5 some mitigation impact estimates were not consistently updated in CTF table 3 or were not available and noted that it will set up quality control procedures to ensure that CTF table 3 is updated correctly, errors introduced during the update are reduced and discrepancies between the CTF table and the textual part of its next report are eliminated. The ERT reiterates the recommendation from the previous review report that Czechia ensure consistency in the information reported on its mitigation actions between the textual part and the CTF tables in its next submission.
2	Reporting requirement specified in CTF table 3 Issue type: transparency Assessment: recommendation	The Party did not report estimates of mitigation impacts for some mitigation actions in CTF table 3 or the textual part of its BR5 and instead reported them as "IE" without specifying where the effects were included. During the review Czechia clarified that in order to avoid double counting, mitigation impacts of PaMs for which "IE" was reported in relation to their mitigation impact were included in the quantitative information reported for other PaMs. For example in the case of the Kigali Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer, the effect was included in data reported for regulation 517/2014 on F-gases. The ERT recommends that Czechia provide in its next submission more detailed information on where the mitigation impacts of PaMs reported as "IE" are included.

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

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

No.	*Reporting requirement and issue type*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 10 Issue type: transparency Assessment: recommendation	The Party reported information on progress made towards its emission reduction targets in its BR5. However, with regard to the use of market-based mechanisms, Czechia reported in CTF table 4 "NA" for 2010–2012 and "NO" for each year between 2013 and 2020 and did not provide an explanation for the use of two different notation keys. During the review Czechia clarified that it did not use units from market-based mechanisms for any year. The ERT recommends that the Party increase the transparency of its reporting by providing in its next submission information on the contribution of market-based mechanisms through the use of numerical values, notation keys or appropriate footnotes, and providing further information as appropriate if multiple notation keys are reported. The ERT noted that a Party can report "NA" if it does not plan to use units from market-based mechanisms and "0" if it intends to use units from market-based mechanisms but did not use units in a particular year.

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

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

No.	*Reporting requirement and issue type*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement[a] specified in paragraph 25 Issue type: completeness	The Party did not report WOM scenario projections in its BR5. During the review Czechia explained that such projections are not available and are not planned in the near future owing to the prioritization of resources for elements of mandatory reporting.

No.	*Reporting requirement and issue type*	*Description of the finding with recommendation or encouragement*
	Assessment: encouragement	The ERT reiterates the encouragement from the previous review for the Party to report in its next submission projections under the WOM scenario or explain why they could not be reported.
2	Reporting requirement[a] specified in paragraph 29 Issue type: transparency Assessment: encouragement	The Party provided projections for the WEM and WAM scenarios in its BR5. However, the starting point of these projections is 2018. During the review Czechia explained that this was due to the COVID-19 pandemic and a lack of time to update the projections using the most recent inventory data. The ERT encourages Czechia to use the most recent inventory year as the starting point for the projections in its next submission.
3	Reporting requirement[a] specified in paragraph 32 Issue type: completeness Assessment: encouragement	The Party did not report in its BR5 projections of the indirect GHGs carbon monoxide, nitrogen oxides and non-methane volatile organic compounds, or sulfur oxides. During the review Czechia explained that such projections are not available and no improvements in this regard are planned in the near future owing to the prioritization of resources for elements of mandatory reporting. The ERT reiterates the encouragement from the previous review for the Party to report in its next submission projections of indirect GHG emissions or to provide an explanation as to why it is not possible to do so.
4	Reporting requirement[a] specified in paragraph 42 Issue type: completeness Assessment: encouragement	The Party did not report the main differences between the results of the energy sector projections reported in the most recent NC and those previously reported, although information on significant methodological changes is provided in the NC8. During the review Czechia explained that information on changes in energy projections since the last submission is provided in the NC8 in chapter 5.1.2 (on p. 184) and in table 5.49. However, the Party did not provide additional information specifically concerning differences in energy projections results. The ERT encourages the Party to report in its next submission information on the main differences between results of projections reported in the most recent NC and those previously reported for all sectors.
5	Reporting requirement[a] specified in paragraph 43 Issue type: transparency Assessment: encouragement	The Party reported a sensitivity analysis for the projections in its NC8 but for some sectors the sensitivity of the projections to underlying assumptions was not discussed qualitatively and, where possible, quantitatively. For example, reported information covered the ±5 per cent change of input AD for category 1.A fuel combustion in the energy sector, the Monte Carlo method used for category 1.A.3 in the transport sector, and the relatively small changes in harvest demand significantly affecting emissions from the LULUCF sector. During the review Czechia explained that when the projections were made, only AD for the energy sector were used as a parameter. The ERT encourages the Party to discuss in its next submission the sensitivity of the projections to underlying assumptions qualitatively and, where possible, quantitatively.

Note: The reporting on the requirements not included in this table is considered to be complete and transparent, and thus adheres to the UNFCCC reporting guidelines on NCs and on BRs.

[a] Item listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on NCs, as per para. 11 of the UNFCCC reporting guidelines on BRs.

Annex III

Documents and information used during the review

A. Reference documents

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

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

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

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

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

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

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

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

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

"Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications". FCCC/CP/2019/13/Add.1. Available at https://unfccc.int/documents/210471.

"Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol". Annex to 15/CMP.1. Available at https://unfccc.int/documents/4253.

"Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol". Annex III to decision 3/CMP.11. Available at https://unfccc.int/documents/9101.

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

National energy and climate plans of Czechia. Available at https://energy.ec.europa.eu/system/files/2020-03/cs_final_necp_main_en_0.pdf.

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

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

Report on the individual review of the annual submission of Czechia submitted in 2022. FCCC/ARR/2022/CZE. Available at https://unfccc.int/process-and-meetings/transparency-and-reporting/reporting-and-review-under-the-convention/greenhouse-gas-inventories-annex-i-parties/inventory-review-reports-2022.

Report on the technical review of the BR4 of Czechia. FCCC/TRR.4/CZE. Available at https://unfccc.int/documents/254261.

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

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

B. Additional information provided by the Party

Responses to questions during the review were received from Michal Danhelka (MoE), including additional material. The following references were provided by Czechia and may not conform to UNFCCC editorial style as some have been reproduced as received:

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