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Report on the technical review of the fourth biennial report of Czechia

Developed country Parties were requested by decision 2/CP.17 to submit their fourth biennial report to the secretariat by 1 January 2020. This report presents the results of the technical review of the fourth 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 took place from 15 to 19 June 2020 in Bonn remotely.

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Abbreviations and acronyms

AEA	annual emission allocation
Annex II Party	Party included in Annex II to the Convention
AR	Assessment Report of the Intergovernmental Panel on Climate Change
BR	biennial report
CH ₄	methane
COPERT	software tool for calculating road transport emissions
CO ₂	carbon dioxide
CO ₂ eq	carbon dioxide equivalent
CTF	common tabular format
EFISCEN	European Forest Information Scenario model
ERT	expert review team
ESD	European Union effort-sharing decision
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
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
NA	not applicable
NC	national communication
NE	not estimated
NECP	National Energy and Climate Plan
NF ₃	nitrogen trifluoride
NIR	national inventory report
NO	not occurring
N ₂ O	nitrous oxide
PaMs	policies and measures
PFC	perfluorocarbon
QA/QC	quality assurance/quality control
SF ₆	sulfur hexafluoride
UNFCCC reporting guidelines on BRs	“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 centralized technical review of the BR4¹ 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” (annex to decision 13/CP.20).

2. In accordance with the same decision, 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 together with the review of five other Parties included in Annex I to the Convention from 15 to 19 June 2020 remotely² by the following team of nominated experts from the UNFCCC roster of experts: Hans Halvorson Kolshus (Norway), Elisabeth Pagnac-Farbiaz (France) and Awassada Phongphiphat (Thailand). Mr. Kolshus was the lead reviewer. The review was coordinated by Manuel Estrada (secretariat).

B. Summary

4. The ERT conducted a technical review of the information reported in the BR4 of Czechia in accordance with the UNFCCC reporting guidelines on BRs (annex I to decision 2/CP.17).

1. Timeliness

5. The BR4 was submitted on 29 November 2019, before the deadline of 1 January 2020 mandated by decision 2/CP.17. The CTF tables were also submitted on 29 November 2019.

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

6. Issues and gaps identified by the ERT related to the reported information are presented in table 1. The information reported by Czechia in its BR4 mostly adheres to the UNFCCC reporting guidelines on BRs.

Table 1

Summary of completeness and transparency of mandatory information reported by Czechia in its fourth biennial report

<i>Section of BR</i>	<i>Completeness</i>	<i>Transparency</i>	<i>Reference to description of recommendation(s)</i>
GHG emissions and removals	Mostly complete	Transparent	Issue 1 in table 3
Quantified economy-wide emission reduction target and related assumptions, conditions and methodologies	Complete	Transparent	–
Progress in achievement of targets	Mostly complete	Mostly transparent	Issues 1–2 in table 5 Issue 1 in table 7 Issue 6 in table 11
Provision of support to developing country Parties ^a	NA	NA	NA

¹ The BR submission comprises the text of the report and the CTF tables, which are both subject to the technical review.

² Owing to the circumstances related to the coronavirus disease 2019, the technical review of the BR submitted by Czechia had to be conducted remotely.

Note: A list of recommendations pertaining to the completeness and transparency issues identified in this table is included in chap. III below. 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 fourth biennial report

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

1. Technical assessment of the reported information

7. Total GHG emissions³ excluding emissions and removals from LULUCF decreased by 35.6 per cent between 1990 and 2018, whereas total GHG emissions including net emissions or removals from LULUCF decreased by 30.7 per cent over the same period. Emissions reached the highest point in 1990 and decreased thereafter until 2018. The changes in total emissions were driven mainly by a major decline in heavy industry activities during the transition to a market economy. Table 2 illustrates the emission trends by sector and by gas for Czechia. Note that information in this paragraph and table 2 is based on Czechia’s 2020 annual submission, version 1, which has not yet been subject to review. All emission data in subsequent chapters are based on Czechia’s BR4 CTF tables unless otherwise noted. The emissions reported in the 2019 annual submission, which has been subject to review, are the same as reported in CTF table 1.

Table 2

Greenhouse gas emissions by sector and by gas for Czechia for 1990–2018

	GHG emissions (kt CO ₂ eq)					Change (%)		Share (%)	
	1990	2000	2010	2017	2018	1990–	2017–	1990	2018
						2018	2018		
<i>Sector</i>									
1. Energy	161 316.31	122 160.27	112 491.76	99 013.34	96 875.70	–39.9	–3.4	81.8	76.0
A1. Energy industries	56 855.14	62 061.95	62 122.33	51 771.10	51 071.61	–10.2	1.9	28.8	40.1
A2. Manufacturing industries and construction	47 113.14	23 425.64	12 112.38	10 311.22	9 958.91	–78.9	–7.7	23.9	7.8
A3. Transport	11 484.85	12 119.26	16 832.27	18 706.61	19 055.34	65.9	–6.9	5.8	15.0
A4. and A5. Other	34 001.67	17 427.36	15 633.26	14 587.51	13 467.93	–60.4	–30.7	17.2	10.6
B. Fugitive emissions from fuels	11 861.51	7 126.06	5 791.51	3 636.91	3 321.92	–72.0	–8.7	6.0	2.6
C. CO ₂ transport and storage	NO	NO	NO	NO	NO	–	–	–	–
2. IPPU	17 113.01	14 890.03	15 063.17	15 610.65	16 262.90	–5.0	4.2	8.7	12.8
3. Agriculture	15 648.71	8 553.86	7 483.80	8 789.24	8 606.50	–45.0	–2.1	7.9	6.8
4. LULUCF	–5 686.64	–8 042.42	–6 239.91	–2 315.29	5 794.15	–201.9	–350.3	NA	NA
5. Waste	3 124.51	3 853.46	4 861.48	5 645.77	5 704.49	82.6	1.0	1.6	4.5
6. Other ^a	NO	NO	NO	NO	NO	–	–	–	–
<i>Gas^b</i>									
CO ₂	164 204.21	127 066.45	117 500.71	105 641.73	104 411.21	–36.4	–1.2	83.3	81.9
CH ₄	23 527.89	15 378.58	14 445.97	13 280.21	13 154.94	–44.1	–0.9	11.9	10.3
N ₂ O	9 386.21	6 481.38	5 401.23	6 420.31	6 072.34	–35.3	–5.4	4.8	4.8
HFCs	NO	418.11	2 421.35	3 637.91	3 736.11	–	2.7	–	2.9

³ In this report, the term “total GHG emissions” refers to the aggregated national GHG emissions expressed in terms of CO₂ eq excluding LULUCF and including indirect CO₂ emissions, unless otherwise specified.

	GHG emissions (kt CO ₂ eq)					Change (%)		Share (%)	
	1990	2000	2010	2017	2018	1990– 2018	2017– 2018	1990	2018
	PFCs	NO	4.69	48.04	1.48	1.33	–	–10.4	–
SF ₆	84.24	108.40	82.76	74.03	70.56	–16.2	–4.7	0.0	0.1
NF ₃	NO	NO	0.15	3.33	3.11	–	–6.7	–	0.0
Total GHG emissions excluding LULUCF	197 202.55	149 457.61	139 900.21	129 059.00	127 449.60	–35.4	–1.2	100.0	100.0
Total GHG emissions including LULUCF	191 515.91	141 415.19	133 660.30	126 743.71	133 243.75	–30.4	5.1	NA	NA
Total GHG emissions excluding LULUCF, including indirect CO₂	199 067.16	150 632.63	140 878.15	129 777.01	128 139.42	–35.6	–1.3	NA	NA
Total GHG emissions including LULUCF, including indirect CO₂	193 380.53	142 590.22	134 638.25	127 461.72	133 933.57	–30.7	5.1	NA	NA

Source: GHG emission data: Czechia's 2020 annual submission, version 1.

^a Emissions and removals reported under the sector other (sector 6) are not included in the total GHG emissions.

^b Emissions by gas without LULUCF and including indirect CO₂.

8. In brief, Czechia's national inventory arrangements were established in accordance with the Kyoto Protocol, decision 20/CP.7 and the EU monitoring mechanism regulation (regulation 525/2013). The Czech Hydrometeorological Institute, under the supervision of the Ministry of the Environment, is designated as the coordinating and managing organization responsible for compiling the national GHG inventory and reporting its results. The Institute's main tasks include inventory management, addressing general and cross-cutting issues, QA/QC and communication with the relevant UNFCCC and EU bodies. During the review the Party explained that the changes in these arrangements since the BR3 include the appointment of a new QA/QC manager during the preparation of the inventory submitted in 2018.

2. Assessment of adherence to the reporting guidelines

9. The ERT assessed the information reported in the BR4 of Czechia and identified an issue relating to completeness and thus adherence to the UNFCCC reporting guidelines on BRs. The finding is described in table 3.

Table 3

Findings on greenhouse gas emissions and removals from the review of the fourth biennial report of Czechia

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
1	Reporting requirement specified in paragraph 3 Issue type: completeness Assessment: recommendation	The Party did not report in its BR4 on the changes to the national inventory arrangements since its last NC or BR. During the review Czechia explained that while preparing the inventory submitted in 2018 a new QA/QC manager was hired, who worked together with the previous QA/QC manager. Czechia further explained that there were no changes in the inventory arrangements after 2018. The ERT recommends that Czechia provide in its next BR information on the changes to the national inventory arrangements since the last NC or BR, or report that there have been no changes.

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, transparent and thus adhering to the UNFCCC reporting guidelines on BRs.

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

1. Technical assessment of the reported information

10. 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.

11. 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 CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ 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. 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.

12. The EU 2020 climate and energy package includes the EU ETS and the ESD (see paras. 25–26 below). The EU ETS covers mainly point emissions sources in the energy, industry and aviation sectors. An EU-wide emission cap has been put in place for 2013–2020 with the goal of reducing emissions by 21 per cent below the 2005 level by 2020. Emissions from ESD sectors are regulated through member State specific targets that add up to a reduction at the EU level of 10 per cent below the 2005 level by 2020.

13. 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 Commission proposed in March 2020 to enshrine the 2050 climate-neutrality target into the first European Climate Law. The European Green Deal calls for increased ambition in the 2030 emission reduction target to at least 50 per cent below the 1990 level. Member States will set out any increased ambition in the update of their NECPs.

14. Czechia has a national target of limiting its emission growth to 9 per cent above the 2005 level by 2020 for sectors under the ESD. 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 CO₂ eq in 2013 to 67,204.65 kt CO₂ eq in 2020.⁴

15. The EU has pledged a nationally determined contribution under the Paris Agreement and it has been adopted by the EU under the 2030 climate and energy framework. Overall, the emission reduction target is to reduce emissions by at least 40 per cent by 2030 compared with the 1990 level. For Czechia this translates into a reduction of 14 per cent below the 2005 level by 2030 for sectors under the ESD.

2. Assessment of adherence to the reporting guidelines

16. The ERT assessed the information reported in the BR4 of Czechia and recognized that the reporting is complete, transparent and thus adhering to the UNFCCC reporting guidelines on BRs. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

⁴ European Commission decision 2017/1471 amended decision 2013/162/EU to revise member States' AEAs for 2017–2020.

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

1. Mitigation actions and their effects

(a) Technical assessment of the reported information

17. Czechia provided information on its package of PaMs implemented, adopted and planned, by sector and by gas, in order to fulfil its commitments under the Convention. 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.

18. Czechia provided information on a set of PaMs similar to those previously reported, with a few exceptions. The ERT noted that some implemented or planned policies in the energy sector (renewable energy and renewable and alternative fuels) are mentioned in the NC7 but not in the BR4. Czechia reported that there have been no changes since its previous submission to its institutional, legal, administrative and procedural arrangements used for domestic compliance, monitoring, reporting, archiving of information and evaluation of progress towards its target.

19. In its reporting on its PaMs, Czechia provided the estimated emission reduction impacts for many of its PaMs. Where estimated impacts were not provided, the Party did not supply an explanation in the BR4 or CTF table 3. During the review, the Party explained that, for the agriculture and LULUCF sectors, this was due to insufficient data. Czechia also explained that it estimated the impacts of some of its PaMs as a group, but the ERT noted that it is not transparent in the BR where these have been reported.

20. The Party described the general methodology used to estimate the impacts of its PaMs. The Party used the same methodology, emission factors and activity data as those described in its 2020 annual submission. The methodology used is in line with previous reports, and includes use of the GHG inventory; identification of key sources; data collection; and uncertainty analyses.

21. The Party did not report on the domestic arrangements established for its self-assessment of compliance with its emission reductions relative to its emission reduction commitments or the level of emission reduction required by science. During the review, the Party explained that it is planning to include such information in its next BR. The Party also explained that it has in place a national system for reporting on PaMs and projections, and plans to further enhance the system in line with the new EU regulation on the governance of the Energy Union and climate action (regulation 2018/1999). The Party further explained that the interministerial working group on climate change issues serves to assess the progress and share information with different stakeholders, and that the Party has established a process for evaluating and updating its Climate Protection Policy, which serves as its long-term strategy in line with the Paris Agreement. The ERT welcomes the additional information and encourages the Party to provide such information in its next BR.

22. The Party did not report on the progress made in the establishment of national rules for taking local action against domestic non-compliance with emission reduction targets. During the review, the Party explained that it is planning to include such information in its next BR. The Party also provided information that the national rules for taking action against possible non-compliance of entities included in the EU ETS were established by act 383/2012 on conditions for trading of emission allowances. The ERT welcomes the additional information and encourages the Party to provide such information in its next BR.

23. The key overarching related cross-sectoral policy in the EU is the 2020 climate and energy package, adopted in 2009, which includes the revised EU ETS and the ESD. The package is supplemented by renewable energy and energy efficiency legislation and legislative proposals on the 2020 targets for CO₂ 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 2030 climate and energy framework, adopted in 2014, includes more ambitious targets that will be updated as part of the European Green Deal.

24. The achievement of the Energy Union objectives and targets is ensured through a combination of Energy Union initiatives and national policies set out in integrated NECPs. 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 the country is committed to reaching a 22 per cent share for renewable energy sources in final energy consumption by 2030, and has a new commitment for energy efficiency that, by 2030, the Party's national final energy consumption should reach 970 PJ, with primary energy consumption amounting to 1,735 PJ and energy intensity of 0.157 MJ per unit of GDP (in Czech koruna), which is the main indicator for energy efficiency. Other commitments are not new; for example, the commitments for reductions in GHG emissions are taken from the Climate Protection Policy (adopted in 2017). Czechia also reported that it is committed to achieving energy savings in institutional buildings, in accordance with the EU directive on energy efficiency (directive 2012/27/EU). In addition, Czechia reported that it is committed to meeting the minimum annual energy saving of 0.8 per cent of annual final energy consumption in accordance with article 7(1)(b) of the EU directive on energy efficiency.

25. In operation since 2005, the EU ETS is a cap-and-trade system that covers all significant energy-intensive installations (mainly large point emissions sources such as power plants and industrial facilities), which produce 40–45 per cent of the GHG emissions of the EU. It is expected that the EU ETS will guarantee that the 2020 target (a 21 per cent emission reduction below the 2005 level) will be achieved for sectors under the scheme. The third phase of the EU ETS started in 2013 and the system now includes aircraft operations (since 2012) as well as N₂O emissions from chemical industry, PFC emissions from aluminium production and CO₂ emissions from some industrial processes that were not covered in the previous phases of the EU ETS (since 2013). Auctioning is the default method for allocating allowances; however, harmonized rules for free allocations, based on benchmark values achieved by the most efficient 10 per cent of installations, are still in place as a safeguard for the international competitiveness of industrial sectors at risk of carbon leakage. For 2030, an emission reduction target of 43 per cent below the 2005 level has been set for the EU ETS.

26. The ESD became operational in 2013 and covers transport (excluding domestic and international aviation, and international maritime transport), residential and commercial buildings, agriculture and waste, together accounting for 55–60 per cent of the GHG emissions of the EU. The aim of the ESD is to decrease GHG emissions in the EU by 10 per cent below the 2005 level by 2020, and it includes binding annual targets for each member State for 2013–2020. The EU effort-sharing regulation, successor to the ESD, was adopted in 2018. It sets national emission reduction targets for 2030 ranging from 0 to 40 per cent below the 2005 level, and trajectories with annual limits for 2021–2030, for all member States, and keeps many of the flexibilities of the ESD.

27. Czechia highlighted the EU-wide mitigation actions that are under development, such as the next climate protection policy update, planned for 2023. Among the mitigation actions that will have a significant impact on future emissions are the EU-wide economic and tax tools for promoting lower GHG emissions from cars, the road toll for trucks in the transport sector and the implementation of decisions of the International Civil Aviation Organization.

28. Czechia introduced national-level policies to achieve its targets under the ESD and domestic emission reduction targets. Some of the adopted policy frameworks and cross-sectoral measures that have mitigation impacts include the Integrated Prevention Act, the State Environmental Policy 2012–2020, the State Energy Policy, the National Emission Reduction Programme, the Climate Protection Policy (adopted in 2017), the National Renewable Energy Action Plan (which implements the EU directive on renewable energy (directive 2009/28/EU)), the National Energy Efficiency Action Plan (which implements the EU directive on energy efficiency), the National Action Plan for Clean Mobility and the Waste Management Plan (2015–2024), as well as the updated recommendations for implementing the proposed changes to the National Forestry Programme (National Forest Plan II). The Climate Protection Policy outlines a low-carbon development strategy, the main objective of which is to determine an appropriate mix of cost-effective measures and tools in key sectors that will be used to achieve the Party's GHG emission reduction targets until 2030, with an outlook until 2050.

29. The mitigation effect of the EU ETS is the most significant, with an estimated mitigation impact of 2,740.00 kt CO₂ eq in 2020 and 6,624.00 kt CO₂ eq in 2030. Other policies that are expected to deliver significant emission reductions are the law on emission limits to improve air quality under the Air Protection Act (201/2012) in the industrial sector, with an estimated mitigation impact of 2,600.00 kt CO₂ eq in 2020 and 2,746.00 kt CO₂ eq in 2030, and the preferential feed-in tariffs for electricity produced from renewable energy sources, with an estimated mitigation impact of 2,541.00 kt CO₂ eq in 2020 and 2,402.50 kt CO₂ eq in 2030.

30. The ERT notes that a measure of particular interest is the implementation of the EU F-gas regulation (regulation 517/2014) in the industrial sector because this has an estimated mitigation impact of 552.00 kt CO₂ eq in 2020 and 2,029.00 kt CO₂ eq in 2030. Czechia plans to implement the Kigali Amendment to the Montreal Protocol (2016) to phase down the use of HFCs in the industrial sector, but did not provide a deadline for this measure. In the transport sector, Czechia is currently revising its National Action Plan for Clean Mobility and new goals for 2025 and 2030 will be set. During the review, the Party described a project under the Environment for Life Programme administered by its Technology Agency. The part of the project that is focused on quantifying the PaMs started in 2020 and the results should be available by the end of 2023. The main goal is to better quantify the effects of those PaMs where public support is provided to achieve energy and climate goals. Table 4 provides a summary of the reported information on the PaMs of Czechia.

Table 4

Summary of information on policies and measures reported by Czechia

<i>Sector</i>	<i>Key PaMs</i>	<i>Estimate of mitigation impact in 2020 (kt CO₂ eq)</i>	<i>Estimate of mitigation impact in 2030 (kt CO₂ eq)</i>	
Policy framework and cross-sectoral measures	EU ETS	2 740.00	6 624.00	
	Climate Protection Policy	NE	NE	
	Operational Programme Environment 2014–2020	368.00	423.00	
Energy	Energy Act	NE	NE	
	Energy Management Act	NE	NE	
Transport	EU regulation on modalities for reducing CO ₂ emissions from light commercial vehicles (regulation 253/2014)	486.00	787.00	
	EU regulation on CO ₂ emission performance standards for new passenger cars (regulation 443/2009)	237.00	803.00	
	Operational Programme Transport	150.00	390.00	
	Support for biofuels	176.00	152.00	
	Support for public transport and modal shift from road transport	134.00	109.00	
	Road toll	126.00	103.00	
	National Strategy for Cycling Transport Development	100.00	89.00	
	Economic and tax tools in transport sector	NE	NE	
	Renewable energy	National Renewable Energy Action Plan	NE	NE
		Promotion of renewable energy sources (preferential feed-in tariffs)	2 541.00	2 402.50
Energy efficiency	National Energy Efficiency Action Plan	NE	NE	
	Operational Programme Enterprise and Innovation for Competitiveness	576.00	828.00	
	Implementation of the EU directive on the energy performance of buildings (directive 2010/31/EU)	532.00	446.00	
	New Green Savings Programme 2014–2020	515.00	422.00	
	Application of the EU ecodesign directive (directive 2009/125/EC)	438.00	466.00	

<i>Sector</i>	<i>Key PaMs</i>	<i>Estimate of mitigation impact in 2020 (kt CO₂ eq)</i>	<i>Estimate of mitigation impact in 2030 (kt CO₂ eq)</i>
	Integrated Regional Operating Programme, supporting modernization and refurbishment of multi-apartment buildings	285.00	232.00
	State programme on the promotion of energy savings and the use of renewable energy sources	95.00	84.00
IPPU	Emission limits in the Air Protection Act (201/2012)	2 600.00	2 746.00
	Implementation of the Kigali Amendment to the Montreal Protocol	NE	NE
	EU F-gas regulation (regulation 517/2014)	552.00	2 029.00
Agriculture	Cross-compliance – fulfilment of Good Agricultural and Environmental Conditions	NE	NE
	Rural Development Programme 2014–2020	200.00	357.00
	Strategy for Growth in Agriculture	250.00	300.00
	Biomass Action Plan for 2012–2020	125.00	255.00
	Rural Development Programme (2007–2013)	NE	NE
	EU nitrates directive (directive 1991/676/EEC) – Fourth Action Plan	NE	NE
	Action Plan for Development of Organic Farming 2016–2020	NE	NE
	Agriculture Strategy with a view until 2030 (since 2016)	NE	NE
LULUCF	Updated recommendations for implementing the proposed changes to the National Forestry Programme (National Forest Plan II)	458.00	395.00
Waste	Waste Management Plan 2003 and 2011	524.00	974.00
	Waste Management Plan (2015–2024)	330.00	330.00

Note: The estimates of mitigation impact are estimates of emissions of CO₂ eq avoided in a given year as a result of the implementation of mitigation actions.

(b) Policies and measures in the energy sector

31. **Energy efficiency.** The National Energy Efficiency Action Plan sets a non-binding target for Czechia to achieve 51.10 PJ of new final energy savings by 2020. It implements the EU directive on energy efficiency and sets out estimated energy consumption, planned energy efficiency measures, and the improvements the country expects to achieve. The key PaMs in terms of estimated mitigation impacts for energy efficiency are the Operational Programme Enterprise and Innovation for Competitiveness; implementation of the EU directive on the energy performance of buildings (directive 2010/31/EU); the New Green Savings Programme 2014–2020; the application of the EU directive on ecodesign; and the Integrated Regional Operating Programme supporting modernization and refurbishment of multi-apartment buildings. These programmes aim to increase the energy efficiency in both subsectors of residential buildings.

32. **Energy supply and renewables.** The main strategic policy for the energy sector is the State Energy Policy, which was approved in 2015 and is a framework and cross-cutting policy. The State Energy Policy has three strategic objectives – the security of energy supply, competitiveness, and sustainability – and it covers a period of 25 years, with evaluation every five years. The three strategic objectives are further translated into more specific strategic priorities for the energy sector, namely (1) a balanced energy mix; (2) energy savings and efficiency; (3) infrastructure and international cooperation; (4) research, development and innovation; and (5) energy security. The State Energy Policy relies on specific implementation documents or action plans, such as the National Renewable Energy Action Plan, the National Energy Efficiency Action Plan, the National Action Plan for Smart Grids,

the National Action Plan for Clean Mobility and the National Action Plan for Nuclear Energy. The National Renewable Energy Action Plan implements the EU directive on renewable energy. Czechia is committed to achieving a 13 per cent share for renewable energy sources in 2020, compared with the EU-wide target of 20 per cent. The main policy in the subsector of renewable energy is the promotion of renewable energy sources (preferential feed-in tariffs).

33. **Residential and commercial sectors.** The main policy in the residential and commercial subsector is the implementation of the EU directive on the energy performance of buildings. Other important PaMs are the Integrated Regional Operating Programme, which supports modernization and refurbishment of multi-apartment buildings, and the New Green Savings Programme 2014–2020 for energy-efficient dwellings.

34. **Transport sector.** The overarching implementing document in the transport sector is the National Action Plan for Clean Mobility 2015–2018, which is currently being revised, with new goals for 2025 and 2030 planned to be set. The main policy in the transport sector is the EU regulation on modalities for reducing CO₂ emissions from light commercial vehicles (regulation 253/2014), followed by the EU regulation on CO₂ emission performance standards for new passenger cars (regulation 443/2009). The other key PaMs in the transport sector are the Operational Programme Transport, support for biofuels, support for public transport and a modal shift from road transport (which aims to increase the attractiveness of public transport), and the road toll policy which, since 2010, has required a toll payment for certain vehicles, including vehicles over 3.5 t. In addition, the National Strategy for Cycling Transport Development for 2013–2020 aims to increase the modal share of urban cycling to 10 per cent by 2020 and up to 25 per cent by 2025.

35. **Industrial sector.** The main policy relates to emission limits in the Air Protection Act (201/2012). The law requires the use of best available technology to improve air quality. The total emission reduction of this measure is estimated at 2,600 kt CO₂ by 2020 and 2,746 kt CO₂ by 2030.

(c) **Policies and measures in other sectors**

36. **Industrial processes.** Czechia does not have one comprehensive industrial strategy or policy. Instead, it has various substrategies focused on specific areas. The main PaMs in the IPPU sector are the Integrated Prevention Act, which implements the EU directive on integrated pollution prevention and control (directive 96/61/EC), and the EU F-gas regulation. The EU directive on integrated pollution prevention and control, among other things, sets emission limits on pollutants and requires the use of best available technologies. The main goal of the EU F-gas regulation is to cut EU-wide F-gas emissions by two thirds compared with the 2014 level by 2030. Producers, importers and exporters of more than 100 t CO₂ eq of F-gases must communicate information via obligatory reporting. Since 2016 a new system of quotas has been put in place under the Kigali Amendment to the Montreal Protocol. This policy includes restrictions relating to the use of specific F-gases, which will in future be banned and should be replaced by different gases with lower GWP values. The requirements were applied in the model used for calculating the F-gas projections. The estimated decrease in emissions owing to this policy is considered to be the effect of the measure.

37. **Agriculture.** The EU common agricultural policy has a significant impact on agricultural activities and can affect the impact of the individual implemented PaMs and practices in Czechia. The main measure in the agriculture sector is the Rural Development Programme 2014–2020, which focuses mainly on ensuring the sustainable management of natural resources and on encouraging climate-friendly farming practices. It aims to increase the competitiveness of agriculture and forestry as well as that of the food industry, and also supports organic farming, increased use of renewables, and afforestation of agricultural land. Other important PaMs are the Strategy for Growth in Agriculture and the Biomass Action Plan.

38. **LULUCF.** The main measure in the LULUCF sector is the updated National Forestry Programme (National Forest Plan II). This measure focuses on creating more resilient forest ecosystems by promoting diversified forest stands utilizing natural processes to the greatest

possible extent, appropriate species composition and variability of silvicultural approaches, reflecting the current international treaties, agreements, conventions and EU legislation. The Rural Development Programme 2014–2020 and the Biomass Action Plan for 2012–2020 are cross-cutting policies for the agriculture sector.

39. **Waste management.** The main measure is the Waste Management Plan (2015–2024), which sets out preferences for management practices and includes projections for quantities of waste. The plan focuses on waste prevention, increasing the share of recycling and compulsory separation of biologically degradable municipal waste. The main objectives are to increase the use of renewable energy from waste, enhance recycling, improve waste treatment technologies, reduce landfilling, enhance CH₄ collection and use, and improve wastewater management systems.

(d) Response measures

40. In its BR4, for reporting on the assessment of the economic and social consequences of its response measures, Czechia referred to chapter 15 of its NIR submitted in May 2019. Czechia also referred to the BR4 of the EU for information on the EU-wide procedures for the assessment of consequences of response measures. In its 2019 NIR Czechia reported initiatives aimed at minimizing adverse impacts, including cooperation in several bilateral development assistance projects focused on reducing dependence on fossil fuels and development of renewable energy sources. Czechia supports technology and capacity development through development assistance. An example of this is the establishment of a technical training centre for the power sector at the University of Ulaanbaatar in Mongolia.

(e) Assessment of adherence to the reporting guidelines

41. The ERT assessed the information reported in the BR4 of Czechia and identified issues relating to completeness, transparency and thus adherence to the UNFCCC reporting guidelines on BRs. The findings are described in table 5.

Table 5

Findings on mitigation actions and their effects from the review of the fourth biennial report of Czechia

No.	<i>Reporting requirement, issue type and assessment</i>	<i>Description of the finding with recommendation or encouragement</i>
1	Reporting requirement specified in paragraph 6 Issue type: transparency Assessment: recommendation	<p>The ERT noted some inconsistencies in the information reported in CTF table 3 and in the textual part of the BR4.</p> <p>For several mitigation actions, such as the ENER G programme, the EU directive on renewable energy and the Waste Management Plan 2015–2024, the quantified mitigation impacts reported in CTF table 3 are different from the values reported in the BR4. In addition, the quantified mitigation impacts of some mitigation actions are reported for 2020 and 2030 in CTF table 3, but for 2035 in the BR4. For the National Forest Plan II, the BR4 does not report quantified mitigation impacts, whereas CTF table 3 does. The National Forest Plan II is reported in CTF table 3 as being included under the WEM scenario, but in BR4 it is reported as being included under the WAM scenario. Lastly, the impacts of several mitigation actions are reported as being included under other measures, but it is not clear in the BR4 or in CTF table 3 where these impacts are included.</p> <p>During the review Czechia explained that the inconsistencies between the reported mitigation effects in the BR4 and CTF table 3 may be due to a change in the personnel involved in the reporting. The Party also explained that, for all mitigation actions with a quantified mitigation effect, estimates are available for 2020, 2025, 2030 and 2035. However, because CTF table 3 already includes figures for 2020 and 2030, the Party decided to include only estimates for 2035 in the textual part of BR4 as additional information. Czechia also provided more information on how the mitigation impacts were estimated for several mitigation actions, and provided the average emission factors for industry, transport, services and heating of households that were used to calculate the effects of energy efficiency measures.</p> <p>The ERT recommends that Czechia ensure consistency in the information reported in the textual part of the BR and CTF table 3.</p>

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
2	Reporting requirement specified in CTF table 3 Issue type: completeness Assessment: recommendation	The ERT noted that Czechia did not report estimates of mitigation impacts for all mitigation actions in CTF table 3 or the textual part of the BR4. During the review Czechia explained that it has an ongoing research project focused on quantifying the mitigation and socioeconomic impacts of its PaMs and that it is currently difficult to specify the mitigation impacts for all PaMs. Czechia noted that it will consider reporting “included elsewhere” for some PaMs in its next submission. The ERT reiterates the recommendation from the previous review report for Czechia to estimate and report in its next BR the mitigation impacts of PaMs or clearly explain why it is not possible to do so, including for cases where the impact can only be estimated for a group of mitigation actions rather than for each individual mitigation action.

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 “Common tabular format for ‘UNFCCC biennial reporting guidelines for developed country Parties’”. The reporting on the requirements not included in this table is considered to be complete, transparent and thus adhering to the UNFCCC reporting guidelines on BRs.

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

(a) Technical assessment of the reported information

42. Czechia reported that it does not intend to 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 2016 or 2017. Given that the contribution of LULUCF activities is not included in the joint EU target under the Convention, reporting of contributions of LULUCF activities is not applicable for Czechia. Table 6 illustrates Czechia’s ESD emissions and the use of units from market-based mechanisms to achieve its ESD target.

Table 6

Summary of information on the use of units from market-based mechanisms by Czechia to achieve its target

Year	ESD emissions (kt CO ₂ eq)	AEA (kt CO ₂ eq)	Use of units from market-based mechanisms (kt CO ₂ eq) ^a	Annual AEA surplus/deficit (kt CO ₂ eq) ^b	Cumulative AEA surplus/deficit (kt CO ₂ eq) ^b
2013	61 457.57	62 474.35	NA	1 016.78	1 016.78
2014	57 620.66	63 214.37	NA	5 593.71	6 610.49
2015	61 282.02	63 954.38	NA	2 672.36	9 282.85
2016	62 816.96	64 694.39	NA	1 877.44	11 160.29
2017	62 395.18	65 212.31	NA	2 817.13	13 977.42

Sources: Czechia’s BR4 and information provided by the Party during the review.

^a The use of “NA” indicates that the Party stated in its BR that it does not intend to use market-based mechanisms to achieve its target.

^b A positive number (surplus) indicates that ESD emissions were lower than the AEA, while a negative number (deficit) indicates that ESD emissions were greater than the AEA.

43. In assessing the progress towards achieving the 2020 joint EU target, the ERT noted that Czechia’s emission reduction target for the ESD is 9.0 per cent above the base-year level (see para. 14 above). In 2017, Czechia’s emissions covered by the ESD were 4.3 per cent (2,817.13 kt CO₂ eq) below the AEA under the ESD. Taking the use of market-based mechanisms into account, Czechia has a cumulative surplus of 13,977.42 kt CO₂ eq with respect to its AEAs between 2013 and 2017.

44. The ERT noted that Czechia is making progress towards its ESD target by implementing and planning mitigation actions that are delivering sufficient emission reductions.

(b) Assessment of adherence to the reporting guidelines

45. The ERT assessed the information reported in the BR4 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 7.

Table 7

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 fourth biennial report of Czechia

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation
1	Reporting requirement specified in paragraph 9 Issue type: transparency Assessment: recommendation	In CTF table 4 the Party reported 194,016.12 kt CO ₂ eq for the base-year GHG emissions excluding emissions and removals from the LULUCF sector. However, the ERT noted that, according to CTF table 1s1, the figure of 194,016.12 kt CO ₂ eq includes emissions and removals from the LULUCF sector, whereas the figure for the base-year GHG emissions excluding emissions and removals from the LULUCF sector is 199,242.03 kt CO ₂ eq. During the review Czechia explained that the correct figure for the base-year GHG emissions in CTF table 4 should be 199,242.03 kt CO ₂ eq. The ERT recommends that Czechia report the correct figure in CTF table 4 for the base-year GHG emissions excluding emissions and removals from the LULUCF sector.

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, transparent and thus adhering to the UNFCCC reporting guidelines on BRs.

3. Projections overview, methodology and results**(a) Technical assessment of the reported information**

46. Czechia reported updated projections for 2020 and 2030 relative to actual inventory data for 2017 under the WEM scenario. The WEM scenario reported by Czechia includes implemented and adopted PaMs until 2018.

47. 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 policies such as the EU ETS, the emission limits in the Air Protection Act and the preferential feed-in tariffs for electricity produced from renewable energy sources, while its WAM scenario includes policies such as the road toll and the economic and tax tools in the transport sector. The definitions indicate that the scenarios were prepared according to the UNFCCC reporting guidelines on BRs.

48. 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 CO₂, CH₄, N₂O, PFCs, HFCs and SF₆ (treating PFCs and HFCs collectively in each case) as well as NF₃ for 2020–2040. 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

49. 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 the changes since the submission of its NC7 in the assumptions, methodologies, models and approaches used in the projection scenarios. Czechia reported supporting information further explaining the methodologies and the changes made since the NC7.

50. The methodology changes are mainly for the IPPU sector. The previous model, MESSAGE, was not used for the IPPU sector. Instead, for most categories, the projections were carried out using activity data and emission factors. The emissions were then calculated following the methodology used in the NIR. However, for F-gas emissions under category 2.F.1 refrigeration and air conditioning, Czechia used a national model, Phoenix.

Furthermore, the projections in the BR4 covered all sources in the IPPU sector, while the previous BR only included projections for activities with a major contribution to total GHG emissions.

51. There were minor changes to the methodologies used for other sectors. For transport emissions under the energy sector (category 1.A.3) COPERT data were available for the first time, so the projections for this category were calculated using statistical computing software called R-project, which had not been used for the previous projections. These projections are more closely related to the prediction of energy consumption for vehicle fleets, and the emission factors are derived directly from the COPERT database. For the agriculture sector, a less ambitious forecast of animal population growth was used for the BR4, and for the LULUCF sector the values of harvest demand were altered on the basis of new information, whereas a constant value was used for the previous projections. For the waste sector, changes included the addition of an industrial correction factor in the landfill data and the leakage percentage from anaerobic digestion processes, as well as the provision of projections for category 5.B.1.b other and for incinerated infectious or hazardous waste under category 5.C incineration and open burning. Czechia reported in CTF table 5 the key variables and assumptions used in the preparation of the projection scenarios.

52. To prepare its projections, Czechia relied on key underlying assumptions relating to political and legal environment, technological development, demographic development (population and number of households), economic development indicators (country and sectoral GDP), global fuel and energy prices, as well as domestic fuel and energy prices and availability. The assumptions were updated on the basis of the most recent economic developments known at the time of the preparation of the projections.

53. The population of Czechia was projected to increase to 10.71 million in 2025, then decrease to 10.54 million by 2040, a 1 per cent decrease compared with the 2020 level. The number of households was projected to increase continuously at a rate of approximately 7 per cent from 2020 to 2040. GDP growth rates were projected to decrease from 2.7 per cent in 2020 to 1.1 per cent in 2040. International oil, coal and gas prices were projected to increase from 2020 by 40, 58 and 30 per cent, respectively, by 2040.

54. The projections for the energy sector were carried out using MESSAGE for category 1.A fuel combustion except for category 1.A.3 transport, and using COPERT data for the projections for category 1.A.3 transport. For the IPPU sector, the projections were estimated separately for each subcategory and also for each gas. For most IPPU categories, except F-gas emissions under category 2.F.1 refrigeration and air conditioning, the projections were carried out by forecasting activity data and emission factors. The projected emissions were then calculated following the methodology used in the NIR. This method was also applied for the agriculture and waste sectors. For projections of F-gas emissions, a national model, Phoenix, was used. For the LULUCF sector, the projections relating to forestry were conducted in detail using EFISCEN. Projections for harvested wood products were carried out by using forecasted activity data as adopted for EFISCEN. Then the emissions for the whole forestry sector were estimated using the same methodology as described in the NIR. Projections for other land-use categories are based on simple correlations of the estimated emissions from land-use areas of the reference year, and the corresponding land-use areas for the predicted years.

55. Czechia provided information on sensitivity analyses. Sensitivity analyses were conducted for a number of important assumptions, including economic development indicators in the energy sector, consumption of F-gases in the IPPU sector and harvest demand in the LULUCF sector. For the projections to 2020 under the WEM scenario, an increase or decrease in GDP by 5.0 per cent affected CO₂ emissions for category 1.A fuel combustion by +9.0 and -7.4 per cent, respectively. Changing the consumption of F-gases by 5.0 per cent resulted in a 2.1 per cent change in emissions for category 2.F.1 refrigeration and air conditioning. The Party reported that the changes in harvest demand significantly affected emissions from the LULUCF sector; for example, for the projections to 2040 under the WEM scenario, assuming removals from harvesting of below 5.0 per cent would result in a continuous carbon sink in forestry, whereas assuming a 5.0 per cent increase in removals would change the LULUCF sector from a sink to a source of emissions. Sensitivity analyses were not performed for the other sectors or categories.

(c) Results of projections

56. The projected emission levels under different scenarios and information on the quantified economy-wide emission reduction target are presented in table 8 and figure 1.

Table 8

Summary of greenhouse gas emission projections for Czechia

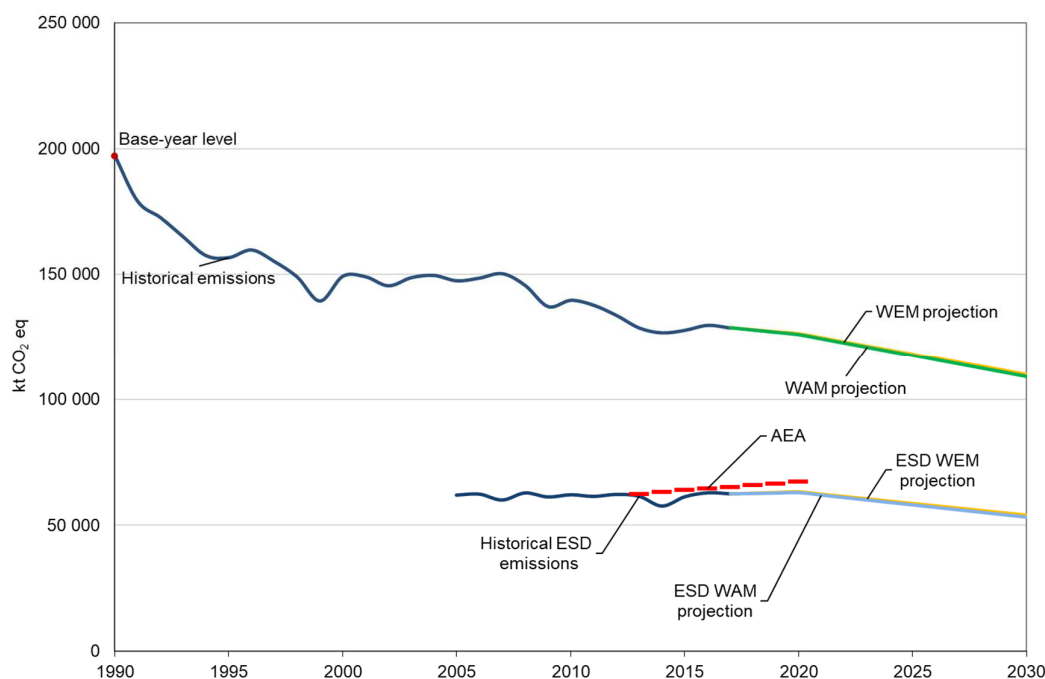
	Total GHG emissions		Emissions under the ESD	
	GHG emissions (kt CO ₂ eq per year)	Change in relation to 1990 level (%)	ESD emissions (kt CO ₂ eq per year)	Comparison to 2020 AEA (%)
2020 AEA under the ESD ^a	NA	NA		100.0
Inventory data 1990	197 392.70	–	NA	NA
Inventory data 2017	128 675.05	–34.8	62 395.18	92.8
WEM projections for 2020	126 272.31	–36.0	63 195.65	94.0
WAM projections for 2020	125 934.21	–36.2	62 855.57	93.5
WEM projections for 2030	109 845.27	–44.4	53 961.18	NA
WAM projections for 2030	109 205.74	–44.7	53 321.28	NA

Sources: Czechia's BR4 and CTF table 6. ESD emissions and projections data were provided by Czechia during the review.

Note: The projections are for GHG emissions excluding LULUCF and excluding indirect CO₂.

^a The quantified economy-wide emission reduction target under the Convention is a joint target of the EU and its member States. The target is to reduce emissions by 20 per cent compared with the base-year (1990) level by 2020. Czechia's target under the ESD is 9 per cent above the 2005 level by 2020.

Figure 1

Greenhouse gas emission projections reported by Czechia

Sources: EU transaction log (AEAs) and Czechia's BR4 and CTF tables 1 and 6. ESD emissions and projections data were provided by Czechia during the review.

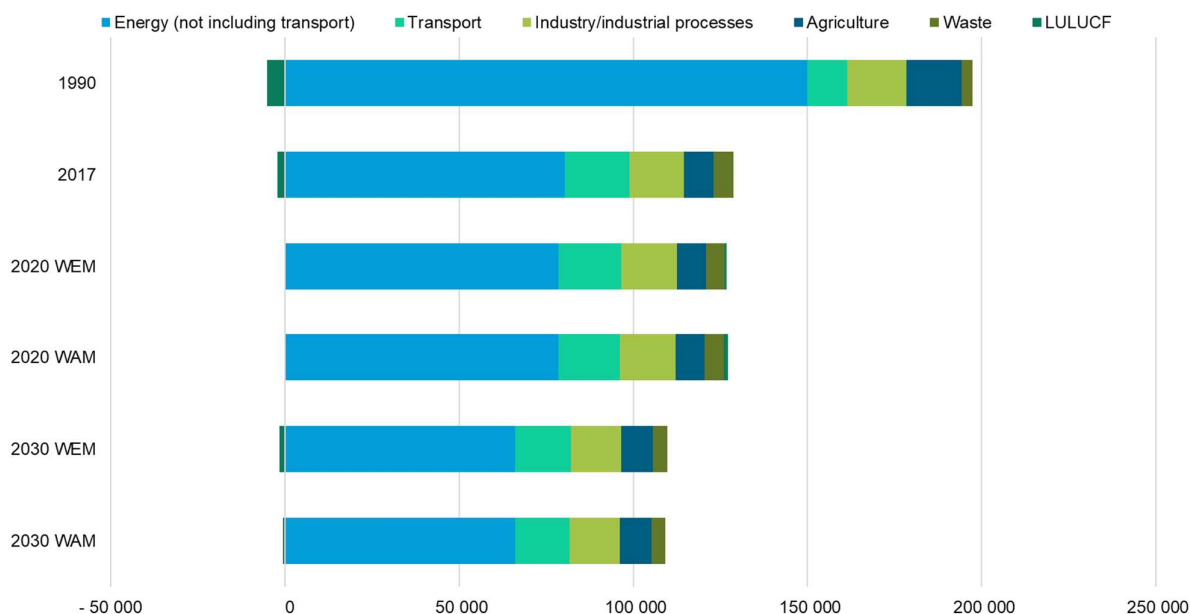
57. Czechia's total GHG emissions excluding LULUCF and excluding indirect CO₂ in 2020 and 2030 are projected under the WEM scenario to decrease by 36.0 and 44.4 per cent, respectively, below the 1990 level. Under the WAM scenario, emissions in 2020 and 2030 are projected to be lower than those in 1990 by 36.2 and 44.7 per cent, respectively.

58. Czechia's target under the ESD is to limit its ESD emission growth to 9 per cent above the 2005 level by 2020 (see para. 14 above). Czechia's AEAs, which correspond to its

national emission target for ESD sectors, change linearly from 62,474.35 kt CO₂ eq in 2013 to 67,204.65 kt CO₂ eq for 2020. The projected level of emissions under the WEM and WAM scenarios is 6.0 and 6.5 per cent, respectively, below the AEAs for 2020. The ERT noted that the Party's cumulative surplus of AEAs is 13,977.42 kt CO₂ eq, which suggests that Czechia expects to meet its target under the WEM scenario.

59. Czechia presented the WEM and WAM scenarios by sector for 2020 and 2030, as summarized in figure 2 and table 9.

Figure 2

Greenhouse gas emission projections for Czechia presented by sector

Source: Czechia's BR4 CTF table 6.

Table 9

Summary of greenhouse gas emission projections for Czechia presented by sector

Sector	GHG emissions and removals (kt CO ₂ eq)					Change (%)			
	1990	2020		2030		1990–2020		1990–2030	
		WEM	WAM	WEM	WAM	WEM	WAM	WEM	WAM
Energy (not including transport)	149 831.45	78 541.29	78 541.29	66 049.47	66 048.87	-47.6	-47.6	-55.9	-55.9
Transport	11 484.14	17 944.65	17 604.57	16 100.62	15 730.72	56.3	53.3	40.2	37.0
Industry/industrial processes	17 113.01	16 046.36	16 046.33	14 425.39	14 425.39	-6.2	-6.2	-15.7	-15.7
Agriculture	15 839.59	8 360.47	8 360.47	9 052.61	9 052.61	-47.2	-47.2	-42.8	-42.8
LULUCF	-5 225.91	553.74	1 245.07	-1 626.32	-491.53	-110.6	-123.8	-68.9	-90.6
Waste	3 124.51	5 380.53	5 380.53	4 218.08	3 948.83	72.2	72.2	35.0	26.4
Other	-	-	-	-	-	-	-	-	-
Total GHG emissions excluding LULUCF	197 392.70	126 272.31	125 934.21	109 845.27	109 205.74	-36.0	-36.2	-44.4	-44.7

Source: Czechia's BR4 CTF table 6.

60. According to the projections reported for 2020 under the WEM scenario, the most significant emission reductions are expected to occur in the energy sector, amounting to projected reductions of 47.6 per cent between 1990 and 2020, followed by the agriculture sector with reductions of 47.2 per cent. The pattern of projected emissions reported for 2030 under the same scenario remains the same. The most significant emission reductions are

expected to occur in the energy and agriculture sectors, amounting to projected reductions of 55.9 and 42.8 per cent between 1990 and 2030, respectively.

61. If additional measures are considered (i.e. under the WAM scenario), the patterns of emission reductions by 2020 presented by sector remain the same.

62. Czechia presented the WEM and WAM scenarios by gas for 2020 and 2030, as summarized in table 10.

Table 10

Summary of greenhouse gas emission projections for Czechia presented by gas

Sector	GHG emissions and removals (kt CO ₂ eq)					Change (%)			
	1990	2020		2030		1990–2020		1990–2030	
		WEM	WAM	WEM	WAM	WEM	WAM	WEM	WAM
CO ₂ ^a	164 203.58	103 313.48	102 978.61	89 614.97	89 251.40	–37.1	–37.3	–45.4	–45.6
CH ₄	23 492.14	13 581.25	13 581.00	12 041.25	11 771.25	–42.2	–42.2	–48.7	–49.9
N ₂ O	9 612.74	5 867.62	5 864.64	6 186.48	6 180.52	–39.0	–39.0	–35.6	–35.7
HFCs	–	3 435.17	3 435.17	1 934.60	1 934.60	–	–	–	–
PFCs	–	1.07	1.07	0.98	0.98	–	–	–	–
SF ₆	84.24	71.07	71.07	62.71	62.71	–15.6	–15.6	–25.6	–25.6
NF ₃	–	2.65	2.65	4.28	4.28	–	–	–	–
Total GHG emissions excluding LULUCF	197 392.70	126 272.31	125 934.21	109 845.27	109 205.74	–36.0	–36.2	–44.4	–44.7

Source: Czechia's BR4 CTF table 6.

^a Czechia did not include indirect CO₂ emissions in its projections.

63. For 2020, the most significant reductions are projected for CO₂ emissions: 37.1 per cent between 1990 and 2020.

64. The pattern of projected emissions reported for 2030 under the same scenario remains the same. The most significant reductions are projected for CO₂ emissions: 45.4 per cent between 1990 and 2020.

65. If additional measures are considered (i.e. under the WAM scenario), the patterns of emission reductions by 2020 presented by gas remain the same.

66. Czechia reported that owing to the significant changes of methodology for the projections of the IPPU sector, the emission trends reported in the BR4 are different from those in the BR3. The largest difference is in the F-gas projections, where the decrease in emissions of F-gases was distinctly slower than previously projected.

67. The ERT noted higher projected GHG emissions for LULUCF under the WAM scenario compared with the WEM scenario under category 4.A forest land. This is due to the difference in forest species: the dominant spruce even-aged forest stands under the WEM scenario result in lower projected emissions using EFISCEN than the projected emissions for the WAM scenario, which is based on forest stands comprising diverse species.

(d) Assessment of adherence to the reporting guidelines

68. The ERT assessed the information reported in the BR4 of Czechia and identified issues relating to completeness, transparency and thus adherence to the UNFCCC reporting guidelines on BRs. The findings are described in table 11.

Table 11

Findings on greenhouse gas emission projections reported in the fourth biennial report of Czechia

No.	<i>Reporting requirement, issue type and assessment</i>	<i>Description of the finding with recommendation or encouragement</i>
1	Reporting requirement specified in paragraph 28 Issue type: completeness Assessment: encouragement	The Party did not report WOM projections in its BR4. During the review Czechia explained that the WOM projections were not reported, but the impacts of PaMs were estimated, where possible, at the sectoral level. The ERT reiterates the encouragement from the previous review report for the Party to report projections under the WOM scenario in its next BR or explain in the BR why they could not be reported.
2	Reporting requirement specified in paragraph 35 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 BR4. During the review Czechia explained that it is planning to include projections of the indirect GHG emissions in future reporting. The ERT encourages Czechia to include projections of the indirect GHG emissions in its next BR.
3	Reporting requirement specified in paragraph 43 Issue type: completeness Assessment: encouragement	The Party reported some information about the models used in its projections but did not summarize the strengths and weaknesses of the models, or explain how the model or approach used accounted for any overlap or synergies that may exist between different PaMs in its BR4. During the review Czechia provided more detailed information on the models, particularly on their strengths and weaknesses. Czechia also explained that, while preparing the projections, the risks of any overlap or synergies that may exist between different PaMs were eliminated by carefully considering the possible effects of each measure in different sectors, but accounting only for one of such effects in the projections. The ERT reiterates the encouragement from the previous review report for the Party to provide in its next BR brief information on the models used for its projections of GHG emissions and removals, including descriptions of strengths and weaknesses for each model, and to explain how the model accounts for any overlap or synergies.
4	Reporting requirement specified in paragraph 44 Issue type: transparency Assessment: encouragement	The Party did not provide references to more detailed information on some models used for its projection analysis in its BR4 (i.e. MESSAGE, COPERT, Phoenix and EFISCEN). During the review Czechia provided references to more detailed information on the models used. The ERT reiterates the encouragement from the previous review report for the Party to include references to more detailed information on the models used for its projection analysis in its next BR.
5	Reporting requirement specified in paragraph 47 Issue type: transparency Assessment: encouragement	The Party reported key variables and assumptions used for the projection analysis for only one historical year (2017) in the textual part of its BR4. However, in CTF table 5 the Party reported key variables and assumptions in the projection analysis only for 2016. During the review Czechia explained that it is possible to provide the information for 2017 in CTF table 5. The ERT encourages Czechia to report information on key underlying assumptions and values of variables for relevant historical years in both the textual part of its BR4 and in CTF table 5, or provide an explanation for the absence of such information.
6	Reporting requirement specified in paragraph 48	The Party reported relevant information on factors and activities for each sector for 2017 and future years only, which was not sufficient to enable the reader to understand the emission trends for 1990–2020.

No.	<i>Reporting requirement, issue type and assessment</i>	<i>Description of the finding with recommendation or encouragement</i>
	Issue type: completeness	During the review Czechia provided more information with detailed references to relevant factors and activities.
	Assessment: recommendation	The ERT recommends that Czechia include in its next BR relevant information on factors and activities underlying projected emission trends for each sector to enable the reader to understand the emission trends in 1990–2020.

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

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

69. 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 provided information in its BR4 on its provision of support to developing country Parties. The ERT commends Czechia for reporting this information and suggests that it continue to do so in future BRs.

70. Czechia provided climate-specific financial support to developing countries in 2017 and 2018 through both multilateral and bilateral channels. The development activities in 2017 were in accordance with the Party's Development Cooperation Strategy (2010–2017) and its new Development Cooperation Strategy (2018–2030). The bilateral and multilateral climate finance flows were identified using a methodology provided by the Development Assistance Committee of the Organisation for Economic Co-operation and Development. The bilateral financial flows were mainly provided to countries prioritized in the Development Cooperation Strategy, such as Bosnia and Herzegovina, Cambodia, Ethiopia, Georgia, Mongolia, the Republic of Moldova and Zambia.

71. Technology development and transfer to developing countries was, in 2017 and 2018, carried out mainly through the Party's bilateral development cooperation. Some of the projects listed in CTF table 7(b) feature a technology development and transfer element. With regard to capacity-building, such activities have been identified across a number of bilateral projects listed in CTF table 7(b). The projects specifically aimed at capacity-building are listed in CTF table 9, and were mainly focused on education, training and transfer of know-how.

72. The Party contributed climate-specific financial support in 2018 amounting to USD 8.50 million, distributed, by funding type, as USD 1.19 million through multilateral channels and USD 7.31 million through bilateral, regional and other channels covering mitigation, adaptation, cross-cutting and other activities. The financial support was mainly provided to countries prioritized in the Development Cooperation Strategy, such as Bosnia and Herzegovina, Cambodia, Ethiopia, Georgia, Mongolia, the Republic of Moldova and Zambia. The capacity-building activities supported by Czechia focused, for example, on education, training, transfer of know-how, and facilitating engagement with and access to the Green Climate Fund for Western Balkan countries. The main sectors supported were agriculture, water and sanitation, disaster prevention, energy, and reconstruction relief and rehabilitation.

III. Conclusions and recommendations

73. The ERT conducted a technical review of the information reported in the BR4 and CTF tables of Czechia in accordance with the UNFCCC reporting guidelines on BRs. The ERT concludes that the reported information mostly adheres to the UNFCCC reporting guidelines on BRs and provides 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; the progress of Czechia towards achieving its target; and the Party's provision of support to developing country Parties.

74. Czechia's total GHG emissions excluding LULUCF and including indirect CO₂ covered by its quantified economy-wide emission reduction target were estimated to be 35.6 per cent below its 1990 level, whereas total GHG emissions including LULUCF and including indirect CO₂ were 30.7 per cent below its 1990 level, in 2018. The changes in total emissions were driven mainly by a major decline in heavy industry activities in the country during the transition to a market-based economy.

75. Under the Convention, Czechia committed to contributing to the achievement of the joint EU quantified economy-wide emission reduction target of a 20 per cent reduction in emissions below the 1990 level by 2020. The target covers all sectors and CO₂, CH₄, N₂O, HFCs, PFCs and SF₆, expressed using GWP values from the AR4. Emissions and removals from the LULUCF sector are not included.

76. Under the ESD, Czechia has a target of limiting its emission growth to 9 per cent above the 2005 level by 2020. Czechia's AEAs change following a linear path from 62,474.35 kt CO₂ eq in 2013 to 67,204.65 kt CO₂ eq in 2020.

77. In 2017, Czechia's ESD emissions were 4.3 per cent (2,817.13 kt CO₂ eq) below the AEA under the ESD. Taking into account that Czechia has not used market-based mechanisms for 2013–2017, Czechia has a cumulative surplus of 13,977.42 kt CO₂ eq with respect to its AEAs. On the basis of the reported information, the ERT concludes that Czechia is making progress towards achieving its target.

78. The GHG emission projections provided by Czechia in its BR4 correspond to the WEM and WAM scenarios. Under these scenarios, emissions are projected to be 36.0 and 36.2 per cent below the 1990 level by 2020, respectively. According to the projections under the WEM scenario, ESD emissions are estimated to reach 63,195.65 kt CO₂ eq by 2020. Under the WAM scenario, Czechia's emissions from ESD sectors in 2020 are projected to be 62,855.57 kt CO₂ eq. The projected level of emissions under the WEM and WAM scenarios is 6.0 and 6.5 per cent, respectively, below the AEAs for 2020. The ERT noted that the Party's cumulative surplus of AEAs is 13,977.42 kt CO₂ eq, which suggests that Czechia expects to meet its target under the WEM scenario.

79. Czechia's main policy framework relating to energy and climate change is its Climate Protection Policy. Key legislation supporting Czechia's climate change goals includes the State Energy Policy, the National Emission Reduction Programme, the Air Protection Act framework legislation, the Operational Programme Environment 2014–2020, the National Energy Efficiency Action Plan and the National Renewable Energy Action Plan. The mitigation actions with the most significant mitigation impact are the EU ETS with a target of 2,740.00 kt CO₂ eq in 2020 and 6,624.00 kt CO₂ eq in 2030, the emission limits in the Air Protection Act of 2,600.00 kt CO₂ eq in 2020 and of 2,746.00 kt CO₂ eq in 2030 and the promotion of renewable energy sources (preferential feed-in tariffs) with a target of 2,541.00 kt CO₂ eq in 2020 and 2,402.50 kt CO₂ eq in 2030.

80. In addition to its 2020 target, Czechia also reported on its longer-term target of 14 per cent below the 2005 level by 2030 for sectors under the ESD, as part of the nationally determined contribution under the Paris Agreement adopted by the EU under the 2030 climate and energy framework.

81. 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 provided climate financial support to developing countries in 2017 and 2018 through both multilateral and bilateral channels.

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

- (a) To improve the completeness of its reporting by:
 - (i) Providing information on the changes to the national inventory arrangements since the last BR, or report that there have been no changes (see issue 1 in table 3);
 - (ii) Estimating the mitigation impacts of PaMs or clearly explaining why it is not possible to do so, including for cases where the impact can only be estimated for a

group of mitigation actions rather than for each individual mitigation action (see issue 2 in table 5);

(iii) Including relevant information on factors and activities underlying projected emission trends for each sector to enable the reader to understand the emission trends in 1990–2020 (see issue 6 in table 11);

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

(i) Reporting consistent information in the textual part of the BR and CTF table 3, and elaborating on the methods and emission factors used to estimate the impacts of mitigation actions (see issue 1 in table 5);

(ii) Providing the correct figure in CTF table 4 for the base-year GHG emissions excluding emissions and removals from the LULUCF sector (see issue 1 in table 7).

Annex

Documents and information used during the review

A. Reference documents

2019 GHG inventory submission of Czechia. Available at <https://unfccc.int/documents/194778>.

2020 GHG inventory submission of Czechia. Available at <https://unfccc.int/ghg-inventories-annex-i-parties/2020>.

BR3 of Czechia. Available at <https://unfccc.int/BRs>.

BR4 of Czechia. Available at <https://unfccc.int/BRs>.

BR4 of the EU. Available at <https://unfccc.int/BRs>.

BR4 CTF tables of Czechia. Available at <https://unfccc.int/BRs>.

“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. 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 I: UNFCCC reporting guidelines on annual greenhouse gas inventories”. Annex to decision 24/CP.19. Available at <http://unfccc.int/resource/docs/2013/cop19/eng/10a03.pdf>.

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

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

NECP of Czechia. Available at https://ec.europa.eu/energy/sites/ener/files/documents/cs_final_necp_main_en.pdf.

Report on the individual review of the annual submission of Czechia submitted in 2019. FCCC/ARR/2018/CZE. Available at <https://unfccc.int/documents/209517>.

Report on the technical review of the BR3 of Czechia. FCCC/TRR.3/CZE. Available at https://unfccc.int/review-reports-BR3_and_NC7.

“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 Daňhelka (Energy and Climate Protection Unit of the Ministry of Environment of Czechia), including additional material. The following documents¹ were provided by Czechia:

Government of Czechia. 2019. National Energy and Climate Plan of the Czech Republic
Available at

https://ec.europa.eu/energy/sites/ener/files/documents/cs_final_necp_main_en.pdf.

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