

Czech Republic

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1. SUMMARY

The Kyoto base year for the Czech Republic is 1990 for CO₂, CH₄ and N₂O, and 1995 for fluorinated gases. The reduction target is 8% as compared to the base year.

The existing projections show that the Czech Republic will easily meet its Kyoto commitment in the 1st commitment period under any circumstances. The country is expected to possess a significant AAU surplus. For the Czech Republic the average Kyoto target for the first commitment period equals 178.7 Mt CO₂ eq. while the calculated projections compared to the base year under the With Existing Measures (WEM) scenario for 2010 show that the GHG emissions will be 145.4 Mt CO₂ eq., or 74.8 %. The calculated projections under the With Additional Measures (WAM) scenario show that the emissions will be 139.5 Mt CO₂ eq., or 71.8% compared to the base year.

In March 2007 the Czech Republic has submitted a detailed report pursuant to the Article 3(2) of the Decision No 280/2004/EC on the mechanism for monitoring Community GHG emissions and the implementation of the Kyoto Protocol. The report describes policies and measures implemented or planned in all sectors. PAMs typically apply across several sectors and it is difficult to identify the impact of a PAM on the reduction pattern of a specific sector. For the same reason, it is difficult to estimate the impact of reductions in a sector on the overall emission reduction pattern. The reduction effects of PAMs in the majority of cases are provided for 2005 and 2010. No reduction effect has been calculated for 2020.

The report also describes the country's approach towards the use of flexible mechanisms and carbon sinks. Currently the Czech Republic is the host for more than 100 Joint Implementation projects. Institutional and legal framework for national approval of JI projects has been established. Due to a significant surplus of the AAUs, the country does not intend to use flexible mechanisms for compliance purposes.

The status of national policies compared to the CCPM adoption is difficult to characterize, since the status of most policies is not reported.

The methodology used for projections is described for different sectors. Since the largest emitting sector is energy, the country has used the EFOM/ENV energy management model for projections. For the other sectors, a spreadsheet processor was used. Sensitivity analysis was also carried out for such factors as the price of natural gas, domestic brown coal availability and for economic growth for all main sectors. No uncertainty analysis was performed.

2. GHG PROJECTIONS AND PROGRESS TO KYOTO TARGETS

In the Czech Republic the Kyoto base year is 1990 for CO₂, CH₄ and N₂O and 1995 for F-gases. Projections were made for three scenarios, namely WOM, WEM and WAM and for six gases (F gases calculated together). According the 2010 emission projections the country has quite a big amount of AAU surplus for the 1st commitment period. The projections are covering all sectors. A constant overall GHG emission reduction can be identified till 2020. This reduction is forecasted despite the current and expected economic growth. This can be attributed to the decoupling of GDP growth from the GHG emissions. In some sectors such as transportation and industrial processes, however, the GHG emissions are going to be higher than in reference year. In such sectors as waste and agriculture the emissions are expected to remain on approximately the same level as in 1990. The largest reduction effects are expected from the PAMs implemented and planned in the energy supply and energy consumption sectors.

Table 1 shows, for all gases and main sectors:

- GHG emission projections for the two scenarios “with existing measures” (WEM) and “with additional measures” (WAM), as reported by the Czech Republic;
- Historic emissions (in the “reference year”) as reported together with projections.

For the Czech Republic, the reference year is 2004.

Table 2 shows, for all gases and main sectors:

- 1990 GHG emissions as reported in the latest (2008) GHG emissions inventory (1990-2006);

Adjusted GHG emission projections for the WEM and WAM scenarios. This adjustment of the projections reported in Table 1 is carried out to allow consistency and comparability between projections and the latest (2008) GHG inventory data¹. In the case of the Czech Republic, the correction factor is very small (0.998455).

¹ The adjustment consists in applying an adjustment factor to projections from Table 1. This factor is the ratio between total emissions in the reference year as reported in the 2008 GHG inventory report (or, if the reference year is the base-year under the Kyoto Protocol, in the report of the review of the initial report under the Kyoto Protocol) and total emissions in the reference year as reported by the country with projections (Table 1).

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Table 1. Summary of reported projections by sector and by gas in 2010 (Mt CO₂-eq.)

	Carbon dioxide			Methane			Nitrous oxide			F-gases (SF ₆ , HFCs and PFCs)			Total		
	Reference year	2010 WEM	2010 WAM	Reference year	2010 WEM	2010 WAM	Reference year	2010 WEM	2010 WAM	Reference year	2010 WEM	2010 WAM	Reference year	2010 WEM	2010 WAM
Energy (excl. transport)	100.4	98.8	93.5	5.5	3.8	3.3	1.0	0.9	0.9	0.0	0.0	0.0	106.9	103.5	97.6
Energy supply	70.6	69.4	66.1	5.2	3.6	3.0	0.8	0.8	0.7	NE	NE	NE	76.6	73.7	69.9
Energy – industry, construction	14.3	15.2	14.4	0.0	0.0	0.0	0.1	0.1	0.1	NE	NE	NE	14.4	15.3	14.5
Energy – other (commercial, residential, agriculture)	15.5	14.2	13.0	0.2	0.2	0.2	0.1	0.1	0.1	NE	NE	NE	15.8	14.5	13.3
Transport (energy)	15.2	15.4	15.3	0.0	0.0	0.0	0.6	0.6	0.6	NE	NE	NE	15.9	16.1	16.0
Industrial processes	11.0	12.7	12.7	0.1	0.1	0.1	1.2	1.2	1.2	0.7	0.9	0.9	12.9	14.9	14.9
Waste	0.3	0.4	0.4	2.3	2.3	2.3	0.2	0.2	0.2	NE	NE	NE	2.8	2.8	2.8
Agriculture	NE	NE	NE	2.9	2.9	2.9	4.9	5.0	5.0	NE	NE	NE	7.8	7.9	7.9
Other	0.3	0.3	0.3	NE	NE	NE	0.2	0.2	0.2	NE	NE	NE	0.5	0.5	0.5
Total (excl. LULUCF)	127.3	127.6	122.2	10.8	9.1	8.5	8.0	8.1	8.1	0.7	0.9	0.9	146.8	145.7	139.7

Key:

Reference year: 2004, Base year under the Kyoto Protocol: 1990 for CO₂, CH₄ and N₂O and 1995 for F-gases.

WEM: 'with existing measures' projection

WAM: 'with additional measures' projection

Source: Czech Republic's MM submission, 2007, and Annual greenhouse gas inventory 1990 – 2001, April 2004.

Table 2. Summary of projections by sector and by gas in 2010 compared to 1990 (MtCO₂eq)

	Carbon dioxide			Methane			Nitrous oxide			F-gases (SF ₆ , HFCs and PFCs)			Total		
	1990	2010 WEM	2010 WAM	1990	2010 WEM	2010 WAM	1990	2010 WEM	2010 WAM	1990	2010 WEM	2010 WAM	1990	2010 WEM	2010 WAM
Energy (excl. transport)	138.3	98.6	93.4	9.9	3.8	3.3	0.6	0.9	0.9	0	0	0	148.8	103.4	97.5
Energy supply	57.7	69.3	66.0	8.5	3.6	3.0	0.2	0.8	0.7		0.0	0.0	66.5	73.6	69.8
Energy – industry, construction	46.6	15.2	14.4	0.1	0.0	0.0	0.2	0.1	0.1		0.0	0.0	46.9	15.3	14.5
Energy – other (commercial, residential, agriculture)	33.9	14.2	13.0	1.3	0.2	0.2	0.2	0.1	0.1		0.0	0.0	35.4	14.4	13.2
Transport (energy)	7.3	15.4	15.3	0.0	0.0	0.0	0.1	0.6	0.6		0.0	0.0	7.5	16.0	15.9
Industrial processes	17.7	12.7	12.7	0.1	0.1	0.1	1.2	1.2	1.2	0.08	0.9	0.9	19.1	14.8	14.8
Waste	NE	0.4	0.4	2.5	2.3	2.3	0.2	0.2	0.2		0.0	0.0	2.6	2.8	2.8
Agriculture	NE	0.0	0.0	5.9	2.9	2.9	9.6	5.0	5.0		0.0	0.0	15.5	7.8	7.8
Other	0.6	0.3	0.3		0.0	0.0	0.2	0.2	0.2		0.0	0.0	0.8	0.5	0.5
Total (excl. LULUCF)	163.9	127.4	122.0	18.5	9.0	8.5	11.8	8.1	8.1	0.9	0.9	0.9	194.2	145.4	139.5

Key:

WEM: 'with existing measures' projection

WAM: 'with additional measures' projection

Source: Czech Republic's MM submission, 2007, and Annual greenhouse gas inventory 1990 – 2006, April 2008.

Table 3: Summary of projections by sector and by gas in 2010 compared to 1990 (index 100 = 1990)

	Carbon dioxide			Methane			Nitrous oxide			F-gases (SF6, HFCs and PFCs)			Total		
	1990	2010 WEM	2010 WAM	1990	2010 WEM	2010 WAM	1990	2010 WEM	2010 WAM	1990	2010 WEM	2010 WAM	1990	2010 WEM	2010 WAM
Energy (excl. transport)	100	71.3	67.5	100	38.4	32.8	100	159.7	150.9	100	NE	NE	100	69.5	65.5
Energy supply	100	120.1	114.3	100	42.0	35.7	100	311.1	296.5	100	NE	NE	100	110.8	105.0
Energy – industry, construction	100	32.6	30.9	100	20.4	19.3	100	42.5	39.2	100	NE	NE	100	32.6	30.9
Energy – other (commercial, residential, agriculture)	100	41.7	38.2	100	16.5	14.5	100	50.2	44.2	100	NE	NE	100	40.8	37.3
Transport (energy)	100	209.1	207.9	100	130.4	129.2	100	764.6	763.7	100	NE	NE	100	215.1	213.9
Industrial processes	100	71.8	71.8	100	5.9	5.9	100	95.9	95.9	100	95.5	95.5	100	74.3	74.3
Waste	100	NE	NE	100	90.5	90.5	100	127.0	127.0	100	NE	NE	100	106.8	106.8
Agriculture	100	NE	NE	100	48.8	48.8	100	51.9	51.9	100	NE	NE	100	50.7	50.7
Other	100	53.6	53.6		NE	NE		99.8	99.8		NE	NE		66.6	66.6
Total (excl. LULUCF)	100	77.7	74.5	100	49.0	46.0	100	68.6	68.2	100	95.5	95.5	100	74.5	71.5

Key:

WEM: 'with existing measures' projection

WAM: 'with additional measures' projection

Source: Czech Republic's MM submission, 2007, and Annual greenhouse gas inventory 1990 – 2006, April 2008.**Table 4: Summary of projections in 2010 compared to base year emissions under the Kyoto Protocol**

	Unit	Base-year	2010 projections	2010 projections
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		emissions under the Kyoto Protocol	'with existing measures'	'with additional measures'
Total GHG emissions (excluding LULUCF)	Mt CO ₂ -eq.	194.2	145.4	139.5
	Index (base-year emissions = 100)	100	74.8	71.8

Source: Czech Republic's MM submission, 2007, and Annual greenhouse gas inventory 1990 – 2006, April 2008.

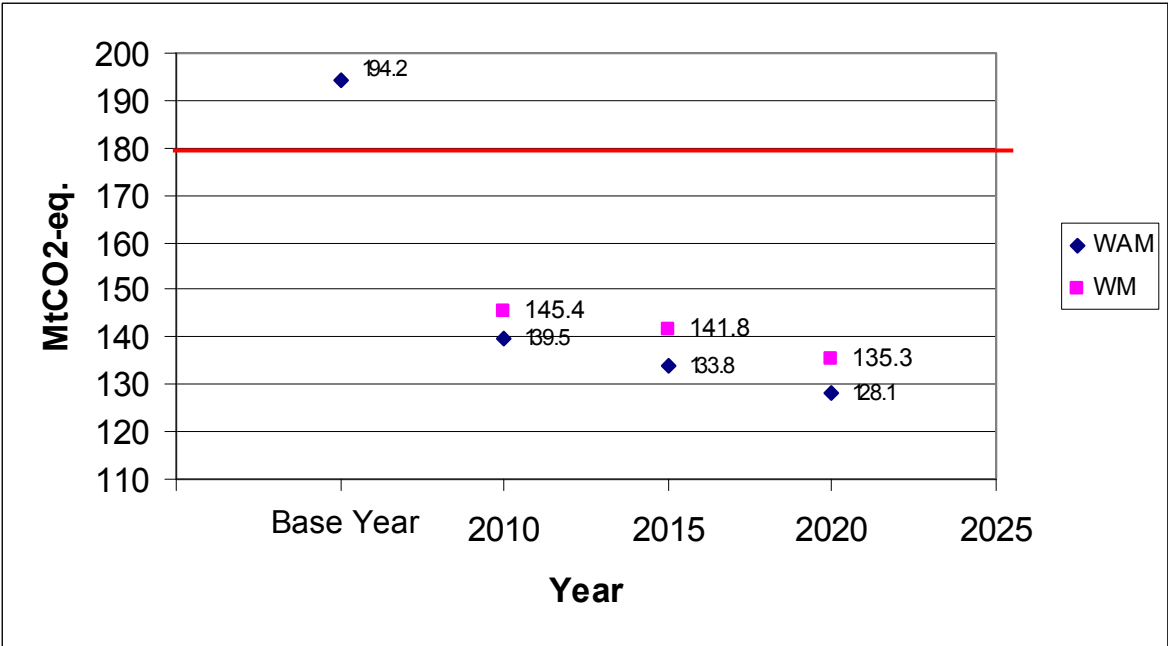
In Figure 1, the same correction factor used in Table 2 has been applied to the projections for 2010, 2015 and 2020.

The Figure 1 and Figure 2 present the projections under WEM and WAM scenarios in comparison with the Kyoto target. Czech Republic is significantly below its Kyoto commitment under both scenarios.

As already been indicated, the Czech Republic does not intend to use the flexible mechanisms for compliance purposes. The country is a current host for JI projects and potential AAU sellers under the IET. In total 125 JI projects have received Letters of Approval, but the majority of them are still under development and their future implementation is left open. Most of these projects are covering renewable energy, fuel switch, energy efficiency.

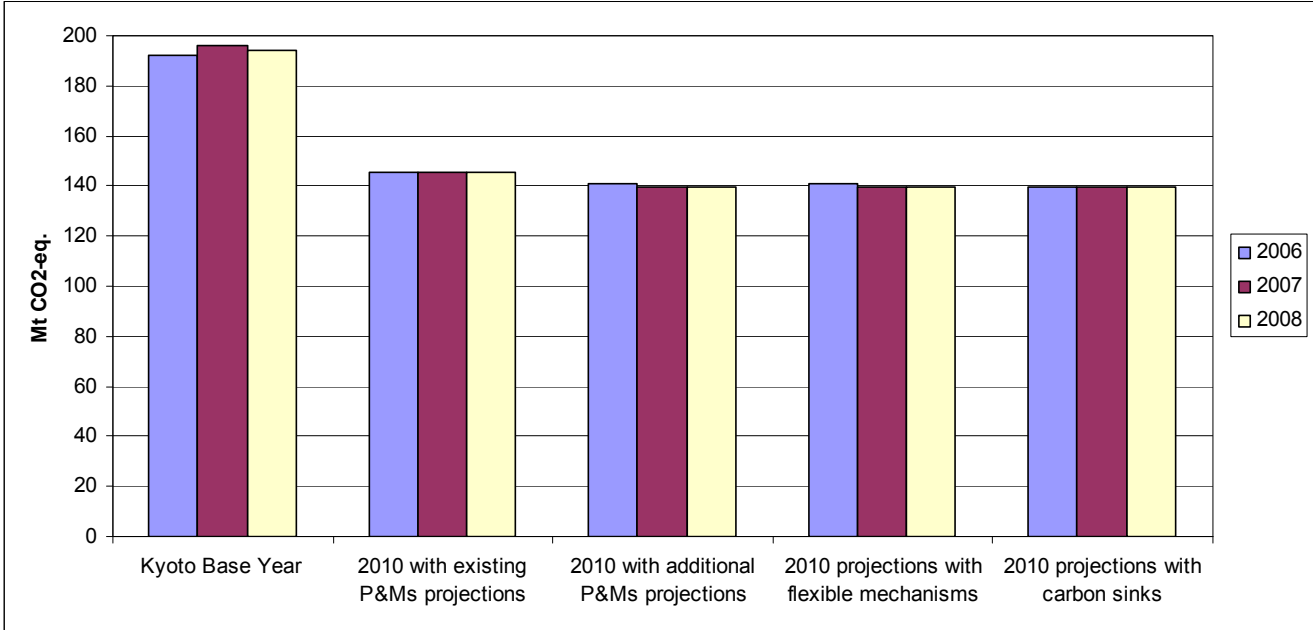
A minor reduction effect is expected from sinks in the first commitment period

Figure 1. Greenhouse gas projections under WAM in 2010, 2015 and 2020 (Mt CO₂-eq.)



Source: Czech Republic’s MM submission, 2007

Figure 2. Comparison of 2010 projections reported in 2006, 2007 and 2008



Source: Czech Republic’s MM submission, 2007

3. CLIMATE CHANGE MITIGATION POLICIES AND MEASURES

The Czech Republic has implemented and planned a number of PAMs which are placed respectively under WEM and WAM scenarios.

The reduction effect of the implemented and planned PAMs is estimated for the years 2005 and 2010. This effect is not estimated for 2020 as well as the reduction costs.

Table 4 presents the reduction effect calculations using two approaches: top-down and bottom-up.

The effect of existing measures under top-down approach is calculated as a difference between total projections under the WOM and WEM scenarios. The effects of planned measures – as a difference between the total projections under the WEM and WAM scenarios.

Under the bottom-up approach the sum of the reported effects of individual measures should be presented. The implemented and planned PAMs cover several sectors. This makes it difficult to attribute the resulting GHG reductions to only one sector. The reduction effect of the implemented and planned PAMs is estimated for only the years 2005 and 2010. This effect is not estimated for 2020. Taking all these into consideration, in Table 4 there are only the totals of the bottom up calculation, which do not reflect fully the PAMs' reduction effects.

The reduction effect under the bottom-up approach is not fully provided for 2010 either.

The majority of PAMs concern the Energy sector. (Source: European Climate Change Programme (ECCP), Database on Policies and Measures in Europe <http://www.oeko.de/service/pam/index.php> and MM2007.)

Table 5. Summary of the effect of policies and measures included in the 2010 projections (Mt CO₂-eq.)

	Top down calculation		Bottom Up calculation	
	Existing Measures	Planned Measures	Existing Measures	Planned Measures
Energy (total, excluding transport)	1.8	5.9	NE	NE
Energy supply	0.5	3.9	NE	NE
Energy – industry, construction	0.9	0.8	NE	NE
Energy – other (commercial, residential, agriculture)	0.4	1.2	NE	NE
Transport (energy)	0.0	0.1	NE	NE

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Industrial processes	0.0	0.0	NE	NE
Waste	0.0	0.0	NE	NE
Agriculture	0.0	0.0	NE	NE
Cross-sectoral	0.0	0.0	NE	NE
Total (excluding LULUCF)	1.8	6.0	5.5	5.97

Note: The effects of measures detailed above are calculated by determining the difference between total projections in each scenario ('top down calculation'). The bottom up calculation of existing measures was not calculated for all sectors only in total because projection data from 2010 was not quantified in all cases and the PAM were covering more sectors than just one. Taking all these into consideration the total of bottom up calculation might not give a realistic view.

Table 6. Detailed information on Existing Policies and measures

Sector	Name	Type	GHG	Status	Absolute Reduction [kt CO ₂ eq. p.a.]			Costs [EUR/t]
					2005	2010	2020	
Cross-cutting	Clean air act	Regulatory	CO ₂ , CH ₄ , N ₂ O	implemented				
Cross-cutting, Energy supply	Joint Implementation		CO ₂ , N ₂ O	implemented	1071	1562		
Cross-cutting	National programme for effective use of energy and utilization of renewable and secondary energy sources		CO ₂	implemented				
Cross-cutting, Energy supply, Energy consumption, Industrial Processes	National allocation plan	Economic, Regulatory	CO ₂	implemented				
Cross-cutting, Energy supply, Transport, Waste	Operational programme infrastructure	Economic	CO ₂	implemented	154	154		
Cross-cutting	National Programme to Abate the Climate Change Impacts in the CR	Other	CO ₂ , CH ₄ , N ₂ O, HFC, PFC, SF ₆	implemented				
Cross-cutting	Integrated national programme for emission reduction in the Czech Republic	Economic, Regulatory, Other		implemented				
Cross-cutting, Energy supply, Energy consumption	Energy management act	Regulatory	CO ₂	implemented				

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Energy supply, Energy consumption, Industrial Processes	State programme for support of energy savings and use of renewable energy sources - Part A	Economic, Regulatory, Information, Education	CO2	implemented	143	198		
Energy supply, Energy consumption, Industrial Processes	State programme for support of energy savings and use of renewable energy sources - Part B	Economic, Regulatory, Information, Education	CO2	implemented	128	101		
Energy supply	Energy act	Regulatory	CO2	implemented				
Energy supply	Preferential feed-in tariffs for electricity produced from renewable energy sources	Economic, Regulatory	CO2	implemented		985		
Energy supply	Implementation of directive on co-generation	Economic, Regulatory	CO2	implemented		106		
Energy supply, Industrial processes	Support from the State Environmental Fund in the field of air protection	Economic, Regulatory, Information, Education	CO2	implemented	617	1000		
Energy supply, Energy consumption	Act on IPPC		CO2, CH4, N2O	implemented				
Energy supply, Energy consumption, Industrial Processes	Operational programme industry and enterprise	Economic	CO2	implemented		185		
Cross Cutting, Energy supply, Energy consumption, Industrial Processes	National allocation plan	Economic, Regulatory	CO2	implemented				

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Energy consumption	GEF Efficient lighting initiative	Economic, Information, Education	CO2	implemented	425	425		
Energy consumption	Programme for support of reconstruction and revitalization of panel houses	Economic	CO2	implemented	18.2	27.5		
Energy consumption	Directive on energy performance of buildings	Regulatory	CO2	implemented		305		
Energy consumption	Credits obtained by municipalities for support of reconstruction and modernization of living houses	Economic	CO2	implemented	18.2	43.2		
Transport	Portfolio of measures in the transport sector	Economic	CO2	implemented	9.3	29.3		
Agriculture, Forestry	Support for afforestation of non-utilized agricultural areas	Economic	CO2	implemented	84	84		
Transport, Agriculture	Support of biofuels production	Other	CO2					
Waste	Act on packaging and wastes	Regulatory	CO2, CH4, N2O	implemented		258		
Waste	Utilization of sewage gas and landfill gas	Other	CH4	implemented	69	76		

Source: Öko Institut, (accessed 06/2008), ECCP Policies and Measures database, <http://www.oeko.de/service/pam/index.php>

Table 7. Detailed information on Planned Policies and measures

Sector	Name	Type	GHG	Status	Absolute Reduction [kt CO ₂ eq. p.a.]			Costs [EUR/t]
					2005	2010	2020	
Cross-cutting, Energy supply, Energy consumption, Industrial Processes	National allocation plan II	Economic, Regulatory	CO ₂	planned		2523		
Cross-cutting, Energy supply, Energy consumption, Industrial Processes, Transport, Waste	Operational programme environment	Economic	CO ₂	planned		1506		
Cross-cutting, Transport	Regional operational programmes	Economic	CO ₂	planned				
Energy supply, Energy consumption, Industrial Processes, Agriculture, Forestry	Ecological tax reform	Economic, Regulatory	CO ₂	planned		1083		
Energy supply, Energy consumption, Industrial Processes	Operational Programme Enterprise and Innovation	Economic	CO ₂	planned				
Energy consumption, Transport	Integrated Operational Programme	Economic	CO ₂	planned		15.7		
Transport	Operational Programme Transport	Economic	CO ₂ , CH ₄ , N ₂ O	planned		849		

Source: Öko Institut, (accessed 06/2008), ECCP Policies and Measures database, <http://www.oeko.de/service/pam/index.php>

Table 8. Status of national policies and measures (PAM) in relation to European common and coordinated policies and measures (CCPM)

Status	CCPM	Sector
National policies and measures already in force before CCPM was adopted		
Existing national policies and measures reinforced by CCPM		
New national policies and measures implemented after CCPM was adopted	Kyoto Protocol project mechanisms 2004/101/EC	Cross-cutting
	Emissions trading 2003/87/EC	Cross-cutting
	Integrated pollution prevention and control 96/61/EC	Cross-cutting
	Promotion of cogeneration 2004/8/EC	Energy supply
	Promotion of electricity from RE sources 2001/77/EC	Energy supply
	Taxation of energy products 2003/96/EC	Energy supply
	Energy performance of buildings 2002/91/EC	Energy consumption
	Promotion of biofuels for transport 2003/30/EC	Transport
	Support for rural development from EAGGF (1257/1999)	Agriculture
	Landfill directive 1999/31/EC	Waste
Status of national policy or measure not reported	Packaging and packaging waste (94/62/EC, 2004/12/EC, 2005/20/EC)	Waste
	Internal electricity market 2003/54/EC	Energy supply
	Internal market in natural gas 98/30/EC	Energy supply
	Directives on energy labeling of appliances	Energy consumption
	Ecodesign requirements for energy-using products 2005/32/EC	Energy consumption
	End-use efficiency and energy services 2006/32/EC	Energy consumption
	Eco-management & audit scheme (EMAS) EC 761/2001	Energy consumption
	Energy labeling for office equipment 2422/2001	Energy consumption
	Efficiency fluorescent lighting 2000/55/EC	Energy consumption
	Efficiency of hot water boilers 92/42/EEC	Energy consumption
	Integrated European railway area (COM(2002)18 final)	Transport
	Transport modal shift to rail 2001/12/EC etc.	Transport
	Consumer information on cars 1999/94/EC	Transport

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	Agreement with car manufacturers ACEA etc.	Transport
	Marco Polo programme on freight transport	Transport
	Motor challenge, voluntary EC programme	Energy consumption
	HFCs in mobile air conditioning 2006/40/EC	Transport
	F-gas regulation (842/2006)	Industrial Process
	Support under CAP (1782/2003)	Agriculture
	Support under CAP - amendment (1783/2003)	Agriculture
	Rural development support and CAP(2603/1999, 1698/2005 and 1290/2005)	Agriculture
	Support scheme for energy crops under CAP (795/2004)	Agriculture
	Pre-accession measures for agriculture and rural development (1268/1999)	Agriculture
	Nitrates directive 91/676/EEC	Agriculture
	Directive on waste 2006/12/EC	Waste

Source: MS responses to the CCPMs questionnaire, 2005. Personal communications.

In case of the Czech Republic the status of the majority of the PAMs is not reported, which makes it difficult to assess the country's pro-activeness in implementing CCPMs. In general however it is clear that the newly adopted PAMs focus on energy.

4. METADATA

Sources of information

Czech Republic's national report submitted to the European Commission under Article 3(2) of the Monitoring Mechanism, Decision 280/2004/EC. Report submitted in March 2007.

Czech Republic's Annual greenhouse gas inventory 1985 - 2006 and inventory report, April 2008.

Base-year emissions from the UNFCCC website,
http://unfccc.int/ghg_data/kp_data_unfccc/base_year_data/items/4354.php

European Climate Change Programme (ECCP), Database on Policies and Measures in Europe <http://www.oeko.de/service/pam/index.php>

Kyoto base-year emissions

The Kyoto base year emission is 194.2 MtCO₂ eq.

Kyoto base-year emissions are presented throughout, except Table 1 which presents projections reference year emissions (see below). Kyoto base year emissions of greenhouse gases were calculated using 1990 emissions for carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O) and 1995 emissions for fluorinated gases (SF₆, HFCs and PFCs).

Kyoto base-year emissions have now been reviewed and set for all EEA countries.

Projections reference year emissions

Projections reference year emissions are presented in Table 1.

Projections reference year emissions are defined as projections-consistent emissions data for a given historic year, as chosen by the Member State. In the Czech Republic's case the projection reference year has been chosen the year 2004. Inventory recalculations from year to year may mean that latest inventory data cannot be compared with projections based on older inventory data. Where such an inconsistency has arisen, MS projections have been corrected by applying the following correction factor. The latter has been calculated according to the formula:

Corrected projection = reported projections * latest inventory total GHG emissions / Table 1 reported total GHG emissions for the same reference year

The results are presented in the Table 2.

Quality of Reporting

Member State reporting in the sources detailed above was assessed semi-qualitatively. Scoring was attributed according to the level of detail and clarity: from 0 (representing not

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reported) to +++ (representing very detailed and/or clear reporting). Guidance used for this assessment included the reporting requirements laid down in:

EU legislation: Monitoring Mechanism (280/2004/EC) and Implementing Provisions (2005/166/EC)

UNFCCC reporting guidelines for national communications available in English, French, Spanish (“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”)

The following tables detail reporting considered to be best practice for the purposes of this assessment.

Information provided	Example of good practice
Policy names	Clear names and description provided with unique identifier.
Objectives of policies	Good description of objectives
Types of policies	Type of policy instrument specified e.g. regulatory, fiscal
Which greenhouse gases?	Specifies which gases each PAM affects
Status of Implementation	Clear for each PAM: planned, adopted, implemented, expired
Implementation body	Clear which authorities are responsible for implementation
Quantitative assessment of emission reduction effect and cost of policies	Almost all PAMs are actually quantified. Total effect of all PAMs specified. WOM projection provided.
Interaction with other national and EU level policies	Detailed discussion and analysis of policy interactions.
Measures implementing community legislation	Report details which national policies are implementing individual pieces of EU legislation.
Arrangements for flexible mechanisms	Details arrangements for use of flexible mechanisms.
Balance between domestic action and flexible mechanisms	Regarding reductions required to meet Kyoto target, details proportion to result from domestic action and flexible mechanisms.

Category of Information	Example of good practice
Projection scenarios	"With measures" and "with additional measures" projections required, "without measures projection" optional.
Policies included in each projection	Clear presentation of the policies included in each projections scenario.
Expressed relative to historic reference year data	Projections are presented alongside consistent historic emissions.
Starting year	Starting year and emissions used as basis for for projections is detailed.
Split of projections	Projection split by all 6 gases (or F-gases together), all sectors and years
Presentation of results	Clear, both tables and graphs provided and/or used excel reporting template.
Description of methodologies	Description of approach, model and assumptions
Sensitivity analysis	Was an analysis carried out to determine the sensitivity of projections to variance in the input parameters? Are high medium and low scenarios presented?
Discussion of uncertainty	Is an uncertainty range for the projections provided?

Details of parameters and assumptions	Are parameters as required under Monitoring Mechanism 280/2004/EC reported?
Indicators for projections	Are indicators for projections as required under Monitoring Mechanism 280/2004/EC reported?

Table 9. Information provided on policies and Kyoto flexible mechanisms

Information provided	Level of information provided	Comments
Policy names	+++	In most of the cases good description of the PAM is provided
Objectives of policies	+++	In most of the cases good description of the objectives is provided
Types of policies	++	in several cases the instrument type is not identified
Which greenhouse gases?	+++	
Status of Implementation	+++	
Implementation body	++	Missing in few cases
Quantitative assessment of emission reduction effect and cost of policies	++	quantitative assessment is missing for 2020, and in several cases for 2005 and 2010
Interaction with other national and EU level policies	+	only in some cases
Measures implementing community legislation	++	in several cases it is mentioned to which EC directive relates that specific policy
Arrangements for flexible mechanisms	++	interest in JI and IET
Balance between domestic action and flexible mechanisms	+++	There are no plans to use Flex. Mech. only as a host

Table 10. Information provided on projections

Category of Information	Level of information provided	Comments
Projection scenarios	+++	WOM, WEM, WAM
Policies included in each projection	+++	scenarios are clear, the sectors are overlapping
Expressed relative to historic reference year data	+++	
Starting year	+++	1990 for CO ₂ , CH ₄ and N ₂ O and 1995 for F gases
Split of projections	+++	projection split by four gases (F gases together)
Presentation of results	+++	
Description of methodologies	+++	EFOM/ENV model and spreadsheet programme was used
Sensitivity analysis	+++	sensitivity analysis made for changes in natural gas price, braun coal availability, change in economic growth
Discussion of uncertainty	0	
Details of parameters and assumptions	+++	Mandatory projection parameters are provided for WEM and WAM scenarios. Recommended parameters are not given

Indicators for projections	+++	
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Table 11. Parameters for Projections

1. Mandatory parameters on projections	2005	2010	2015	2020	Units
Assumptions for general economic parameters					
GDP (value at given years or annual growth rate and base year)	49234.7	60745.7	73322.1	87270.7	Value (Euro 1995 basis)
Population (value at given years or annual growth rate and base year)	10234.0	10283.0	10306.0	10284.0	Thousand People
International coal prices at given years in euro per tonne or GJ (Gigajoule)	1.7	1.8	2.0	2.1	€ per tonne or GJ
International oil prices at given years in euro per barrel or GJ	7.6	6.6	6.6	7.0	€ per barrel or GJ
International gas prices at given years in euro per m3 or GJ	5.2	4.4	4.5	4.8	€ per m3 or GJ
Assumptions for the energy sector					
Total gross inland consumption (PJ) (split by oil, gas, coal, renewables, nuclear, other)	1602.7	1628.0	1612.6	1587.6	
1. - Oil (fossil)	362.0	362.0	359.0	355.0	Petajoule (PJ)
2. - Gas (fossil)	321.0	340.0	353.0	360.0	Petajoule (PJ)
3. - coal	855.0	843.0	798.0	738.0	Petajoule (PJ)
4. - wood	36.5	42.0	55.4	82.9	Petajoule (PJ)
5. - bio-oils	3.0	10.9	13.0	14.0	Petajoule (PJ)
6. - solar	0.1	0.2	0.5	0.8	Petajoule (PJ)
7. - Other renewable (wind, geothermal etc)	25.1	29.9	33.6	36.9	Petajoule (PJ)
Total electricity production by fuel type (oil, gas, coal, renewables, nuclear, other)	53391.7	54266.7	54650.0	55405.6	
8. - Oil (fossil)	313.9	263.9	136.1	77.8	GWh
9. - Gas (fossil)	1172.2	1686.1	1655.6	1813.9	GWh
10. - coal	48855.6	48961.1	48977.8	48794.4	GWh
11. - Renewable	3050.0	3355.6	3880.6	4719.4	GWh
Energy demand by sector split by fuel (delivered)					
Assumptions on weather parameters, especially heating or cooling degree days					
Heating Degree Days	3800.0	3800.0	3800.0	3800.0	Annual HDD
Cooling Degree Days					
Assumptions for the industry sector					
<i>For Member States using macroeconomic models:</i>					
The share of the industrial sector in GDP and growth rate					
<i>Industry</i>	18068.6	22896.5	27612.7	32383.1	Value (Euro 1995 basis)
<i>Construction</i>	2368.1	2646.9	2954.5	3290.1	
<i>For Member States using other models:</i>					
The production index for industrial sector					
<i>Clinker production</i>	1.0	1.0	1.0	1.0	GVA or index units
<i>Lime production</i>	0.9	1.0	1.0	1.0	
<i>Glass production</i>	1.0	1.0	1.0	1.0	
<i>Bricks and ceramics production</i>	1.0	1.0	1.0	1.0	
<i>Ethylene production</i>	1.1	1.0	1.0	1.0	

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<i>Ammonia production</i>	1.0	1.0	1.0	1.0	
<i>Pig iron production</i>	0.9	1.1	1.0	1.0	
<i>Steel production</i>	0.9	1.1	1.0	1.0	
<i>Sinter production</i>	0.9	1.1	1.0	1.0	
<i>Coke production</i>	1.0	1.0	1.0	1.0	
Assumptions for the transport sector					
<i>For Member States using macroeconomic models:</i>					
The growth of transport relative to GDP	5222.7	6147.0	7216.5	8464.3	Gg fuel consumed/GDP
<i>For Member States using other models:</i>					
The growth of passenger person kilometers	109000.0	117700.0	120700.0	120700.0	Million passenger km
The growth of freight tonne kilometres	61427.2	67577.0	71676.9	74504.4	Million tonne km
Assumptions for buildings (in residential and commercial or tertiary sector)					
<i>For Member States using macroeconomic models:</i>					
The level of private consumption (excluding private transport)					
The share of the tertiary sector in GDP and the growth rate	20747.5	25945.0	32150.2	39451.1	Value (Euro 1995 basis)
<i>For Member States using other models:</i>					
The rate of change of floor space for tertiary buildings and dwellings					
20a. Average floor space per dwelling	95.2	96.0	98.0	100.0	M ²
The number of dwellings and number of employees in the tertiary sector					
20a. Average floor space per dwelling	4368.0	4504.0	4654.0	4755.0	1000 dwellings
22b. Number of employees in the tertiary sector	2866.0	2894.7	2923.6	2952.8	1000 employees
Assumptions in the agriculture sector					
<i>For Member States using macroeconomic models:</i>					
The share of the agriculture sector in GDP and relative growth	2827.7	3110.3	3388.1	3682.1	Value (Euro 1995 basis)
<i>For Member States using other models:</i>					
Livestock numbers by animal type (for enteric fermentation beef, cows, sheep, for manure management pigs and poultry)					
27. Beef	1410.0	1410.0	1420.0	1430.0	Thousand Places ⁸ .
28. Cattle	844.2	844.2	850.2	856.2	Thousand Places ⁸ .
29. Dairy cows	565.8	565.8	569.8	573.8	Thousand Places ⁸ .
30. Sheep	120.0	150.0	170.0	200.0	Thousand Places ⁸ .
31. Pigs	2950.0	3100.0	3100.0	3150.0	Thousand Places ⁸ .
32. Poultry	25000.0	23000.0	23500.0	24000.0	Thousand Places ⁸ .
The area of crops by crop type					
Arable land	3054658	2986500	2944950	2897750	
Hop gardens	6180	6000	6100	6200	
Vineyards	18710	18710	18710	18710	

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Grassland	971748	1003350	1017750	1030150	Hectares
Emissions factors by type of livestock for enteric fermentation and manure management (t)					
34. enteric fermentation beef,	75.5	75.5	75.5	75.5	Tonnes CH4 /thousand places
35. enteric fermentation cattle	52.0	52.0	52.0	52.0	Tonnes CH4 /thousand places
36. enteric fermentation dairy cows	110.4	110.4	110.4	110.4	Tonnes CH4 /thousand places
37. enteric fermentation sheep	8.0	8.0	8.0	8.0	Tonnes CH4 /thousand places
38. manure management beef,	9.2	9.2	9.2	9.2	Tonnes CH4 /thousand places
39. manure management cattle	6.0	6.0	6.0	6.0	Tonnes CH4 /thousand places
40. manure management dairy cows	14.0	14.0	14.0	14.0	Tonnes CH4 /thousand places
41. manure management sheep	0.2	0.2	0.2	0.2	Tonnes CH4 /thousand places
42. manure management Pigs	3.0	3.0	3.0	3.0	Tonnes CH4 /thousand places
43. manure management Poultry	0.1	0.1	0.1	0.1	Tonnes CH4 /thousand places
44. fertilizer use & Crops					
Assumptions in the waste sector					
Waste generation per head of population or tonnes of municipal solid waste	4672.0	5061.7	5379.1	5672.2	Tonnes total
The organic fractions of municipal solid waste	8.00%	7.60%	6.71%	5.24%	%
Municipal solid waste disposed to landfills, incinerated or composted (in tonnes or %)	64.60%	62.00%	55.10%	46.80%	%
Municipal solid waste disposed incinerated	8.72%	9.18%	10.39%	13.31%	%
Assumptions in the forestry sector					
Forest definitions	Practically all the forests in the Czech Republic can be considered to be temperate zone managed forests under the IPCC definition of forest management (GPG Chapter 3, IPCC 2003). With respect to the definition thresholds of the Marrakesh Accords (MA), forest land is defined as land with woody vegetation and with tree crown cover of at least 20 %, over an area exceeding 0.05 ha containing trees able to reach a minimum height of 2 m at maturity. This definition excludes the areas of permanently unstocked cadastral forest land, which was (as mentioned above) treated within the category of Other Land. Hence, Forest Land in this emission projection corresponds to the national definition of timberland (Czech Forestry Act 84/1996). In 2004, the stocked forest area (timberland) qualifying under the category of Forest Land equaled 2 591 th. ha, representing about 98 % of the cadastral forest land in the Czech Republic (the remaining area represents the permanently unstocked areas treated as Other Land).				

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Areas of:					
managed forests	2,647,000	2,657,000	26,602,000	2,665,000	Hectares
unmanaged forests	0	0	0	0	Hectares

Note: The projection parameters are provided for the WEM projection scenario.

Source: MMS 2007

2. Recommended parameters on projections	2005	2010	2015	2020	Units
Assumptions for general economic parameters					
GDP growth rates split by industrial sectors in relation to 2000					
Comparison projected data with official forecasts					
Assumptions for the energy sector					
National coal, oil and gas energy prices per sector (including taxes)					
National electricity prices per sector as above (may be model output)					
Total production of district heating by fuel type					
Assumptions for the industry sector					
Assumptions fluorinated gases:					
Aluminium production and emissions factors					
Magnesium production and emissions factors					
Foam production and emissions factors					
Stock of refrigerant and leakage rates					
<i>For Member States using macroeconomic models:</i>					
Share of GDP for different sectors and growth rates					
Rate of improvement of energy intensity (1990 = 100)					
<i>For Member States using other models:</i>					
Index of production for different sectors					
Rate of improvement or index of energy efficiency					
Assumptions for buildings (in residential and commercial / tertiary sector)					
<i>For Member States using macroeconomic models:</i>					
Share of tertiary and household sectors in GDP					
Rate of improvement of energy intensity					
<i>For Member States using other models:</i>					
Number of households					
Number of new buildings					
Rate of improvement of energy efficiency (1990 = 100)					
Assumptions for the transport sector					
<i>For Member States using econometric models:</i>					
Growth of transport relative to GDP split by passenger and freight					
Improvements in energy efficiency split by vehicle type					
Improvements in energy efficiency split by vehicle type, whole fleet/new cars					
Rate of change of modal split (passenger and freight)					
Growth of passenger road kilometres					
Growth of passenger rail kilometres					
Growth of passenger aviation kilometres					
Growth of freight tonne kilometres on road					
Growth of freight tonne kilometres by rail					
Growth of freight tonne kilometres by navigation					
Assumptions for the agriculture sector					
<i>For Member States using econometric models:</i>					

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Agricultural trade (import/export)					
Domestic consumption (e.g. milk/beef consumption)					
<i>For Member States using other models:</i>					
Development of area of crops, grassland, arable, set-aside, conversion to forests etc					
Macroeconomic assumptions behind projections of agricultural activity					
Description of livestock (e.g. by nutrient balance, output/animal production, milk production)					
Development of farming types (e.g. intensive conventional, organic farming)					
Distribution of housing/grazing systems and housing/grazing period					
Parameters of fertiliser regime:					
Details of fertiliser use (type of fertiliser, timing of application, inorganic/organic ratio)					
Volatilisation rate of ammonia, following spreading of manure on the soil					
Efficiency of manure use					
Parameters of manure management system:					
Distribution of storage facilities (e.g. with or without cover):					
Nitrogen excretion rate of manures					
Methods of application of manure					
Extent of introduction of control measures (storage systems, manure application), use of best available techniques					
Parameters related to nitrous oxide emissions from agricultural soils					
Amount of manure treatment					