

Slovakia

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1. SOURCES OF INFORMATION

Slovakia's submission to the European Commission under the Monitoring Mechanism, Decision 280/2004/EC (hereinafter MMS), March 2007.

Slovakia's National Allocation Plan for 2008-2012, submitted 18 August 2006.

The European Community's initial report under the Kyoto Protocol - Report to facilitate the calculation of the assigned amount of the European Community pursuant to Article 3, paragraphs 7 and 8 of the Kyoto Protocol (Submission to the UNFCCC Secretariat), EEA Technical report No 10/2006.

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

Base-year emissions

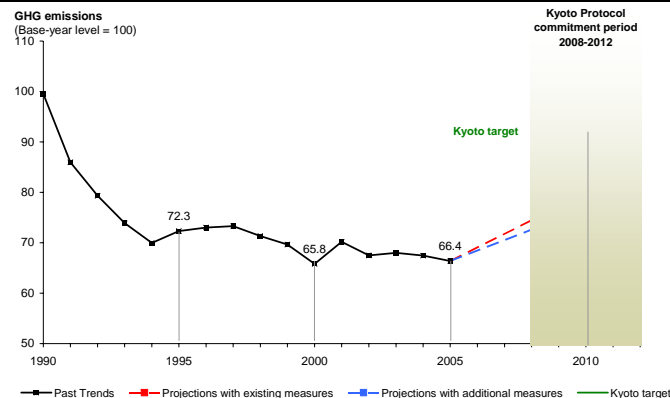
Base-year emissions of greenhouse gases are calculated using 1990 emissions for all gases including fluorinated gases (SF₆, HFCs and PFCs).

Base-year data is as reported in MMS 2007. Base year data is not consistent with data reported in *The European Community's initial report under the Kyoto Protocol - Report to facilitate the calculation of the assigned amount of the European Community pursuant to Article 3, paragraphs 7 and 8 of the Kyoto Protocol (Submission to the UNFCCC Secretariat), EEA Technical report No 10/2006*. This data is currently undergoing a review procedure by UNFCCC and is therefore subject to change.

2. SUMMARY

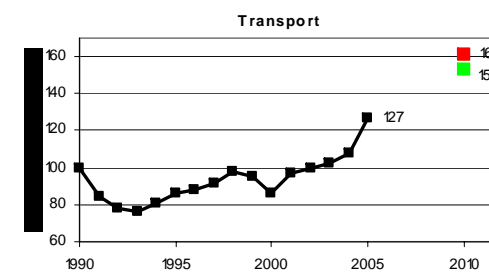
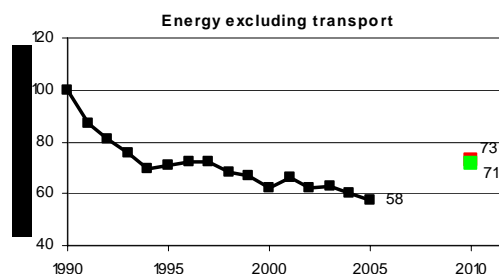
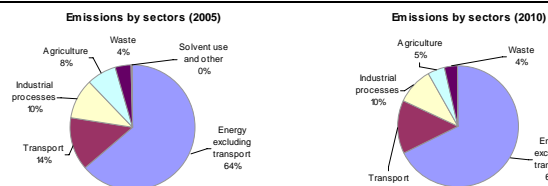
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Emissions base year (initial report)	73.4 Mt
Emissions 2005	48.7 Mt
Emissions base year (for projections)	73.0 Mt
Projections 2010 with existing measures	58.3 Mt
Projections 2010 with additional measures	56.0 Mt
Kyoto target (absolute)	67.5 Mt
Kyoto target (% from base year)	- 8.0 %
Change base year to 2005	- 33.6 %
Change 2004-05	- 1.6 %
Change base year to 2010 with existing measures	- 20.2 %
Change base year to 2010 with additional measures	- 23.3 %
Distance to linear target path 2005	- 27.6 index points
Use of Kyoto mechanisms	n.a.
Sinks (Articles 3.3 and 3.4)	n.a.
Emissions in 1990 (Article 3.7)	n.a.



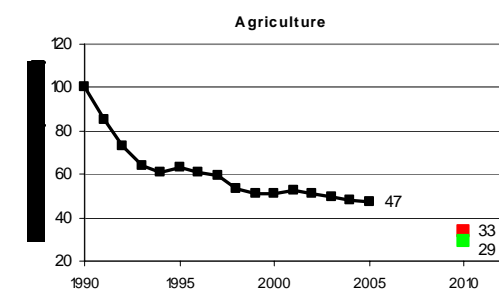
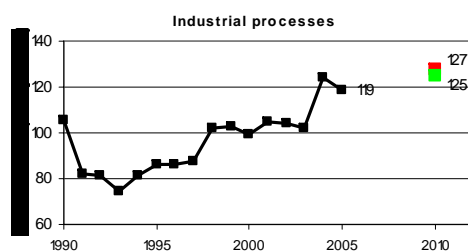
Past emissions: Slovakia's GHG emissions were 1.6 % below those of 2004 and 33.6 % below base-year levels in 2005. The main factors for decreasing emissions with regard to 2004 were decreases in fossil fuel combustion from electricity and heat production, from petroleum refining and from manufacturing industries. The emission decreases between 1990 and 2005 — as for other new Member States — were mainly the result of a decline of energy-inefficient heavy industry and the overall restructuring of the economy in late 1980s and early 1990s.

Emission projections: Emissions in 2005 were 14 percentage points below projections with existing measures for 2010. Slovakia will be below the Kyoto target in both 'with existing measures' and 'with additional measures' projections (12 and 15 percentage points respectively).



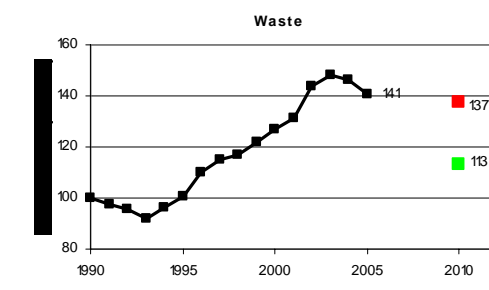
Past trends
 Projections with existing measures
 Projections with additional measures

Past trends
 Projections with existing measures
 Projections with additional measures



Past trends
 Projections with existing measures
 Projections with additional measures

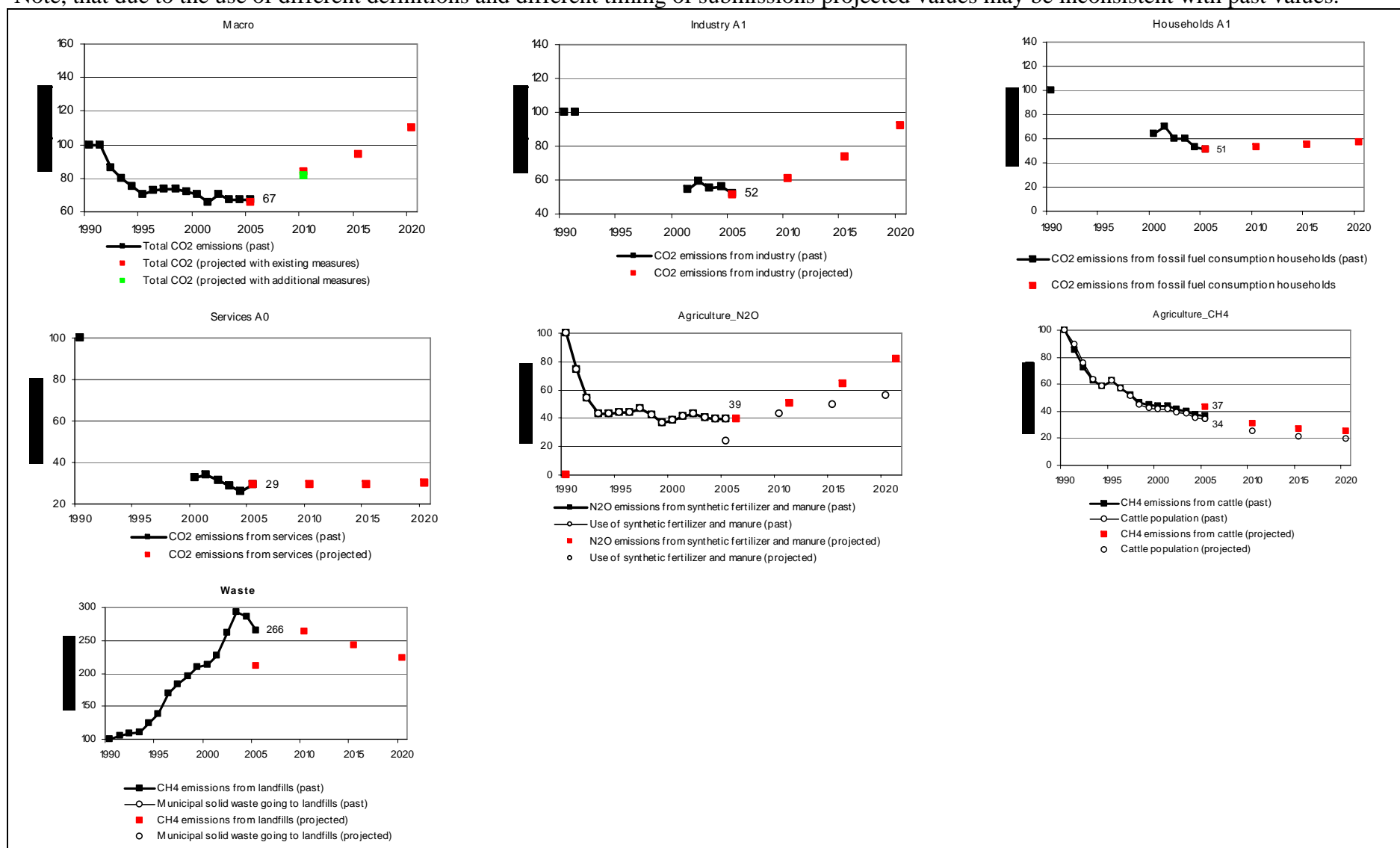
Past trends
 Projections with existing measures
 Projections with additional measures



Past trends
 Projections with existing measures
 Projections with additional measures

3. REPORTED INDICATORS

Note, that due to the use of different definitions and different timing of submissions projected values may be inconsistent with past values.



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Priority Indicators		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Macro	Total CO ₂ emissions, kt	60,537	52,113	48,397	45,424	42,439	43,841	44,389	44,662	43,649	42,630	39,522	42,435	40,497	40,798	40,411	39,940
	GDP, Bio Euro (EC95)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	31
Macro B0	CO ₂ emissions from energy consumption, kt	57,053	49,487	45,731	42,907	39,800	41,062	41,628	41,803	40,089	39,010	36,264	39,102	37,102	37,619	36,489	36,200
	GDP, Bio Euro (EC95)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	31
Transport C0	CO ₂ emissions from passenger cars, kt	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,567
	Number of kilometres by passenger cars, Mkm	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14,118
Industry A1	CO ₂ emissions from industry, kt	24,053	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO	13,017	14,154	13,315	13,469	12,457	12,254
	Gross value-added total industry, Bio Euro (EC95)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9
Households A1	CO ₂ emissions from fossil fuel consumption households, kt	7,295	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO	IE,NO	4,662	5,088	4,400	4,358	3,901	3,711
	Stock of permanently occupied dwellings, 1000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,565
Services A0	CO ₂ emissions from fossil fuel consumption in commercial and institutional sector, kt	3,213	IE	IE	IE	IE	IE	IE	IE	IE	IE	1,044	1,103	1,015	930	838	940
	Gross value-added services, Bio Euro (EC95)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18
Transformation B0	CO ₂ emissions from public and autoproducer thermal power stations, kt	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13,022
	All products - output and autoproducer thermal power stations, PJ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	36

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Additional Priority Indicators		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	
Transport D0	CO ₂ emissions from freight transport on road, kt	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3,505	
	Freight transport on road, Mtkm	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8,061	
Industry A1.1	Total CO ₂ emissions from iron and steel, kt	9,562	373	348	378	393	378	345	363	366	404	5,513	7,047	7,200	6,900	6,492	6,674	
	Gross value-added - iron and steel industry, Bio Euro (EC95)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Industry A1.2	Energy related CO ₂ emissions chemical industries, kt	4,644	IE	IE	IE	IE	IE	IE	IE	IE	IE	2,968	2,718	1,975	1,898	1,911	1,870	
	Gross value-added - chemical industry, Bio Euro (EC95)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Industry A1.3	Energy related CO ₂ emissions - glass pottery and building materials industry, kt	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,471
	Gross value added - glass pottery and building materials industry, Bio Euro (EC95)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Industry C0.1	Total CO ₂ emissions from iron and steel, kt	9,562	373	348	378	393	378	345	363	366	404	5,513	7,047	7,200	6,900	6,492	6,674	
	Production of oxygen steel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4,242
Industry C0.2	Energy related CO ₂ emissions from glass, pottery and building materials, kt	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,471
	Cement production, kt	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3,289

4. OVERVIEW OF CCPM IMPLEMENTATION IN MEMBER STATE

Table 1. Information provided on the implementation of policies and measures

Sector	CCPM	Status
Cross-cutting	Emissions trading 2003/87/EC	N
Cross-cutting	Kyoto Protocol project mechanisms 2004/101/EC	B
Cross-cutting	Integrated pollution prevention and control 96/61/EC	R
Energy supply	Promotion of cogeneration 2004/8/EC	B
Energy supply	Taxation of energy products 2003/96/EC	
Energy supply	Internal electricity market 2003/54/EC	B
Energy supply	Promotion of electricity from RE sources 2001/77/EC	N
Energy supply	Internal market in natural gas 98/30/EC	B
Energy supply	Emissions from large combustion plants 88/609/EEC	R
Energy consumption	Directives on energy labelling of appliances	B
Energy consumption	End-use efficiency and energy services 2006/32/EC	B
Energy consumption	Ecodesign requirements for energy-using products 2005/32/EC	
Energy consumption	Energy performance of buildings 2002/91/EC	N
Energy consumption	Eco-management & audit scheme (EMAS) EC 761/2001	B
Energy consumption	Energy-efficiency labelling for office equipment Regulation No. 2422/2001	
Energy consumption	Efficiency fluorescent lighting 2000/55/EC	
Energy consumption	Efficiency of hot water boilers 92/42/EEC	B
Transport	Environmental performance freight transport (Marco Polo Programme)	
Transport	Motor challenge, voluntary EC programme	
Transport	Promotion of biofuels for transport 2003/30/EC	N
Transport	Integrated European railway area (2 nd + 3rd Railway package) (COM(2002)18 final)	
Transport	Transport modal shift to rail 2001/12/EC etc.	
Transport	Consumer information on cars 1999/94/EC	B
Transport	Agreement with car manufacturers ACEA etc.	
Industrial Process	F-gas regulation (Regulation No 842/2006)	
Industrial Process	HFC emissions from air conditioning in motor vehicles 2006/40/EC	
Agriculture	Support under CAP (1782/2003)	
Agriculture	Support under CAP - amendment (1783/2003)	
Agriculture	Nitrates 91/676/EEC	B
Agriculture	Transition to rural development support No 2603/1999	B
Agriculture	Agricultural production methods compatible with environment Regulation (EEC) No 2078/92	R
Agriculture	Aid scheme for forestry measures in agriculture (Regulation (EEC) No 2080/92)	N
Agriculture	Emission by engines to power agricultural or forestry 2000/25/EC	
Agriculture	Pre-accession measures for agriculture and rural development Regulation (EC) No 1268/1999	B
Waste	Directive on waste 2006/12/EC	N
Waste	Landfill directive 1999/31/EC	B
Waste	Packaging and packaging waste (Directive 94/62/EC, 2004/12/EC, 2005/20/EC)	

Legend

New national PAM implemented after CCPM was adopted	N
Existing national PAM re-enforced by CCPM	R
National PAM already in force before CCPM was adopted	B
Not reported	

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

5. COMPLETENESS OF REPORTING

Table 2. Information provided on policies and measures

Information provided	Level of information provided	Comments
Policy names	+++	
Objectives of policies	+++	
Which greenhouse gases?	+++	CO ₂ ,CH ₄ , N ₂ O, PFCs,HFCs,SF ₆
Status of Implementation	+++	
Implementation body specified	+++	
Quantitative assessment of implementation	+++	
Interaction with other policies and measures discussed	++	In some cases

Table 3. Information provided on projections

Category of Information	Level of information provided	Comments
Scenarios considered	+++	Without measures With measures With additional measures scenarios are given for sectors corresponding with IPCC sectors and for CO ₂ from fossil fuel combustion and transformation
Expressed relative to base year	+++	
Starting year	+++	2005 is the starting year for projections
Split of projections	+++	Projections split by IPCC main sectors and by gas
Presentation of results	+++	Results presented clearly
Description of model (level of detail, approach and assumptions)	+	Basic description of the models and further references provided
Sensitivity analysis (key inputs to model / high, central and low projections scenarios / robustness of model)	o	Not reported
Discussion of uncertainty	o	Not reported
Details of parameters and assumptions	++	Information on type of indicators used in scenarios provided

6. ASSESSMENT OF POLICIES AND MEASURES

Table 4. Summary of the effect of policies and measures included in the 2010 projections (Mt CO₂-eq.)

	With measures	With additional measures
Energy (total, excluding transport)	10.22596	0.98485
Energy supply	0.50908	0.45782
Energy – industry, construction	7.69881	0.26004
Energy – other (commercial, residential, agriculture)	2.01807	0.26700
Transport (energy)	NE	0.44126
Industrial processes	-0.51864	0.12300
Waste	0.21572	0.35574
Agriculture	0.07750	0.35352
Cross-sectoral	NE	NE
Total (excluding LULUCF)	10.00054	2.25837

Table 5. Detailed information on policies and measures

Policies and measures in the “with measures” projection

Sector	Name	Objective	Type of GHG affected	Type of instrument	Status	Implementing entity	Estimated savings (MtCO ₂ -eq.)		Related CCPM
							2010	2020	
Energy supply	Act 656/2004 on energy and Act 657/2004 on heat energy		CO2	Regulatory	Implemented	National Government			En. supply: Internal electricity market (Dir 2003/54/EC)
Energy supply	Directive 2003/54/EC on common rules of internal market with electricity and directive 2003/55/EC on common rules of	Create competitive conditions	CO2	Regulatory	Implemented	National Government			En. supply: Internal electricity market (Dir 2003/54/EC)

Sector	Name	Objective	Type of GHG affected	Type of instrument	Status	Implementing entity	Estimated savings (MtCO ₂ -eq.)		Related CCPM
							2010	2020	
	internal market with gas								
Energy supply	Regulation 123/2005 on rules of functioning markets with gas		CH4	Regulatory	Implemented	National Government			En. supply: Internal electricity market (Dir 2003/54/EC)
Energy supply	Regulation 61/2004 on Keeping operation records and other data on stationary pollution sources		CO2	Regulatory	Implemented	National Government Regional Entities Municipalities / local governments Companies / Businesses / industrial associations			
Transport	Act 725/2004 on operation of vehicles and regulation 584/2004 of measures to reduce emissions from combustion engines installed in non-road equipment	Reduce emissions	CO2	Regulatory	Implemented	National Government Companies / Businesses / industrial associations Others(individual car owners)			Trans: Voluntary agreement with car manufacturers to reduce specific CO2 emissions (ACEA, KAMA, JAMA)
Industrial Processes	Sectoral operational program Industry and Services	Reduction in energy use and emissions	CO2 CH4 N2O	Economic		National Government			
Industrial Processes	Modernization of aluminium production		PFC	Regulatory			0.009	0.009	
Industrial Processes	New technology of emission sinks		N2O	Regulatory					

Sector	Name	Objective	Type of GHG affected	Type of instrument	Status	Implementing entity	Estimated savings (MtCO ₂ -eq.)		Related CCPM
							2010	2020	
Waste	Waste water treatment - Municipal	Reduction of emissions and harmonisation with EU	CH4 N2O	Regulatory		National Government Regional Entities Municipalities / local governments Others(Slovak Environmental Inspection)	0.026	0.137	
Waste	Waste water treatments - industrial waters	Reduction of emissions and harmonisation with EU	CH4 N2O	Regulatory		National Government Companies / Businesses / industrial associations Others(Slovak Environmental Inspection)	0.002	0.023	
Waste	Act 238/1991 on Waste amended by Act 223/2001	Harmonization with EU regulations	CH4	Regulatory	Implemented	National Government Regional Entities Municipalities / local governments Companies / Businesses / industrial associations Others(Slovak Environmental Inspection)			Waste: Landfill Directive (Dir 1999/31/EC)
Waste	Act 529/2002 on packages	Avoid generation of waste from packages and to reduce the amount of waste in general	CH4	Regulatory	Implemented	National Government Regional Entities Municipalities / local governments Companies / Businesses / industrial associations Others(Slovak			Waste: Packaging and packaging waste (Dir 94/62/EC, 2004/12/EC, 2005/20/EC)

Sector	Name	Objective	Type of GHG affected	Type of instrument	Status	Implementing entity	Estimated savings (MtCO ₂ -eq.)		Related CCPM
							2010	2020	
						Environmental Inspection)			
Waste	Act 364/2004 on waters	Protection of waters	CH4	Regulatory	Implemented	National Government Regional Entities Municipalities / local governments Companies / Businesses / industrial associations Others(Slovak Environmental Inspection)			
Waste	Act 17/2004 on charges for waste disposal		CH4	Economic	Implemented	National Government Regional Entities Municipalities / local governments Companies / Businesses / industrial associations Others(Slovak Environmental Inspection)			
Waste	Measures in waste disposal	Reduction of emissions and harmonisation with EU	CH4	Regulatory	Implemented	National Government Regional Entities Municipalities / local governments	0.186	0.409	Waste: Landfill Directive (Dir 1999/31/EC)
Agriculture	Act 220/2004 on protection and utilization of agricultural soils	Establishment of obligations to protect soils for agricultural soil owners	CH4 N2O	Regulatory	Implemented	National Government Regional Entities Municipalities / local governments Research institutions			
Agriculture	Act 364/2004 on Water, §35 on protection against	Reduction of water pollution, improved manure management	N ₂ O	Regulatory	Implemented	National Government Regional Entities Municipalities / local			Agri: Nitrates Directive (Dir 91/676/EEC)

Sector	Name	Objective	Type of GHG affected	Type of instrument	Status	Implementing entity	Estimated savings (MtCO ₂ -eq.)		Related CCPM
							2010	2020	
	pollution from nitrates from agricultural sources					governments Companies / Businesses / industrial associations			
Agriculture	Act 555/2004 on manures	Improve the use of manure	CH4	Regulatory	Implemented	National Government Regional Entities Municipalities / local governments Companies / Businesses / industrial associations Others(Slovak Environmental Inspection)	0.307	0.552	Agri: Nitrates Directive (Dir 91/676/EEC)
Agriculture	Act 415/2002 on ecological agriculture and production of biofoods	Support ecological agriculture	CH4	Regulatory	Implemented	National Government Regional Entities Municipalities / local governments Companies / Businesses / industrial associations Research institutions			Agri: Agricultural production methods compatible with environment (Reg (EEC) No 2078/92)
Agriculture	Act 188/2003 on application of sludge and bottom sediments on the soil	Avoid deterioration of the soil, water and human and animal health and the environment	N2O	Regulatory	Implemented	National Government Regional Entities Municipalities / local governments Companies / Businesses / industrial associations Research institutions			
Agriculture	Disposal of animal		N ₂ O	Regulatory	Implemented	National Government	0.077	0.138	

Sector	Name	Objective	Type of GHG affected	Type of instrument	Status	Implementing entity	Estimated savings (MtCO ₂ -eq.)		Related CCPM
							2010	2020	
	waste					Companies / Businesses / industrial associations			
Cross-cutting Industrial Processes	Act 245/2003 on integrated prevention and pollution control		CO2 CH4 N2O HFC PFC SF6	Regulatory	Implemented	National Government Regional Entities Municipalities / local governments Companies / Businesses / industrial associations			Cross-cut: Integrated pollution prevention and control (IPPC) (Dir 96/61/EC)
Cross-cutting	Act 478/2002 on air protection	Reduction of emissions from basic pollutants	CO2 CH4 N2O HFC PFC SF6	Economic Regulatory	Implemented	National Government Regional Entities Municipalities / local governments Companies / Businesses / industrial associations Others(Slovak Environmental Inspection)	10.225	14.304	
Cross-cutting	Act 587/2004 on Environmental Fund	Achieve objectives of state environmental policy	CO2	Economic	Implemented	National Government			
Cross-cutting	Act 205/2004 on collection, storage and dissemination of information on the environment		CO2	Regulatory	Implemented	National Government Regional Entities Municipalities / local governments			

Source: Policies and measures sheet in MM report.

Policies and measures in the "with additional measures" projection

Sector	Name	Objective	Type of GHG affected	Type of instrument	Status	Implementing entity	Estimated savings (MtCO ₂ -eq.)		Related CCPM
							2010	2020	
Energy consumption	Directive 2002/91 on energy economy of production (energy efficiency) in buildings	Improve energy efficiency of buildings	CO2 CH4	Regulatory	Implemented	National Government		0.126) En. consumption: Energy performance of buildings (Dir 2002/91/EC)
Energy supply	Directive 2001/77/EC on support of electricity generated from renewable resources	Increase share of renewable	CO2 N2O	Regulatory	Implemented	National Government		0.455	En. supply: Electricity production from renewable energy sources (Dir 2001/77/EC)
Energy supply	Directive 2004/67/EC regarding safety of natural gas supply		CH4	Regulatory	Planned	National Government			Directive 2004/67/EC En. supply: Internal market in natural gas (Dir 98/30/EC)
Transport	Directive 2003/30/EC on support of biofuels and other renewable energy resources utilization in transport	Increase the share of alternative fuels in transport.	CO2	Regulatory		National Government	0.441	0.619	Trans: Biofuels Directive (Dir 2003/30/EC)
Transport	Regulation of technical requirements on Certification on motor vehicles	Emission reduction	CO2	Regulatory	Planned	National Government			Certification on motor vehicles (Directive 70/156/EC) Trans:

Sector	Name	Objective	Type of GHG affected	Type of instrument	Status	Implementing entity	Estimated savings (MtCO ₂ -eq.)		Related CCPM
							2010	2020	
	(Directive 70/156/EC)								Labelling of new passenger cars (Dir 1999/94/EC)
Transport	Regulation on technical requirements regarding measures against pollution of air by gases from vehicles with ignition. (Directive 70/220/EC)	Emissions reduction	CO2	Regulatory	Planned	National Government			measures against pollution of air by gases from vehicles with ignition. (Directive 70/220/EC) Trans: Labelling of new passenger cars (Dir 1999/94/EC)
Transport	Regulations on technical measures against emissions from diesel motors. ((Directive 72/306/EC; 88/77/EC)	Emissions reduction	CO2	Regulatory	Planned	National Government			emissions from diesel motors. ((Directive 72/306/EC; 88/77/EC) Trans: Labelling of new passenger cars (Dir 1999/94/EC)
Transport	<u>Regulation on technical requirements on fuel consumption of motor vehicles</u> (Directive 80/1268/EC)		CO2	Regulatory	Planned	National Government			fuel consumption of motor vehicles (Directive 80/1268/EC) Trans: Labelling of new passenger cars (Dir

Sector	Name	Objective	Type of GHG affected	Type of instrument	Status	Implementing entity	Estimated savings (MtCO ₂ -eq.)		Related CCPM
							2010	2020	
									1999/94/EC)
Industrial Processes	Reduction of releases in compliance with EU legislation	Recycling and ban of coolants that contain substances depleting the ozone layer	HFC SF6	Regulatory	Implemented	National Government Companies / Businesses / industrial associations	0.00013	0.00014	2037/2000/EC on substances that deplete ozone layer Ind. Process: F-gas regulation (Reg No 842/2006)
Industrial Processes	<u>Modernization of production of HNO₃</u>	Reduction of N ₂ O emissions from nitric acid production	N ₂ O	Regulatory		Companies / Businesses / industrial associations		0.00558	
Industrial Processes	Instalment of inert anodes		PFC	Regulatory					
Waste	Measures in waste disposal	Reduction of emissions and harmonisation with EU	CH ₄	Regulatory	Implemented	National Government Regional Entities Municipalities / local governments	0.317	0.387	Waste: Directive on waste (Dir 2006/12/EC)
Agriculture	Disposal of animal waste		CH ₄ N ₂ O	Regulatory	Implemented	National Government Companies / Businesses / industrial associations	0.047	0.149	
Cross-cutting	Act 572/2004 on trade with emission quotas and its implementing regulation 711/2004 amended by Act. 117/2007	CO ₂ reduction in energy sector and industry	CO ₂ CH ₄ N ₂ O	Economic Regulatory	Implemented	National Government Regional Entities Companies / Businesses / industrial associations Others(Slovak Environmental Inspection)	1.469	1.699	Cross-cut: Emissions trading scheme (Dir 2003/87/EC)

Source: Öko Institut, (accessed June 2007), ECCP Policies and Measures database, <http://www.oeko.de/service/pam/index.php>

7. EVALUATION OF PROJECTIONS

Table 6. Summary of projections by gas in 2010 (Mt CO₂-eq.)

	Base year	With measures	With additional measures
Carbon dioxide (excl. LULUCF)	60.54	50.72	49.25
Methane	5.84	4.01	3.64
Nitrous oxide	6.37	3.27	2.98
HFCs	0.00	0.28	0.16
PFCs	0.27	0.01	0.01
SF ₆	0.00	0.02	0.02
Total (excl. LULUCF)	73.02	58.29	56.03
% change relative to base year (excl. LULUCF)		-20.17%	-23.27%

Table 7. Summary of projections (6 gas basket) by sector in 2010 (Mt CO₂-eq.)

	Base year	with measures	% change relative to base-year	with additional measures	% change relative to base-year
Energy (total, excluding transport)	53.69	39.31	-27%	38.32	-29%
Energy supply	16.83	18.10	8%	17.64	5%
Energy – industry, construction	24.18	14.66	-39%	14.40	-40%
Energy – other (commercial, residential, agriculture)	12.68	6.55	-48%	6.28	-50%
Transport (energy)	5.26	8.49	61%	8.05	53%
Industrial processes	4.51	5.75	27%	5.63	25%
Waste	1.50	2.06	37%	1.70	13%
Agriculture	8.06	2.69	-67%	2.33	-71%
Total (excl. LULUCF)	73.02	58.29	-20%	56.03	-23%

Table 8. Summary of projections by sector and by gas in 2010 (Mt CO₂-eq.) compared to base-year emissions

	Carbon dioxide			Methane			Nitrous oxide			F-gases		
	Base-year	WM	WAM	Base-year	WM	WAM	Base-year	WM	WAM	Base-year	WM	WAM
Energy (excl. transport)	51.98	37.96	36.93	1.53	1.22	1.26	0.18	0.12	0.13	0.00	0.00	0.00
Transport (energy)	5.07	8.16	7.72	0.02	0.03	0.03	0.16	0.30	0.30	0.00	0.00	0.00
Industrial processes	3.49	4.45	4.45	0.00	0.00	0.00	0.75	1.01	1.01	0.27	0.31	0.18
Waste	0.00	0.15	0.15	1.48	1.87	1.51	0.03	0.04	0.04	0.00	0.00	0.00
Agriculture	0.00	0.00	0.00	2.81	0.88	0.84	5.25	1.80	1.49	0.00	0.00	0.00
Total (excl. LULUCF)	60.54	50.72	49.25	5.84	4.01	3.64	6.37	3.27	2.98	0.27	0.31	0.18

Figure 1. Share by sector of 2010 greenhouse gas emissions according to the "With existing measures" projections

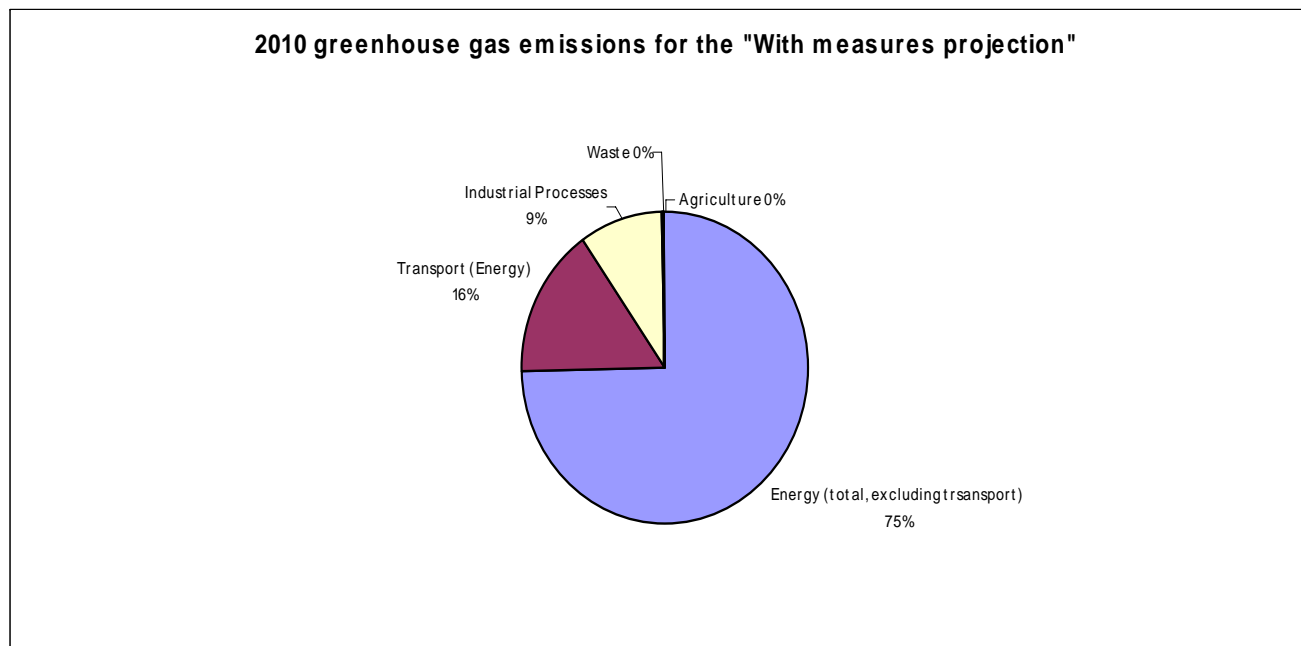


Table 9. Summary of projections (6 gas basket) in 2010, 2015 and 2020 - With measures (Mt CO₂-eq.)

	Base-year	2010	2010 % of base-year level	2015	2015 % of base-year level	2020	2020 % of base-year level
Total (excl. LULUCF)	73.02	56.03	76.7%	65.00	89.0%	74.33	101.8%

Table 10. Assessment of the target (6 gas basket), with a comparison of 2010 projections in 2005, 2006 and 2007 national reports

	Emissions in MtCO ₂ -equiv., excluding LULUCF			
	2010 projections from 2005	2010 projections from 2006	2010 projections from 2007	2010 projections from 2007 % of base-year level
Base year emissions used for projections	72.1	71.90	73.02	100.0%
Kyoto Commitment/burden sharing	66.3	66.15	67.18	92.0%
With existing P&Ms projections	57.9	55.76	58.29	79.8%
Gap (-ve means overachievement of target)	-8.4	-10.38	-8.89	-12.2%
With additional P&Ms projections	56.8	54.12	56.03	76.7%
Remaining gap	-9.6	-12.02	-11.15	-15.3%
Effect of flexible mechanisms	0.0	0.00	0.00	
Remaining gap (with use of flexible mechanisms)	-9.6	-12.02	-11.15	-15.3%

Above table excludes LULUCF. LULUCF will be covered in the main report, based on the questionnaire submissions.

Source for 2005 is MMS 2005.

Source for 2006 is 4th National Communication

Source for 2007 is MMS 2007.

Table 11. Comparison with projections for the trading sector (EU ETS)

Comparison is made between WM 2010 CO₂ emission projections of the MMS2007 and NAP2 report. A small discrepancy in the total projected emissions from the energy and industry sectors is identified.

	MMS 2007	NAP 2 projections	Difference in %
Energy sector 1A1 – energy industries	16.89 ^a		--
Energy sector included in EU ETS	16.89	18.28	8.22
Industry sector	4.45 ^b		--
Industry sector included in EU ETS	4.45	2.79	-37.30
Total Energy & Industry	21.34	21.07	-1.27

There are relatively large discrepancies in the individual sectors, energy and industry, between the two reports. In MMS 2007, no data was provided for chemical industry CO₂

emission whereas several sources are identified in that industry in the NAP2 report. NAP2 includes CO₂ emissions from the sectors mineral oil refineries, iron and steel, cement clinker, lime, glass, ceramic products, pulp and paper production.

a/ Included are MMS 2007 CO₂ WM emissions from the sectors Energy-only 1A1. As there are no fugitive emissions, this number is identical to that of the next cell.

b/ Included are MMS 2007 CO₂ WM emissions from the sectors Industrial processes. As there are no emissions from solvents, this number is identical to that of the next cell.

In addition to the values listed above, NAP Summary Table identified 0.09 for “commercial and institutional, Residential, and Agricultural energy use” and 20.54 for “all other sectors.” In total, it is calculated as 41.70.

This NAP draft is not reflecting the significant reduction proposed by the Commission. In the EC website the cleared annual allocation is set as 30.9 which is 25.9% lower than that of NAP Summary Table (41.7).

8. DESCRIPTION OF MODELLING APPROACH

Overview of modelling approach

The optimization model MESSAGE was used to develop projections of CO₂ emissions from combustion and transformation of fossil fuels. This model also allows estimation of the effect of emission ceiling of CO₂ and SO₂ emissions. Results were compared to those achieved from the simulation model ENPEP (module BALANCE and IMPACT).

Sensitivity analysis

Sensitivity analysis was not carried out.

Details of the uncertainty assessment

No details of uncertainty were given.

9. PROJECTION INDICATOR REPORTING

All indicators are reported.

10. REPORTING OF PARAMETERS ON PROJECTIONS

Most mandatory parameters are reported. Those missing include international fuel prices, the share of sectors in GDP, the level of private consumption, and data on municipal solid waste (except 2005). No recommended parameters are reported.

Table 12. Indicators for projections to monitor and evaluate progress with policies and measures (2005/166/EC) Annex III

N°	Eurostat Sectors	Indicator	2005	2010	2015	2020	Numerator/denominator	2005	2010	2015	2020
1	Macro	CO ₂ intensity of GDP, t/Euro million	1304.73	1329.81	1231.74	1231.67	Total CO ₂ emissions, kt	39794.17	50572.19	57202.90	66477.89
							GDP, bio Euro (EC95)	30.50	38.03	46.44	53.97
2	Transport C0	Passenger Car CO ₂ Gg/Mvkm	0.18	0.18	0.18	0.18	CO ₂ emissions from passenger cars, kt	2567,18	3159.84	3470.32	3511.49
							Number of kilometres by passenger cars, Mkm	14117.69	17523.01	19360.19	19597.02
3	Transport D0	Freight Transport CO ₂ (Gg/Mtkm)	0.50	0.60	0.62	0.62	CO ₂ emissions from freight transport (all modes), kt	3504.62	4698.69	4974.42	4073.59
							Freight transport (all modes), Mtkm	6955.81	7834.27	8032.05	6550.40
4	Industry A1	Energy related CO ₂ intensity of industry, t/Euro million	1399.27	1200.29	1084.08	1049.44	CO ₂ emissions from fuel consumption industry, kt	12253.72	14572.74	17760.00	22109.78
							Gross value-added total industry, Bio Euro (EC 95)	8.76	12.14	16.38	21.07
5	Households A1	Specific CO ₂ emissions of households, t/dwelling	2.37	2.49	2.60	2.71	CO ₂ emissions from fossil fuel consumption households, kt	3710.74	3894.07	4023.66	4152.06
							Stock of permanently occupied dwellings, 1000	1565.11	1563.33	1546.53	1534.35
6	Services A0	CO ₂ intensity of the services sector, t/Euro million	52.22	44.35	38.72	35.97	CO ₂ emissions from fossil fuel consumption services, kt	940.08	944.30	952.20	963.15
							gross value-added services, bio Euro (EC95)	18.00	21.29	24.59	26.77
7	Transformation B0	Specific CO ₂ emissions of public and autoproducer power plants, t/TJ	0.98	0.92	0.95	1.13	CO ₂ emissions from public and autoproducer thermal power stations, kt	8219.00	13070.00	13599.00	16354.68
							all products-output by public and autoproducer thermal power stations, PJ	8422.57	14132.22	14274.41	14412.72

8	Agriculture	Specific N ₂ O emissions of fertilizer and manure use, kg/kg	0.032	0.023	0.026	0.029	N ₂ O emissions from synthetic fertilizer and manure use, kt	2.355	3.004	3.833	4.890
							use of synthetic fertiliser and manure, kt nitrogen	73.19	130.00	150.00	170.00
9	Agriculture	Specific CH ₄ emissions of cattle production, kg/head	0.08	0.09	0.09	0.09	CH ₄ emissions from cattle, kt	44.24	33.25	28.62	26.79
							cattle populations, 1000 head	527.89	389.00	325.00	302.00
10	Waste	Specific CH ₄ emissions from landfills, kt/kt	0.00	No Data	No Data	No Data	CH ₄ emissions from landfills, kt	59.57	58.84	54.42	50.13
							Municipal solid waste going to landfills, kt	95706	0.0	0.0	0.0

Table 13. List of parameters on projections (Annex IV of Implementing Provisions¹)

1. Mandatory parameters on projections	2005	2010	2015	2020
Assumptions for general economic parameters				
GDP (Euro 2000 bases)	30.500	38.030	46.441	53.974
Population (thousand people)	5387.285	5370.252	5339.193	5288.096
International coal prices at given years in euro per tonne or GJ (Gig joule)				
International oil prices at given years in euro per barrel or GJ				
International gas prices at given years in euro per m3 or GJ				
Assumptions for the energy sector				
Total gross inland consumption (PJ) (split by oil, gas, coal, renewable, nuclear, other)	700.444	848.753	952.872	1092.696
Oil (fossil)	191.602	214.516	228.037	224.303
Gas (fossil)	254.904	313.955	346.516	389.198
Coal	156.810	204.472	236.380	300.191
Renewable	97.129	115.810	141.940	179.005
Nuclear (IEA definition for energy calc.)	192.079	172.105	175.101	175.101
Total electricity production by fuel type (oil, gas, coal, renewable, nuclear, other)(Gwhe)	8422.568	14132.2	14274.408	14412.724
Oil (fossil)				
Gas (fossil)	50	3223.99	3223.9902	3223.9902
Coal	4157.368	6693.03	6835.2182	6973.534
Renewable	4215.2	4215.2	4215.2	4215.2
Nuclear (IEA definition for energy calc.)	15473.018	13864	14105.393	14105.393
Energy demand by sector split by fuel (delivered)(PJ)	807.23086	917.764	999.70029	1103.7542
Energy Industries	337.82578	390.019	409.31841	448.81968
Oil (fossil)	0.9752078	1.39455	1.619957	1.868049
Gas (fossil)	75.140258	117.725	128.16915	140.8195
Coal	62.311468	91.2679	96.891932	123.4855
Renewable	7.3200068	7.52569	7.5359381	7.545234
Nuclear (IEA definition for energy calc.)	192.07884	172.105	175.10143	175.1014
Industry	186.679	223.495	275.324	346.556
Oil (fossil)	16.54	21.159	26.978	34.048
Gas (fossil)	76.757	89.819	108.791	134.641
Coal	88.865	107.327	133.424	170.451
Renewable	4.517	5.19	6.131	7.416
Commercial (Tertiary)	45.496779	46.0874	47.383512	49.795735
Oil (fossil)	0.8240165	0.9254	1.1253393	1.378008
Gas (fossil)	43.728389	44.205	45.278381	47.40913
Coal	0.9443738	0.95703	0.9797926	1.008597
Residential	63.967	67.126	69.361	71.574
Oil (fossil)				
Gas (fossil)	59.278	62.206	64.277	66.328
Coal	4.689	4.92	5.084	5.246
Transport	173.2623	191.037	198.31337	187.0088
Oil (fossil)	173.2623	191.037	198.31337	187.0088

¹ Commission Decision of 10 February 2005 laying down rules implementing Decision No 280/2004/EC of the European Parliament and of the Council concerning a mechanism for monitoring Community greenhouse gas emissions and for implementing the Kyoto Protocol

1. Mandatory parameters on projections	2005	2010	2015	2020
Assumptions on weather parameters, especially heating or cooling degree days				
Assumptions for the industry sector				
Gross value-added total industry, Euro 2000 basis	8.757	12.141	16.383	21.068
<i>For Member States using macroeconomic models:</i>				
The share of the industrial sector in GDP and growth rate				
<i>For Member States using other models:</i>				
The production index for industrial sector				
Assumptions for the transport sector				
<i>For Member States using macroeconomic models:</i>				
The growth of transport relative to GDP				
<i>For Member States using other models:</i>				
The growth of passenger person kilometres (Million passengers km)	7 525.000	9 340.000	10 319.000	10 445.000
Number of kilometres by passenger cars (Mkm)	14 117.686	17 523.007	19 360.189	19 597.025
The growth of freight tonne kilometres (Million tonne km)	8 061.000	10 005.000	11 054.000	11 189.000
Freight transport (all modes) (Mtkm)	6955.808	7834.267	8032.054	6550.401
Assumptions for buildings (in residential and commercial or tertiary sector)				
Gross value-added total industry, Euro 2000 basis	18.003	21.290	24.590	26.774
The number of dwellings (1000 dwellings)	1565.105	1563.326	1546.530	1534.354
<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				
<i>For Member States using other models:</i>				
The rate of change of floor space for tertiary buildings and dwellings				
The number of dwellings and number of employees in the tertiary sector				
Assumptions in the agriculture sector				
<i>For Member States using macroeconomic models:</i>				
The share of the agriculture sector in GDP, Euro 2000 basis	1.109	1.488	1.889	2.250
<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, 1000head)				
cattle	527.889	389	325	302
Dairy cattle	229.607	139	116	104
Non-dairy cattle	298.282	250	209	198
sheep	320.487	335	335	335
swine	1108.265	1450	1445	1440
poultry	14084.079	13000	13000	13000
horses	8.328	9	9	9
goats	39.566	40	40	40

1. Mandatory parameters on projections	2005	2010	2015	2020
The area of crops by crop type				
Fertilizer Used (Synthetic & Manure) (kt Nitrogen)	73.185	130.000	150.000	170.000
Emissions factors by type of livestock for enteric fermentation and manure management (t)				
enteric fermentation Dairy cattle (Tonnes CO2e /Thousand Heads)	2447.619	2100.000	2100.000	2100.000
enteric fermentation Non-dairy cattle (Tonnes CO2e /Thousand Heads)	915.885	1176.941	1174.875	1173.624
enteric fermentation sheep (Tonnes CO2e /Thousand Heads)	165.674	168.000	168.000	168.000
manure management Dairy cattle (Tonnes CO2e /Thousand Heads)	97.858	126.000	126.000	126.000
manure management Non-dairy cattle (Tonnes CO2e /Thousand Heads)	62.123	84.067	83.920	83.830
manure management sheep (Tonnes CO2e /Thousand Heads Consistent Unit)	3.942	3.990	3.990	3.990
manure management Swine (Tonnes CO2e /Thousand Heads)	84.247	84.000	84.000	84.000
manure management Poultry (Tonnes CO2e /Thousand Heads)	1.758	1.638	1.638	1.638
Assumptions in the waste sector				
Tonnes of municipal solid waste(kt)	1.468			
Municipal solid waste disposed to landfills (kt)	1.142			
The organic fractions of municipal solid waste (%)	12			
Municipal solid waste disposed to landfills (%)	78			
Municipal solid waste incinerated (%)	22			
Assumptions in the forestry sector				
Forest definitions				
Areas of:				
managed forests(Hectares)	1930000	1935000	1940000	1945000
unmanaged forests				

2. Recommended parameters on projections	2005	2010	2015	2020
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				

2. Recommended parameters on projections	2005	2010	2015	2020
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				

2. Recommended parameters on projections	2005	2010	2015	2020
Assumptions for the agriculture sector				
<i>For Member States using econometric models:</i>				
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				

No recommended parameters on projections were reported.

11. COUNTRY CONCLUSIONS

The MMS 2007 Excel file was used as the main source for information. Figures of GHG emission projections are updated from previous projection set presented in the 4th National Communication using the year 2005 data as the reference. Policies and measures are summarised in a Table. Some of the mandatory parameters on projections are not provided. Information about the methodologies for the projections is briefly described.

According to the reported total GHG emission projections in MMS report, significant mitigation effects are envisaged for the WM scenario while the effects of additional measures will be modest. 'With additional measures', Slovakia will overachieve its implied Kyoto commitment of 67.18 MtCO₂-eq, by 11.15 MtCO₂-eq.