Slovakia

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1. SUMMARY

Slovakia has chosen the year 1990 as the Kyoto base year for all six greenhouse gases. The country's base year emissions equals to 72.05 Mt CO2 eq. The reduction target of Slovakia is 8%.

Slovakia has submitted the latest version of the 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 in July 2007.

As the latest projections show Slovakia will not exceed its Kyoto commitment target in the first period under both With Existing Measures and With Additional Measures scenarios. In the year 2010 the projected emissions under the WEM scenario will be 58.8 Mt CO2 eq., or 81.5% as compared to the base year level. Under the WAM scenario the emissions will be 56.5 Mt CO2 eq., or 78.3% compared to the base year emissions. WEM and WAM projections for 2010 show 18.5 % and 21.7 % reduction from base year emissions respectively, against a target of an 8 % reduction. However, the situation changes in the years 2015 and 2020. The projections for 2020 forecast that emissions will be 75.1 Mt CO2 eq. even under the WAM scenario which is higher than the base year emission.

Policies and measures implemented and planned are described in the report. The data quantifying the mitigation impact by gas and quantitative reduction effects are limited. Some of the mandatory parameters for projections are not provided.

The description of the use of Kyoto Flexible mechanisms is well described. Slovakia does not intend to use the project-based mechanisms for compliance purposes since the country's emission is below their Kyoto target. As to the participation in the flexible mechanisms Slovakia is the host for a number of JI projects.

Slovakia had introduced several PAMs before the relevant CCPMs have been adopted. Unfortunately the status of a number of PAMs is missing in many cases. According to the country review team, this information will be updated in the new Monitoring Mechanism submission report in 2009.

Information on methodologies for projection is only briefly provided. There is no detailed description on different methodologies for different sectors. No sensitivity and uncertainty analysis has been carried out.

2. GHG PROJECTIONS AND PROGRESS TO KYOTO TARGETS

Base-year emissions of greenhouse gases are calculated using 1990 emissions for all gases including fluorinated gases (SF6, HFCs and PFCs).Slovakia calculated its emission projections for all three scenarios, i.e. WOM, WEM and WAM.

GHG emissions were projected for all sectors and all gases. The optimization model called MESSAGE was used for developing projections for CO2 emissions from combustion and transformation of fossil fuels. This model allows estimating also 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).Significant reductions in emission from 1990 to 2005 were observed in CO2, CH4 , N2O and PFCs. Current GHG emissions are well below the Kyoto target(-8%). Emission projections show that emission will be increasing in each sector in the projected years (2010, 2015, and 2020) except fugitive emissions, agriculture and waste management. High rate of increase is expected in all of energy sector, transport sector and industrial processes sector. Significant mitigation effects are envisaged for WEM scenario although the effect is not large enough to stabilize or decrease the emissions of GHGs.

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 Slovak Republic;
- Historic emissions (in the "reference year") as reported together with projections.

For Slovakia the reference year is 1990 and the Kyoto base-year: 1990 for CO_2, CH_4 and N_2O, and for fluorinated gases (F-gases)].

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 data[1]. In the case of Hungary, the correction factor is very small (1.00894288).

[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).

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

	Carbon dioxide			Methane			Nitrous oxide			F-gases (SF6, 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)	52.0	38.0	36.9	1.6	1.2	1.2	0.2	0.1	0.1	0.0	0.0	0.0	53.7	39.3	38.3
Energy supply	15.7	16.9	16.4	1.1	1.1	1.1	0.1	0.1	0.1	NE	NE	NE	16.9	18.1	17.6
Energy – industry, construction	24.1	14.6	14.3	0.0	0.0	0.0	0.1	0.1	0.1	NE	NE	NE	24.2	14.7	14.4
Energy – other (commercial, residential, agriculture)	12.3	6.5	6.2	0.4	0.0	0.1	0.0	0.0	0.0	NE	NE	NE	12.7	6.5	6.3
Transport (energy)	5.1	8.2	7.7	0.0	0.0	0.0	0.2	0.3	0.3	NE	NE	NE	5.3	8.5	8.0
Industrial processes	3.5	4.5	4.5	0.0	0.0	0.0	0.8	1.0	1.0	0.3	0.3	0.2	4.5	5.7	5.6
Waste	NE	0.2	0.2	1.5	1.9	1.5	0.0	0.0	0.0	NE	NE	NE	1.5	2.1	1.7
Agriculture	NE	NE	NE	2.8	0.9	0.8	5.3	1.8	1.5	NE	NE	NE	8.1	2.7	2.3
Other	NE	NE	NE	NE	NE	NE	NE	0.0	0.0	NE	NE	NE	NE	0.0	0.0
Total (excl. LULUCF)	60.5	50.7	49.3	5.9	4.0	3.6	6.4	3.3	3.0	0.3	0.3	0.2	73.1	58.3	56.0

Key:
Reference year: 1990
WEM: 'with existing measures' projection
WAM: 'with additional measures' projection

Source: Slovakia's MM submission, 2007, and Annual greenhouse gas inventory 1990 – 2002, 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 (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)	53.0	38.3	37.3	1.5	1.2	1.3	0.3	0.1	0.1	0.0	0.0	0.0	54.8	39.7	38.7
Energy supply	16.0	17.0	16.6	1.1	1.2	1.2	0.1	0.1	0.1	NE	NE	NE	17.1	18.3	17.8
Energy – industry, construction	24.3	14.7	14.4	0.0	0.0	0.0	0.1	0.1	0.1	NE	NE	NE	24.5	14.8	14.5
Energy – other (commercial, residential, agriculture)	12.8	6.6	6.3	0.4	0.0	0.1	0.1	0.0	0.0	NE	NE	NE	13.3	6.6	6.3
Transport (energy)	4.9	8.2	7.8	0.0	0.0	0.0	0.1	0.3	0.3	NE	NE	NE	5.0	8.6	8.1
Industrial processes	3.8	4.5	4.5	0.0	0.0	0.0	1.1	1.0	1.0	0.3	0.3	0.2	5.3	5.8	5.7
Waste	NE	0.2	0.2	1.5	1.9	1.5	0.0	0.0	0.0	NE	NE	NE	1.5	2.1	1.7
Agriculture	NE	NE	NE	2.4	0.9	0.8	4.7	1.8	1.5	NE	NE	NE	7.0	2.7	2.4
Other	NE	NE	NE	NE	NE	NE	0.0	NE	NE	NE	NE	NE	0.0	NE	NE
Total (excl. LULUCF)	61.8	51.2	49.7	5.4	4.0	3.7	6.3	3.3	3.0	0.3	0.3	0.2	73.7	58.8	56.5

Key:
WEM: 'with existing measures' projection
WAM: 'with additional measures' projection

Source: Slovakia's MM submission, 2007, and Annual greenhouse gas inventory 1990 – 2008, 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	72.2	70.3	100	80.5	82.4	100	44.9	67.6	100	NE	NE	100	72.3	70.5
Energy supply	100	106.7	103.8	100	105.8	105.5	100	107.9	106.9	100	NE	NE	100	106.7	103.9
Energy – industry, construction	100	60.5	59.4	100	70.8	88.0	100	40.0	81.3	100	NE	NE	100	60.4	59.4

Energy – other (commercial, residential, agriculture)	100	51.3	49.0	100	11.4	17.7	100	7.8	15.4	100	NE	NE	100	49.9	47.8
Transport (energy)	100	168.2	159.1	100	152.7	152.7	100	248.3	248.3	100	NE	NE	100	170.1	161.3
Industrial processes	100	117.0	117.0	100	NE	0.0	100	84.7	84.7	100	115.2	68.0	100	109.8	107.4
Waste	100	NE	0.0	100	127.2	103.0	100	135.0	135.0	100	NE	NE	100	137.4	113.6
Agriculture	100	NE	NE	100	37.7	35.7	100	38.9	32.3	100	NE	NE	100	38.5	33.4
Other	100	NE	NE	100	NE	NE	100	257.6	257.6	100	NE	NE	100	257.6	257.6
Total (excl. LULUCF)	100	82.8	80.4	100	74.9	67.9	100	52.7	47.9	100	115.2	68.0	100	79.8	76.7

Key:
WEM: 'with existing measures' projection
WAM: 'with additional measures' projection

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

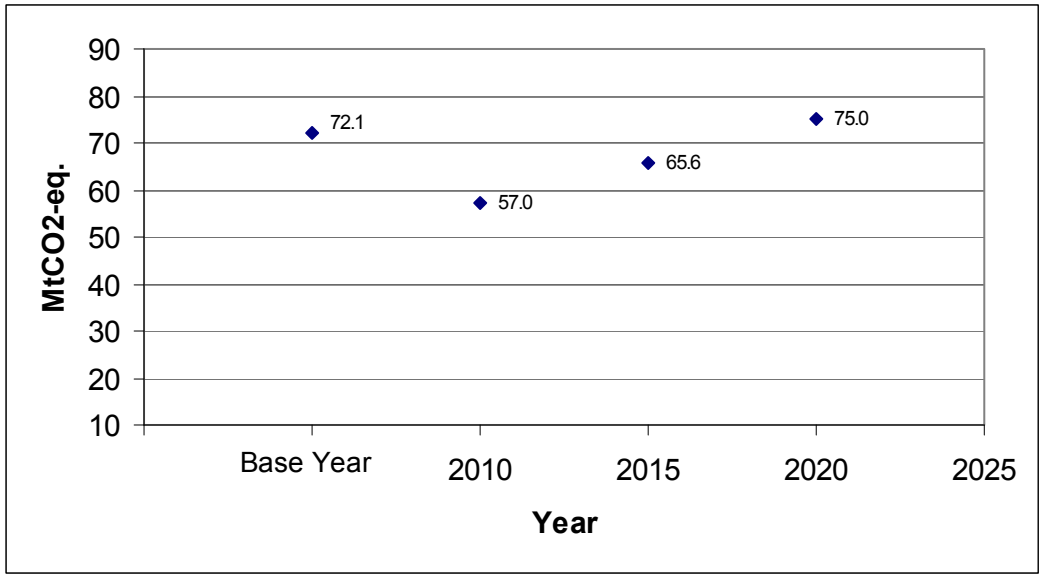
Table 4: Summary of projections in 2010 compared to base year emissions under the Kyoto Protocol

	Unit	Base-year emissions under the Kyoto Protocol	2010 projections 'with existing measures'	2010 projections 'with additional measures'
Total GHG emissions (excluding LULUCF)	Mt CO_2-eq.	72.1	58.8	56.5
	Index (base-year emissions = 100)	100	81.6	78.4

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

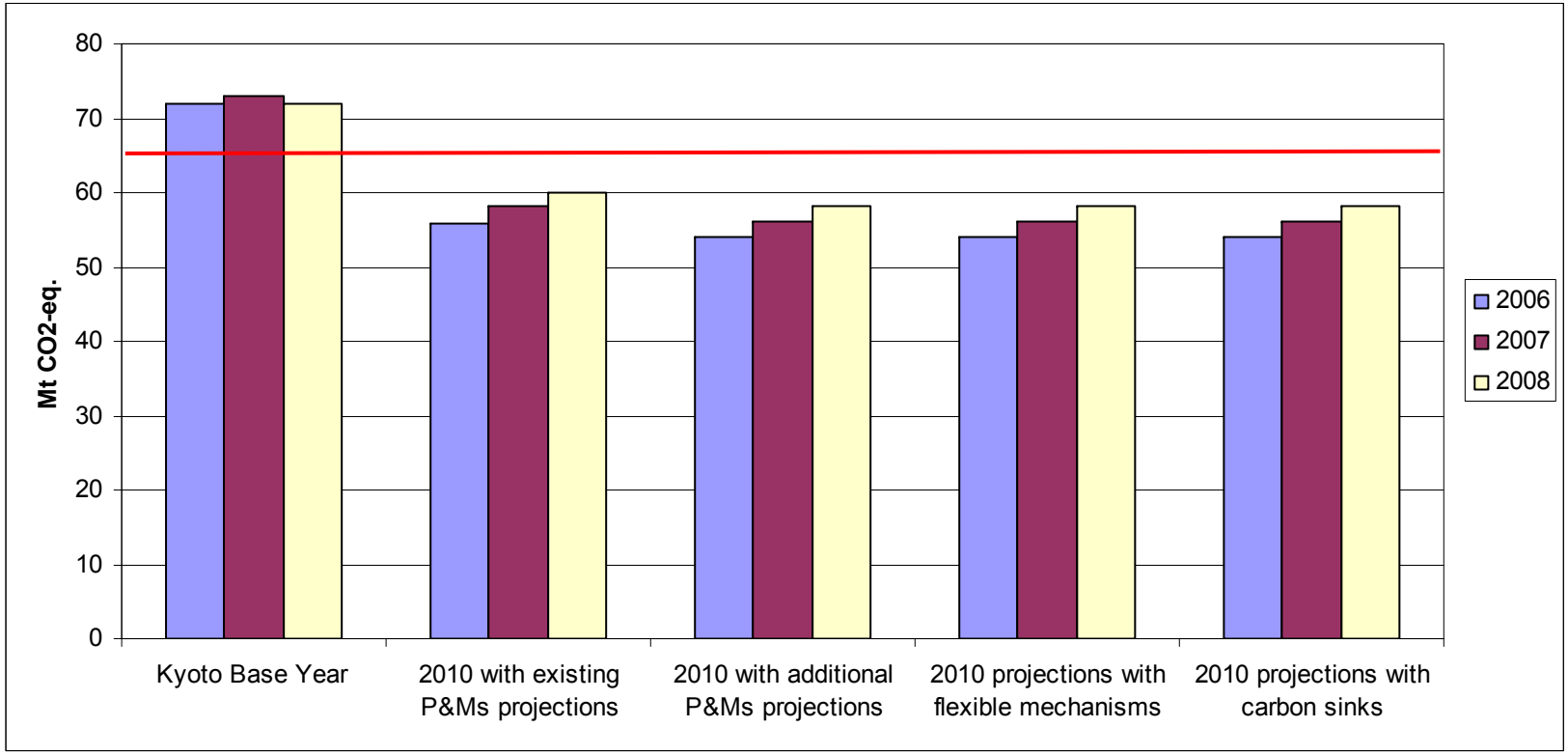
In Figure 1, the same correction factor used in Table 2 has been applied to the projections for 2010, 2015 and 2020.
According to the below Figure 1 under the WAM scenario Slovakia will not exceed its Kyoto commitment showed by red line till 2015. However, by 2020 the projected GHG emission will be higher than the base year emission, even for WAM scenario.

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



Source: Slovakia's MM submission, 2007,

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



Source: Slovakia's MM submission, 2007,

As the table above shows, in 2010 Slovakia will have surplus for the first commitment period without using reduction effects of flexible mechanisms and carbon sinks. Slovakia is not planning to use Kyoto Protocol Flexible Mechanisms to meet its Kyoto target. It can be also seen that the assessment of emissions in 2006, 2007, and 2008 kept on increasing due to the improvement of the IPCC methodologies. The additional PAMs under WAM scenario will not bring significant changes to the overall emissions.

3. CLIMATE CHANGE MITIGATION POLICIES AND MEASURES

Slovakia has introduced several policies and measures for both WEM and WAM scenarios. The emission reduction effect is difficult to be assessed since the absolute reductions for different years are not quantified (only in some cases). PAMs are introduced for all sectors. Under the WEM scenario sectors such as energy, transport, industrial processes, agriculture, forestry, and waste are equally covered. In the case of WAM scenario energy and industrial processes sectors are more in focus. This means that a higher GHG emission growth is expected in these sectors and additional PAMs are needed to decrease the emissions in these sectors.

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)	10.2	1.0	NE	NE
Energy supply	0.0	0.0	NE	NE
Energy – industry, construction	8.2	0.7	NE	NE
Energy – other (commercial, residential, agriculture)	2.0	0.3	NE	NE
Transport (energy)	0.0	0.4	NE	NE
Industrial processes	-0.6	0.1	NE	NE
Waste	0.2	0.4	NE	NE
Agriculture	0.1	0.4	NE	NE
Cross-sectoral	0.0	0.0	NE	NE
Total (excluding LULUCF)	10.0	2.3	NE	NE

Note: The effects of measures detailed above are calculated firstly by determining the difference between total projections under each scenario (top down calculation) and secondly by summing the reported effect of individual measures (bottom up calculation). In case of Slovakia the effect of individual measures (bottom up calculation) was difficult to assess since in most of the cases the reduction effect of the introduced measures was not assessed.
Source: Slovakia's MM submission, 2007,

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	Act 478/2002 on air protection	Economic, Regulatory	CH4, CO2, HFC, N2O, PFC, SF6	implemented	9.1	102.3	143.1	
Cross-cutting	Act 572/2004 on trade with emission quotas and its implementing regulation 711/2004 amended by Act. 117/2007	Economic, Regulatory	CO2, CH4, N2O	implemented	44.3	146.9	169.9	
Energy supply	Act 656/2004 on energy and Act 657/2004 on heat energy	Regulatory	CO_2	implemented				
Energy supply	Directive 2003/54/EC on common rules of internal market with electricity and directive 2003/55/EC on common rules of internal market with gas	Regulatory	CO_2	implemented				
Energy supply	Directive 2001/77/EC on support of electricity generated from renewable resources	Regulatory	CO2, N2O	implemented			45.5	
Energy supply	Regulation 123/2005 on rules of functioning markets with gas	Regulatory	CH_4	implemented				
Energy supply	Regulation 61/2004 on Keeping operation records and other data on stationary pollution sources	Regulatory	CO_2	implemented				
Energy supply	Directive 2001/77/EC on support of electricity generated from renewable resources	Regulatory	CO2, N2O	implemented			45.5	
Energy consumption	Directive 2002/91 on energy economy of production (energy efficiency) in buildings	Regulatory	CO2, CH4	implemented			126.0	

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	Regulatory	CO_2	implemented				
Transport	Directive 2003/30/EC on support of biofuels and other renewable energy resources utilization in transport	Regulatory	CO_2	implemented		441.3	62.0	
Industrial Processes	Sectoral operational program Industry and Services	Economic	CO2, N2O, CH4	implemented				
Industrial Processes, Cross-cutting	Modernization of aluminum production	Regulatory	PFC	implemented	9.0	9.0	9.0	
Industrial Processes	Act 245/2003 on integrated prevention and pollution control	Regulatory	CH4, CO2, HFC, N2O, PFC, SF6	implemented				
Industrial Processes	Reduction of releases in compliance with EU legislation	Regulatory	HFC, SF6	implemented		0.1	0.1	
Industrial Processes	Modernization of production of HNO3	Regulatory	N_2O	implemented			557.9	
Industrial Processes	Instalment of inert anodes	Regulatory	PFC	implemented				
Agriculture	Act 220/2004 on protection and utilization of agricultural soils	Regulatory	CH4, N2O	implemented				
Agriculture	Act 364/2004 on Water, §35 on protection against pollution from nitrates from agricultural sources	Regulatory	N_2O	implemented				
Agriculture	Act 555/2004 on manures	Regulatory	CH_4	implemented		307.0	552.0	

Agriculture	Act 415/2002 on ecological agriculture and production of biofoods	Regulatory	CH_4	implemented				
Agriculture	Act 188/2003 on application of sludge and bottom sediments on the soil	Regulatory	N_2O	implemented				
Agriculture	Disposal of animal waste	Regulatory	N_2O	implemented		77.0	138.0	
Agriculture	Disposal of animal waste	Regulatory	CH4, N2O	implemented		47.0	149.0	
Forestry	Medium term agricultural policy - forest management	Regulatory	CO_2	implemented				
Forestry	Act 217/2004 on forest reproduction material	Regulatory	CO_2	implemented				
Forestry	Act 326/2005 on forests	Regulatory	CO_2	implemented				
Forestry	Afforestation and increased protection against fires	Economic, Regulatory	CO2, CH4, N2O	implemented		65.9	187.8	
Waste	Waste water treatment - Municipal	Regulatory	CH4, N2O	implemented	625.3	26.8	137.7	
Waste	Waste water treatments - industrial waters	Regulatory	CH4, N2O	implemented	0.7	2.9	23.4	
Waste	Act 238/1991 on Waste amended by Act 223/2001	Regulatory	CH_4	implemented				
Waste	Act 529/2002 on packages	Regulatory	CH_4	implemented				
Waste	Act 364/2004 on waters	Regulatory	CH4	implemented				
Waste	Act 17/2004 on charges for waste disposal	Economic	CH4	implemented				
Waste	Measures in waste disposal	Regulatory	CH_4	implemented	699.3	186.06	409.5	
Waste	Measures in waste disposal	Regulatory	CH_4	implemented	277.8	317.3	387.5	

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	Estimated sav ($MtCO_2$–eq	
					2005	2010
Energy supply	Directive 2004/67/EC regarding safety of natural gas supply	Regulatory	CH4	planned		
Transport	Regulation of technical requirements on certification on motor vehicles (Directive 70/156/EC)	Regulatory	CO2	planned		
Transport	Regulation on technical requirements regarding measures against pollution of air by gases from vehicles with ignition. (Directive 70/220/EC)	Regulatory	CO2	planned		
Transport	Regulations on technical measures against emissions from diesel motors. ((Directive 72/306/EC; 88/77/EC)	Regulatory	CO2	planned		
Transport	Regulation on technical requirements on fuel consumption of motor vehicles (Directive 80/1268/EC)	Regulatory	CO2	planned		

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	Kyoto Protocol project mechanisms 2004/101/EC	Cross-cutting
	Promotion of cogeneration 2004/8/EC	Energy supply
	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
	End-use efficiency and energy services 2006/32/EC	Energy consumption
	Eco-management & audit scheme (EMAS) EC 761/2001	Energy consumption
	Efficiency of hot water boilers 92/42/EEC	Energy consumption
	Consumer information on cars 1999/94/EC	Transport
	Rural development support and CAP(2603/1999, 1698/2005 and 1290/2005)	Agriculture
	Pre-accession measures for agriculture and rural development (1268/1999)	Agriculture
	Nitrates directive 91/676/EEC	Agriculture
	Landfill directive 1999/31/EC	Waste
Existing national policies and measures **reinforced** by CCPM	Integrated pollution prevention and control 96/61/EC	Cross-cutting
	Support for rural development from EAGGF (1257/1999)	Agriculture
	Ecodesign requirements for energy-using products 2005/32/EC – implemented in Act 665/2007 in force 31.12.2007	Energy consumption
New national policies and measures implemented after CCPM was adopted	Emissions trading 2003/87/EC	Cross-cutting
	Promotion of electricity from RE sources 2001/77/EC	Energy supply
	Energy performance of buildings 2002/91/EC	Energy consumption
	Promotion of biofuels for transport 2003/30/EC	Transport
	Directive on waste 2006/12/EC	Waste

Status of national policy or measure **not reported**	Taxation of energy products 2003/96/EC	Energy supply
	Energy labeling for office equipment 2422/2001	Energy consumption
	Efficiency fluorescent lighting 2000/55/EC	Energy consumption
	Integrated European railway area (COM(2002)18 final)	Transport
	Transport modal shift to rail 2001/12/EC etc.	Transport
	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
	Support scheme for energy crops under CAP (795/2004)	Agriculture
	Packaging and packaging waste (94/62/EC, 2004/12/EC, 2005/20/EC)	Waste

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

Slovakia had introduced several PAM the relevant CCPMs have been adopted, mostly for the energy and agriculture sectors. A few PAMs have been re-enforced or introduced after the adoption of the relevant CCPMs. There are several PAM in the energy, transport and agriculture sectors whose status vis-à-vis CCPMs was not reported

4. METADATA

Sources of information

Slovakia's 's national report submitted to the European Commission under Article 3(2) of the Monitoring Mechanism, Decision 280/2004/EC. Report dated July 2007

Slovakia's Annual greenhouse gas inventory 1990 - 2006 and inventory report, 8 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

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 been reviewed and set for all EEA countries, including Slovakia. The base year is 1990 for all gases and emission amounts to 72.0508 MtCO2eq.

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. Slovakia has chosen the year 1990. 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 formula, in Table 2:

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

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 o (representing not 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.

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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	+++	Clear names and description have been provided for the policy names
Objectives of policies	+++	Good description of objectives have been made
Types of policies	+++	Type of policy instrument have been specified for each policy
Which greenhouse gases?	+++	Specifies which gases are affected by each PAM
Status of Implementation	++	In some cases for both WEM and WAM projections the status of the PAM is not specified (8 cases in total)
Implementation body	+++	authorities responsible for each policy implementation are given clearly
Quantitative assessment of emission reduction effect and cost of policies	+	the quantitative assessment of PAMs for WEM and WAM scenarios are not complete (the WAM scenario is more completed). The costs are not calculated for quantifying the effect of the PAM introduced or planned.

Interaction with other national and EU level policies	+	not in all cases
Measures implementing community legislation	++	in several cases it is mentioned to which EC directive relates that specific policy
Arrangements for flexible mechanisms	+++	Designated Focal point for JI and since 2004 ETS in place, list of MoUs signed and JI projects
Balance between domestic action and flexible mechanisms	+++	Slovakia will not make use of Kyoto project based mechanisms

Source: MMS 2007, Questionnaire on Kyoto Protocol Flexible Mechanisms, European Climate Change Programme (ECCP), Database on Policies and Measures in Europe http://www.oeko.de/service/pam/index.php

Table 10. Information provided on projections

Category of Information	Level of information provided	Comments
WEM and WAM projections	+++	WEM, WAM, WOM projections are provided
Policies included in each projection	+	Presentation of each policy is not available in each projections scenario.
Expressed relative to historic reference year data	+++	base year emissions provided
Starting year	+++	1990 for all gases
Split of projections	+++	Split by IPCC sectors and gases
Presentation of results	+++	Clear presentation of results is provided
Description of methodologies	+	Description of methodologies is not detailed
Sensitivity analysis	o	No information available
Discussion of uncertainty	o	No information available
Details of parameters and assumptions	++	information on the type of the indicators used for scenarios provided
Indicators for projections	++	Info is available for mandatory parameters, but no data is provided for additional indicators

Source: MMS 2007, Questionnaire on Kyoto Protocol Flexible Mechanisms, European Climate Change Programme (ECCP), Database on Policies and Measures in Europe http://www.oeko.de/service/pam/index.php

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)	30.5	38.0	46.4	54.0	Value (Euro 2000 basis)
Population (value at given years or annual growth rate and base year)	5387.3	5370.3	5339.2	5288.1	Thousand People
International coal prices at given years in euro per ton or GJ (Gigajoule)					
International oil prices at given years in euro per barrel or GJ					
International gas prices at given years in euro per m3 or GJ					

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Assumptions for the energy sector					
Total gross inland consumption (PJ) (split by oil, gas, coal, renewables, nuclear, other)	700.4	848.8	952.9	1092.7	Petajoule (PJ)
Total electricity production by fuel type (oil, gas, coal, renewables, nuclear, other)	8422.6	14132.2	14274.4	14412.7	Gwhe
Energy demand by sector split by fuel (delivered)	807.2	917.8	999.7	1103.8	Petajoule (PJ)
Assumptions on weather parameters, especially heating or cooling degree days					
Assumptions for the industry sector					
For Member States using macroeconomic models:					
The share of the industrial sector in GDP and growth rate					
For Member States using other models:					
The production index for industrial sector					
Manufacture of food product, etc	100	135.1	183.2	236.7	%
Manufacture oftextile & leader	100	137.3	173.3	207.2	%
Wood processing	100	143.9	194.3	250.7	%
Pulp & paper, publishing & printing	100	122.4	141.9	156.2	%
Manufacture of coke & refined petroleum	100	155.0	215.1	276.0	%
Chemistry	100	137.2	170.4	199.6	%
Mineral products	100	146.0	197.7	252.6	%
Metallurgy	100	146.1	201.0	266.5	%
Machinery	100	146.1	201.0	266.5	%
Other industry	100	146.1	201.0	266.5	%
Electricity, gas, water supply	100	122.7	142.2	158.4	%
Construction	100	140.1	216.2	302.9	%
Assumptions for the transport sector					
For Member States using macroeconomic models:					
The growth of transport relative to GDP					
For Member States using other models:					
The growth of passenger person kilometers	14,117.7	17,523.0	19,360.2	19,597.0	Million passenger km
The growth of freight tone kilometers	6,955.8	7,834.3	8,032.1	6,550.4	Million tonne km
Assumptions for buildings (in residential and commercial or tertiary sector)					
For Member States using macroeconomic models:					
The level of private consumption (excluding private transport)					
The share of the tertiary sector in GDP and the growth rate					
For Member States using other models:					
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					
For Member States using macroeconomic models:					
The share of the agriculture sector in GDP and relative growth	1.1	1.5	1.9	2.3	Value (Euro 2000 basis)
For Member States using other models:					

Livestock numbers by animal type (for enteric fermentation beef, cows, sheep, for manure management pigs and poultry)	16088.6	15223.0	15154.0	15126.0	1000 heads
The area of crops by crop type					
Emissions factors by type of livestock for enteric fermentation and manure management (t)	3779.1	3744.6	3742.4	3741.1	Tonnes CO2e /Thousand Heads
Assumptions in the waste sector					
Waste generation per head of population or tonnes of municipal solid waste	1468.0				kt
The organic fractions of municipal solid waste	0.1				%
Municipal solid waste disposed to landfills, incinerated or composted (in tonnes or %)	1145.0	0.0	0.0	0.0	kt
Assumptions in the forestry sector					
Forest definitions					
Areas of:					
managed forests	1,930,000.0	1,935,000.0	1,940,000.0	1,945,000.0	Hectares
unmanaged forests					

In case of Table 11, the projection parameters are provided for the WEM projection scenario; where possible only totals were included.

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:					
Aluminum production and emissions factors					
Magnesium production and emissions factors					
Foam production and emissions factors					
Stock of refrigerant and leakage rates					
For Member States using macroeconomic models:					
Share of GDP for different sectors and growth rates					
Rate of improvement of energy intensity (1990 = 100)					
For Member States using other models:					
Index of production for different sectors					
Rate of improvement or index of energy efficiency					
Assumptions for buildings (in residential and commercial / tertiary sector)					
For Member States using macroeconomic models:					
Share of tertiary and household sectors in GDP					
Rate of improvement of energy intensity					
For Member States using other models:					
Number of households					
Number of new buildings					
Rate of improvement of energy efficiency (1990 = 100)					
Assumptions for the transport sector					
For Member States using econometric models:					

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					
For Member States using econometric models:					
Agricultural trade (import/export)					
Domestic consumption (e.g. milk/beef consumption)					
For Member States using other models:					
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					