

Poland

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1. SOURCES OF INFORMATION

Poland's 2007 submission to the European Commission under the Monitoring Mechanism, Decision 280/2004/EC. The submission comprised an Excel file without an accompanying written report.

Poland's Fourth National Communication under the United Nations Framework Convention on Climate Change, 2006.

Poland's Third National Communication under the United Nations Framework Convention on Climate Change, 2001.

Poland's National Allocation Plan for 2008-2012, submitted on 30 June 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

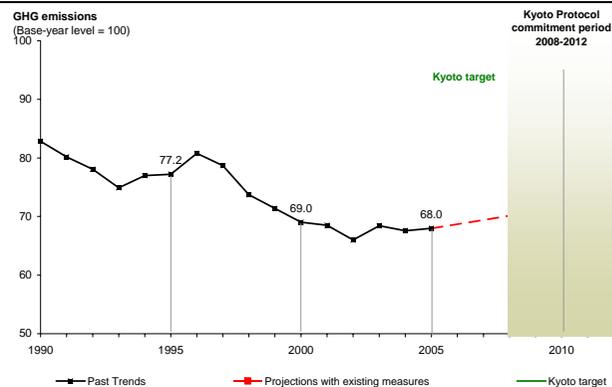
Base-year emissions of greenhouse gases are calculated using 1988 emissions for carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O) and 1995 emissions for fluorinated gases (SF₆, HFCs and PFCs). Poland ratified the Kyoto Protocol in December 2002 and has a target of -6 % relative to the base year.

Base-year data is as reported by Member States in the sources noted above. Base year data is 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

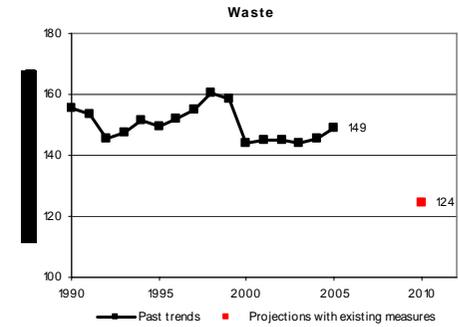
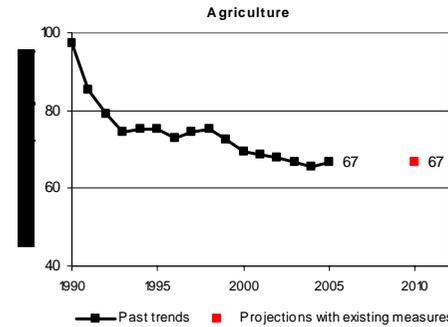
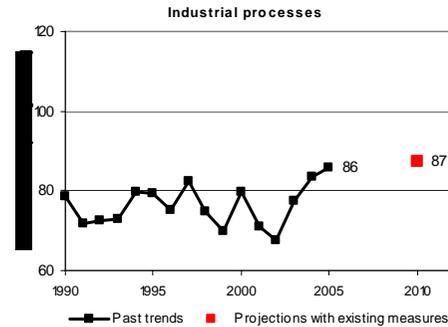
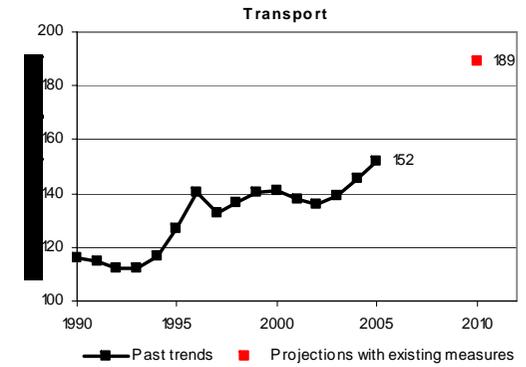
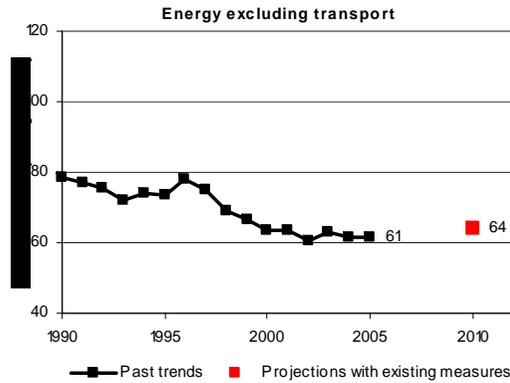
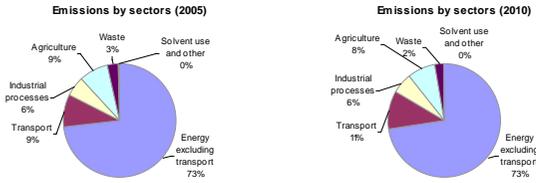
POLAND

Emissions base year (initial report)	586.9 Mt
Emissions 2005	399.0 Mt
Emissions base year (for projections)	586.9 Mt
Projections 2010 with existing measures	420.0 Mt
No projections with additional measures	n.a.
Kyoto target (absolute)	551.7 Mt
Kyoto target (% from base year)	- 6.0 %
Change base year to 2005	- 32.0 %
Change 2004-05	+ 0.6 %
Change base year to 2010 with existing measures	- 28.4 %
No projections with additional measures	n.a.
Distance to linear target path 2005	- 27.5 percentage points
Use of Kyoto mechanisms	n.a.
Sinks (Articles 3.3 and 3.4)	n.a.
Emissions in 1990 (Article 3.7)	n.a.



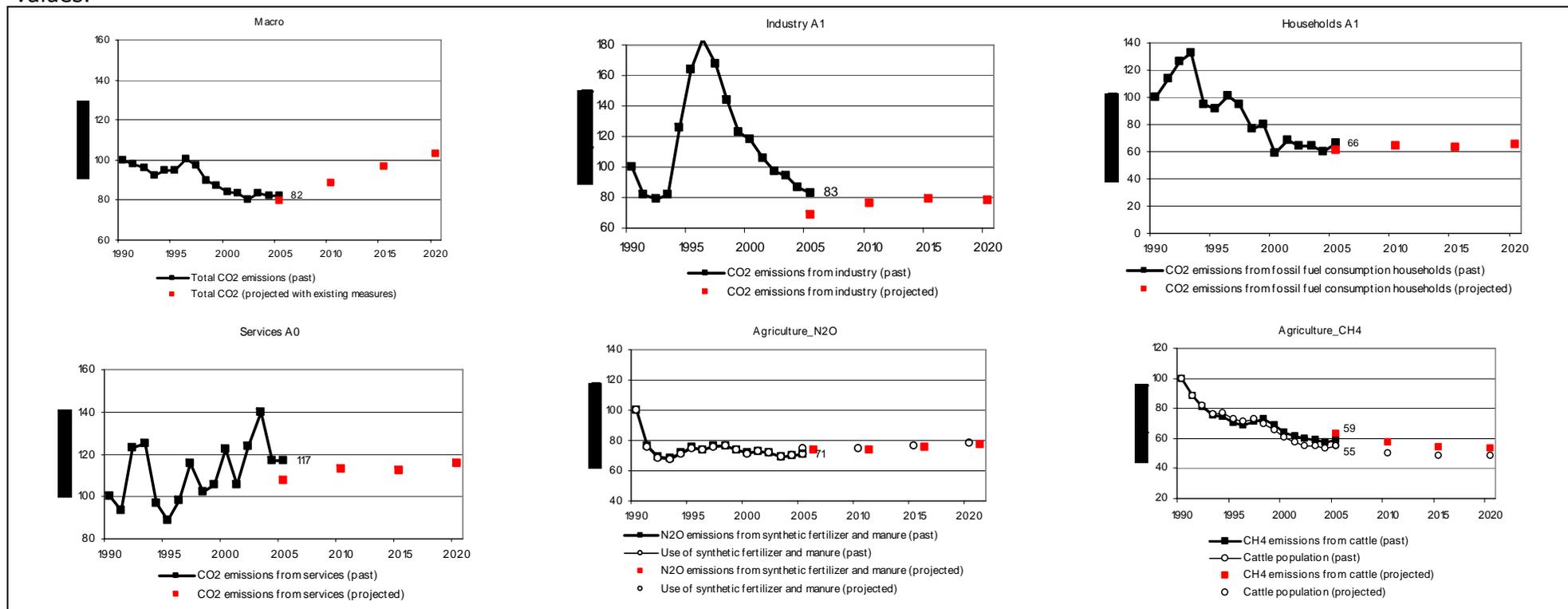
Past emissions: Poland's GHG emissions were 32.0 % below base-year (1988) levels and 0.6 % above those in 2004 in 2005. Main factors for decreasing emissions with regard to base year (1988) — as for other new Member States — was the decline of energy inefficient heavy industry and the overall restructuring of the economy in the late 1980s and early 1990s. The notable exception was transport (especially road transport) where emissions increased. Between 2004 and 2005, process related emissions from metal production and energy related emissions from manufacturing and industrial processes decreased. These decreases were offset by emissions increases from transport and energy use in households and services.

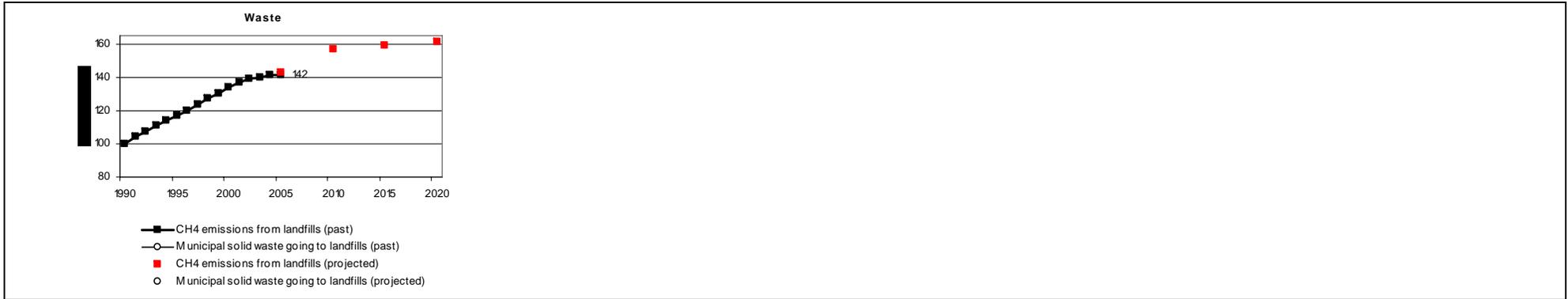
Emission projections: Poland will be below the level of the Kyoto target in the 'with existing measures' projection, but project an increase of about 3 % compared to 2005 emissions. Sectoral projections show that emissions will stabilise at 2005 levels except transport, where a strong increase is projected.



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.





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	N
Cross-cutting	Integrated pollution prevention and control 96/61/EC	N
Energy supply	Promotion of cogeneration 2004/8/EC	
Energy supply	Taxation of energy products 2003/96/EC	
Energy supply	Internal electricity market 2003/54/EC	
Energy supply	Promotion of electricity from RE sources 2001/77/EC	N
Energy supply	Internal market in natural gas 98/30/EC	
Energy supply	Emissions from large combustion plants 88/609/EEC	N
Energy consumption	Directives on energy labelling of appliances	N
Energy consumption	End-use efficiency and energy services 2006/32/EC	
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	N
Energy consumption	Energy-efficiency labelling for office equipment Regulation No. 2422/2001	N
Energy consumption	Efficiency fluorescent lighting 2000/55/EC	
Energy consumption	Efficiency of hot water boilers 92/42/EEC	N
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	
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	N
Agriculture	Transition to rural development support No 2603/1999	
Agriculture	Agricultural production methods compatible with environment Regulation (EEC) No 2078/92	
Agriculture	Aid scheme for forestry measures in agriculture (Regulation (EEC) No 2080/92)	
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	
Waste	Directive on waste 2006/12/EC	N
Waste	Landfill directive 1999/31/EC	N
Waste	Packaging and packaging waste (Directive 94/62/EC, 2004/12/EC, 2005/20/EC)	

Legend

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

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?	+++	All six greenhouse gases
Status of Implementation	+++	
Implementation body specified	+++	
Quantitative assessment of implementation	+	Quantitative assessments of effects are not given
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	+++	'With measures' and 'without measures' scenarios
Expressed relative to base year	+++	
Starting year	+++	2000
Split of projections	+++	2005, 2010, 2015, 2020
Presentation of results	++	Results presented in tabular form for individual sectors and sum of sectors, also graphs provided for sectors and total for all GHGs. No written report to accompany the Excel submission.
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)	0	Not reported
Discussion of uncertainty	0	Not reported
Details of parameters and assumptions	+	Limited 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.)

The Monitoring Mechanism submission (MMS) did not include any quantification of the effect of policies and measures. The following values are calculated by subtracting 'with measures' from 'without measures' projections.

	With measures	With additional measures
Energy (total, excluding transport)	53.2000	NE
Energy supply	0.8600	NE
Energy – industry, construction	37.2980	NE
Energy – other (commercial, residential, agriculture)	15.0000	NE
Transport (energy)	-0.8360	NE
Industrial processes	0.0000	NE
Waste	-0.0060	NE
Agriculture	0.0000	NE
Cross-sectoral	0.0000	NE
Total (excluding LULUCF)	52.3580	NE

Source for data is MMS 2007

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	
Cross-cutting	Small (GEF) project	Reducing emissions from several sectors	CO2	Economic	implemented				
Cross-cutting	EU emission trading	Reduce emissions in a cost effective way	CO2	Economic	implemented	National Government			Emissions trading scheme (Dir 2003/87/EC)
Cross-cutting	Joint Implementation (JI)	Reduce emissions in a cost effective way	CH4, CO2	Economic	implemented	National Government Ministry for Env. others			Kyoto Protocol project mechanisms (Dir 2004/101/EC)
Energy supply	Promotion of RES	Increase share of RES in energy production	CO2	Fiscal regulatory	implemented	National Government			DIR 2001/77/EC
Energy supply	Promotion of CHP	Increase share of CHP	CO2	economic	implemented	National Government			DIR 2004/8/EC
Energy supply	Introduction of Green Certificate	Increase share of RES in energy production	CO2	Economic regulatory	implemented	National Government			DIR 2001/77/EC
Energy supply	Introduction of Green Certificate	Increase share of RES in energy production	CO2	Economic regulatory	implemented	National Government			DIR 2001/77/EC
Energy consumption, energy supply	Demethaning of coal mines, exemption from excise tax from coal mining	Use of methane from mines for heat generation	CO2		implemented	National Government			DIR2003/54/EC
Energy consumption	energy saving	Energy saving	CO2	economic	implemented	National Government (Ministry of Construction, National Fund for Environmental Protection & Water Management,			En. consumption: Energy performance of buildings (Dir 2002/91/EC)

Sector	Name	Objective	Type of GHG affected	Type of instrument	Status	Implementing entity	Estimated savings (MtCO ₂ -eq.)		Related CCPM
							2010	2020	
						EcoFund, e for Regional Development) Regional Entities(Integrated Operational Programme)			
Energy consumption	rational energy consumption	Energy saving	CO ₂	Economic, education	implemented	Others (GEF)			En. consumption: Energy performance of buildings (Dir 2002/91/EC)
Energy consumption	increase of energy efficiency of new water heating boilers fired with liquid and gaseous fuels	Energy efficiency	CO ₂	regulatory	implemented				En. consumption: Energy performance of buildings (Dir 2002/91/EC)
Energy consumption	increase of energy efficiency through more effective cooling appliances	introduction of key requirements regarding energy efficiency for cooling equipment (appliances)	CO ₂	regulatory	implemented				En. consumption: Energy labelling of household appliances (Dir 2003/66/EC (refrigerators - freezers), 2002/40/EC (electric ovens), 2002/31/EC (air-conditioners), 99/9/EC (dishwashers), 98/11/EC (lamps), 96/89/EC (washing mashines), 96/60/EC (washer-driers) and 92/75/EC
Energy consumption	improvement of efficiency of electrical household appliances	increase of efficiency of electrical household appliances	CO ₂		implemented				En. consumption: Energy labelling of household appliances (Dir 2003/66/EC (refrigerators -

Sector	Name	Objective	Type of GHG affected	Type of instrument	Status	Implementing entity	Estimated savings (MtCO ₂ -eq.)		Related CCPM
							2010	2020	
									freezers), 2002/40/EC (electric ovens), 2002/31/EC (air-conditioners), 99/9/EC (dishwashers), 98/11/EC (lamps), 96/89/EC (washing mashines), 96/60/EC (washer-driers) and 92/75/EC
Energy consumption	improvement of technical standards for equipment and facilities	improvement of technical standards for equipment and facilities	CO ₂	regulatory	implemented				En. consumption: Efficiency requirements for new hot-water boilers (Dir 92/42/EEC
Energy consumption Industrial Processes	implementation of best available technics	issuing of grants for installations and plants implementing BAT/BEP	CO ₂	Economic, regulatory	implemented				Cross-cut: Integrated pollution prevention and control (IPPC) (Dir 96/61/EC)
Energy consumption	introduction of energy standards in the construction sector	introduction of energy standards in the construction sector	CO ₂	regulatory	implemented	National Government (Ministry of Construction)			En. consumption: End-use efficiency and energy services (Dir 2006/32/EC)
Energy consumption	thermo-modernisation of buildings	energy saving in buildings	CO ₂	Economic, regulatory	implemented	National Government (Ministry of Construction)			En. consumption: Energy performance of buildings (Dir 2002/91/EC)
Energy consumption	Raising awareness of the users and owners of buildings in energy saving	motivate to improve the technical standard of construction resources (building stock), including the energy standard	CO ₂	Education, information	implemented	National Government (Ministry of Construction)			En. consumption: Energy performance of buildings (Dir 2002/91/EC)
Energy consumption	Kraków Energy Efficiency Project	Improve the energy efficiency of the	CO ₂	Economic, information	implemented	Others (International Bank for Reconstruction			

Sector	Name	Objective	Type of GHG affected	Type of instrument	Status	Implementing entity	Estimated savings (MtCO ₂ -eq.)		Related CCPM
							2010	2020	
		heating systems of Małopolskie Voivodship within the region of Cracow				and Development (IBRD))			
Energy consumption, transport	Polish Energy Efficiency Motors Programme (PEMP)	increase the sales of power efficient motors to the level of 30% of the total motors' market by 2010 and to obtain energy savings of 55.7 GWh in 2006	CO2	economic	implemented				
Energy consumption	energy efficiency labels	introducing energy efficiency labels	CO2	regulatory	implemented				En. consumption: Energy labelling of household appliances (Dir 2003/66/EC (refrigerators - freezers), 2002/40/EC (electric ovens), 2002/31/EC (air-conditioners), 99/9/EC (dishwashers), 98/11/EC (lamps), 96/89/EC (washing mashines), 96/60/EC (washer-driers) and 92/75/EC
Energy consumption	demethaning of coal mines, exemption from excise tax for electricity from coal mining	use of methane from mines for heat generation	CO2		implemented	National Government(Ministry of Economy)			En. supply: Internal electricity market (Dir 2003/54/EC)
Energy consumption	promotion and use of biofuels	promotion and use of biofuels	CO2	regulatory	implemented	National Government(Ministry of			Trans: Biofuels Directive (Dir 2003/30/EC)

Sector	Name	Objective	Type of GHG affected	Type of instrument	Status	Implementing entity	Estimated savings (MtCO ₂ -eq.)		Related CCPM
							2010	2020	
Transport						Economy)			
Energy consumption Transport	Improvement of vehicle energy effectiveness, including measures connected with vehicle construction	reduction in fuel consumption	CO ₂	research	implemented	National Government(Ministry of Transport)			
Energy consumption Transport	Technical measures connected with vehicle construction	reduction in fuel consumption	CO ₂	research	implemented	National Government(Ministry of Transport)			
Transport	Introduction of restrictions in speed rates in towns	reduction in fuel consumption	CO ₂	regulatory	implemented	National Government(Ministry of Transport)			
Transport	Improvement of the infrastructure for cyclists and pedestrians	promoting bicycles as a means of transport and building bicycle routes	CO ₂	planning	implemented	National Government(Ministry of Transport)			
Transport	promotion of public transport	development and support of public transport services	CO ₂	Economic regulatory	implemented	National Government(Ministry of Transport) Companies / Businesses / industrial associations (Polish Railways)			Trans: Shifting the balance between modes of TRA:, in particular towards rail (2001/12/EC, 2001/13/EC, 2001/14/EC of 15/03/01 Regulation 881/2004 of 29/04/2004, 2001/49/EC, 2001/50/EC, 2001/51/EC of 29/04/2004)
Transport	programme of development of combined transport	increase in the share of intermodal railway transportations	CO ₂	regulatory	implemented	National Government(Ministry of Transport)			Trans: Shifting the balance between modes of TRA:, in particular towards rail

Sector	Name	Objective	Type of GHG affected	Type of instrument	Status	Implementing entity	Estimated savings (MtCO ₂ -eq.)		Related CCPM
							2010	2020	
									(2001/12/EC, 2001/13/EC, 2001/14/EC of 15/03/01 Regulation 881/2004 of 29/04/2004, 2001/49/EC, 2001/50/EC, 2001/51/EC of 29/04/2004)
Transport	Improvement of the quality of water transport	Promotion of inland water transport	CO ₂	economic	implemented	National Government(Ministry of Transport)			
Transport	reducing GHG emissions from air transport	measures aiming at reducing GHG emissions	CO ₂	regulatory	implemented	National Government(Ministry of Transport)			
Transport	Information and educational activity related to the need for behavioural changes	reduce emissions from transport sector	CO ₂	Education information	implemented	National Government(Ministry of Transport)			
Industrial Processes	development of innovation and capacity activities	development of innovation and capacity activities	CO ₂	Information research	implemented	Companies / Businesses / industrial associations (SMEs)			
Industrial Processes	technological modernisation in industrial plants	technological modernisation in industrial plants in iron and steel industry	CO ₂	Economic information	implemented	Companies / Businesses / industrial associations (iron and steel plants)			En. consumption: End-use efficiency and energy services (Dir 2006/32/EC)
Industrial Processes	reduction of methane emissions from production processes and fuel distribution	reduction of methane emissions from production processes and fuel distribution	CO ₂	regulatory	implemented	National Government(Ministry of Economy)			
Agriculture	rational use of fertilizers	rational use of nitrogen fertilizers	N ₂ O	regulatory	implemented	National Government(Ministry of			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	
						Agriculture and Rural Development)			
Agriculture	Rational energy management in agriculture, including energy production from biomass waste, and from solid and liquid manure	decrease in energy use in rural areas; increase in alternative sources of energy use	CO2 CH4	economic	implemented	National Government (Ministry of Agriculture and Rural Development)			Agri: Support for rural development (Reg (EC) No 1783/2003 amending a number of other Regulations)
Agriculture	Support for using other renewable energy sources in agricultural production	decrease in energy use in rural areas; increase in alternative sources of energy use	CO2	economic	implemented	National Government (Ministry of Agriculture and Rural Development)			En. supply: Electricity production from renewable energy sources (Dir 2001/77/EC)
Agriculture	Change in the structure of fuels used in favour of hydrocarbon fuels and reduction of Diesel oil consumption	decrease in energy use in rural areas; increase in alternative sources of energy use	CO2	economic	implemented	National Government (Ministry of Agriculture and Rural Development)			Trans: Biofuels Directive (Dir 2003/30/EC)
Agriculture	Technical modernisation of farms	Reducing emissions from agriculture	CH4 CO2	regulatory	implemented	National Government (Ministry of Agriculture and Rural Development)			Agri: Agricultural production methods compatible with environment (Reg (EEC) No 2078/92)
Agriculture	improvement of livestock manure management systems	methane removal from litter-free manure systems	CH4	Voluntary/negotiated agreement	implemented	National Government (Ministry of Agriculture and Rural Development) Companies / Businesses / industrial associations (farm owners)			Agri: Agricultural production methods compatible with environment (Reg (EEC) No 2078/92)
Agriculture	preference to crops	promotion of crops	CO2	Fiscal	implemented	National			

Sector	Name	Objective	Type of GHG affected	Type of instrument	Status	Implementing entity	Estimated savings (MtCO ₂ -eq.)		Related CCPM
							2010	2020	
	with high CO2 removal factor	with high CO2 removal factor planting		regulatory		Government(Ministry of Agriculture and Rural Development)			
Agriculture	Development of new technologies for growing and harvesting plant biomass intended for use as a renewable energy source and raw material for the industry	increase the use of biomass for energy production	CO2	economic	implemented	National Government(Ministry of Agriculture and Rural Development)			
Agriculture	Investments on new production technologies	Reducing emissions from agriculture	CH4 CO2	economic	implemented	National Government(Ministry of Agriculture and Rural Development)			
Agriculture Forestry	combating changes in land-use	minimalisation of process of transformation of forest land into other kind of land-use	CO2	Education regulatory	implemented	National Government(Ministry of Environment)			
Forestry	rational forest management and stimulation of afforestation	increase of afforestation and reforestation processes and decrease of deforestation	CO2	regulatory	implemented	National Government(Ministry of Environment)			
Forestry	A plan for the utilisation of wood for energy purposes	increase the use of biomass for energy production	CO2	economic	implemented	National Government(Ministry of Environment)			En. supply: Electricity production from renewable energy sources (Dir 2001/77/EC)
Forestry	research on the	research on the	CO2	Education	implemented	National			

Sector	Name	Objective	Type of GHG affected	Type of instrument	Status	Implementing entity	Estimated savings (MtCO ₂ -eq.)		Related CCPM
							2010	2020	
	level of carbon removal	level of carbon removal		regulatory		Government(Ministry of Environment)			
Waste	recovery and recycling of waste	increase in recovery and recycling of waste	CH4	regulatory	implemented	National Government(Ministry of Environment)			Waste: Directive on waste (Dir 2006/12/EC)
Waste	modernization of the landfilling of solid waste	identification of landfills intended for modernization and liquidation	CH4		implemented	National Government(Ministry of Environment)			
Waste	utilization of landfill gas and biogas for energy production	utilization of landfill gas and biogas for energy production	CH4	Economic regulatory	implemented	National Government(Ministry of Environment)			Waste: Landfill Directive (Dir 1999/31/EC)
Waste	implementation of biological wastewater treatment processes	implementation of biological wastewater treatment processes based on BAT	CH4	economic	implemented	National Government(Ministry of Environment)			Waste: Directive on waste (Dir 2006/12/EC)
Waste	reduction of energy intensity in wastewater treatment processes	reduction of energy intensity in wastewater treatment processes	CO2		implemented	National Government(Ministry of Environment) Companies / Businesses / industrial associations (wastewater treatments)			Waste: Directive on waste (Dir 2006/12/EC)

Policies and measures in the “with additional measures” projection

No policies and measures reported in the "with additional measures" projection.

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	494.886	351.501	NE
Methane	49.249	35.172	NE
Nitrous oxide	42.478	30.823	NE
HFCs	0.026	2.189	NE
PFCs	0.250	0.283	NE
SF ₆	0.013	0.025	NE
Total (excl. LULUCF)	586.903	419.993	NE
% change relative to base year (excl. LULUCF)		-28.4%	

Source for data is MMS 2007

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)	473.86	304.36	-36%	NE	
Energy supply	295.87	224.95	-24%	NE	
Energy – industry, construction	58.83	34.51	-41%	NE	
Energy – other (commercial, residential, agriculture)	119.16	44.90	-62%	NE	
Transport (energy)	24.11	45.63	89%	NE	
Industrial processes	28.36	24.80	-13%	NE	
Waste	8.20	10.20	24%	NE	
Agriculture	52.38	35.00	-33%	NE	
Total (excl. LULUCF)	586.90	419.99	-28%	NE	

'Energy supply' includes fugitive emissions and 'Industrial processes' includes solvents.

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 (SF ₆ , HFCs and PFCs)		
	Base-year	With measures	With additional measures	Base-year	With measures	With additional measures	Base-year	With measures	With additional measures	Base-year	With measures	With additional measures
Energy (excl. transport)	448.234	289.437	NE	22.902	13.478	NE	2.7214	1.4476	NE	0.000	0.000	NE
Transport (energy)	23.454	44.484	NE	0.135	0.147	NE	0.5180	0.9988	NE	0.000	0.000	NE
Industrial processes	22.618	17.287	NE	0.337	0.326	NE	5.1174	4.6861	NE	0.290	2.497	NE
Waste	0.579	0.294	NE	6.455	9.082	NE	1.1634	0.8289	NE	0.000	0.000	NE
Agriculture	0.000	0.000	NE	19.420	12.140	NE	32.9579	22.8614	NE	0.000	0.000	NE
Total (excl. LUCF)	494.886	351.501	NE	49.249	35.175	NE	42.4781	30.8229	NE	0.290	2.497	NE

Source for data is MMS 2007

Table 9. Summary of projections (6 gas basket) in 2010, 2015 and 2020 (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)	586.9	419.9	71.6%	452.8	77.1%	479.0	81.6%

Base year is 1988 for all gases except 1995 for F-gases
'With measures' projections.

Source for data is MMS 2007

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			
	2001 data	2006 data	2007 data	2010 projections from 2007, % of base year level
Base year emissions used for projections	565.3	568.8	586.9	100%
Kyoto Commitment/burden sharing	531.4	534.7	551.7	-6.0%
With existing P&Ms projections	NE	420.0	420.0	71.6%
Gap (-ve means overachievement of target)	NE	-114.7	-131.7	-22.4%
With additional P&Ms projections	NE	420.0	420.0	71.6%
Remaining gap	NE	-114.7	-131.7	-22.4%
Effect of flexible mechanisms	0.0	0.0	0.0	0.0%
Remaining gap (with use of flexible mechanisms)	NE	-114.7	-131.7	-22.4%

Above table excludes LULUCF. LULUCF will be covered in the main report, based on the questionnaire submissions. Source for 2001 data is Poland's Third National Communication under the United Nations Framework Convention on Climate Change, 2001. Source for 2006 is Poland's Fourth National Communication under the United Nations Framework Convention on Climate Change, 2006. Source for 2007 is MMS 2007.

* Base year data from 2007 is 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 (586.903MtCO₂-eq). This data is currently undergoing a review procedure by UNFCCC and is therefore subject to change

Table 11. Comparison with projections for the (EU ETS) trading sector (MtCO₂-eq.)

	MMS 2007	NAP 2 projections	Difference
Energy sector	289.21 ^a	221.55	-67.66
Energy sector included in EU ETS			
Industry sector	16.7 ^b	44.62	-27.92
Industry sector included in EU ETS			
Total Energy & Industry	305.91	266.27	87 %

Energy use from industry is normally included in the energy sector for projections under the UNFCCC and included in the industry sector for NAP 2 projections. Due to these and other differences in the sector definitions projections for the individual sectors might not be comparable.

^a Included are CO₂ emissions from the sectors energy (including energy industry) except transport and fugitive emission

^b Included are CO₂ emissions from the sectors industry except chemical industry

NAP2 includes CO₂ emissions from the sectors mineral oil refineries, iron&steel, cement clinker, lime, glass, ceramic products, pulp and paper production.

8. DESCRIPTION OF MODELLING APPROACH

Overview of modelling approach

The modelling approach is briefly described in the Fourth National Communication. The background paper with detailed description of methodology and projections is available in Polish only. Below the basic assumptions behind the macroeconomic projections are given.

Some parameters used in emission projections

Parameter	1996	2000	2010	2020	Unit
GDP total Base-line	385	498	936	1561	Bill.PLN.Constant prices of 1996)
GDP total Passive		492	804	1073	Bill.PLN.Constant prices of 1996)
Population base-line/passive	38.5	38.8	39.4	39.9	million
GDP energy intensity [96=100] Base-line	100	83	49	31	
GDP energy intensity [96=100] Passive		84	61	53	

The table below includes the summary of scenarios presented in NC3 and *Poland's Climate Policy*.

APPLIED SCENARIOS IN INDIVIDUAL SECTORS AND AT AGGREGATED LEVEL

Sector	Scenario name in NC	Assumption of PaMs	GHG estimated	Modelling approach
Electrical power engineering	Baseline	WM	CO ₂	Bottom-up
	Passive			

Manufacturing Industries	Baseline	WM	CO2	Bottom-up
	Reduction	WAM		
Transport	Reference baseline	Without measures	CO2, CH4, N2O	Bottom-up
	Reduction baseline	WM		
Agriculture	Baseline	WM	CO2, CH4, N2O	Bottom-up
Forestry	Baseline	WM	CO2 removals	Bottom-up
	Passive	Without measures		
Public utility, services and households	Baseline	WM	CO2, CH4, N2O	Bottom-up
	WAM	WAM		
Energy sector (total)	Baseline	WM	CO2	Bottom-up
	Passive			
Aggregated CO2 emissions	Baseline	WM	CO2	Top-down
	Passive			
Aggregated N2O emissions (Strategy of N2O emission reduction)	Reference	WM	N2O	Bottom-up
	Survival			
	Progress			
Chemical industry	Reference	WM	N2O	Bottom-up
	Reduction-chance			
	Reduction-progress			
	Reduction-moderate			

Sensitivity analysis

No information provided.

Details of the uncertainty assessment

No information provided.

9. PROJECTION INDICATOR REPORTING

Most indicators were provided, for most years.

10. REPORTING OF PARAMETERS ON PROJECTIONS

Some mandatory parameters but no recommended parameters were reported.

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

No	Eurostat Sectors	Indicator	2005	2010	2015	2020	Numerator/denominator	2005	2010	2015	2020
1	Macro	CO ₂ intensity of GDP, t/Euro million	2488	2406	2034	1714	Total CO ₂ emissions, kt GDP, bio Euro (EC95)	314821 126.5	351501 146.1	383040 188.3	407858 238
2	Transport C0	CO ₂ emissions from passenger cars, kt	17342	20856	23946	26737					
		Number of kilometres by passenger cars, Mkm	0	0	0	0					
3	Transport D0	CO ₂ emissions from freight transport (all modes), kt	13233	14367	15893	17624					
		Freight transport (all modes), Mtkm	0	0	0	0					
4	Industry A1	Energy related CO ₂ intensity of industry, t/Euro million	No Data	754	No Data	No Data	CO ₂ emissions from fuel consumption industry, kt Gross value-added total industry, Bio Euro (EC 95)	30624	34340 45.56	35452	34975
5	Households A1	Specific CO ₂ emissions of households, t/dwelling	2.48	2.60	No Data	No Data	CO ₂ emissions from fossil fuel consumption households, kt	28482	29867. 682	29658. 614	30593. 355
							Stock of permanently occupied dwellings, 1000	11498	11498. 4	0	0
6	Services A0	CO ₂ intensity of the services sector, t/Euro million	No Data	120.6	No Data	No Data	CO ₂ emissions from fossil fuel consumption services, kt	6573	6892.8 88	6844.6 39	7060.3 59
							gross value-added services, bio Euro (EC95)	0	57.133 4526	0	0
7	Transformation B0	Specific CO ₂ emissions of public and autoproducer power plants, t/TJ	1165	1091	1052	985	CO ₂ emissions from public and autoproducer thermal power stations, kt	165376	184244. .826	205913. .978	221663. .071
							all products-output by public and autoproducer thermal power stations, PJ	142	168.8	195.8	225
8	Agriculture	Specific N ₂ O emissions of fertilizer and manure use, kg/kg	0.0146	0.0146	0.0146	0.0146	N ₂ O emissions from synthetic fertilizer and manure use, kt use of synthetic fertiliser and manure, kt nitrogen	21.45	21.385	21.893	22.466
			47	38	19	02		1464	1460.9	1497.6	1538.5
9	Agriculture	Specific CH ₄ emissions of cattle production, kg/head	0.0762 25	0.0749 66	0.0736 37	0.0728 25	CH ₄ emissions from cattle, kt cattle populations, 1000 head	417.9 5483	378.6 5050	360.8 4900	353.2 4850
10	Waste	Specific CH ₄ emissions from landfills, kt/kt	0.0002	0.0003	0.0003	0.0003	CH ₄ emissions from landfills, kt Municipal solid waste going to landfills, kt	325.6	357.7	362.1	368.2
			52	09	48	54		128988 1	115740 2	104145 9	104145 9

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 (value at given years or annual growth rate and base year)	126.534	146.1	188.3	238
Population (value at given years or annual growth rate and base year)				
International coal prices at given years in euro per tonne or GJ (Gigajoule)	70	49	49.5	50
International oil prices at given years in euro per barrel or GJ	55	40	43	47
International gas prices at given years in euro per m3 or GJ	181.4	189.3	193.3	197.2
Assumptions for the energy sector				
Total gross inland consumption (PJ) (split by oil,gas,coal,renewables,nuclear,other)	0	0	0	0
Total electricity production by fuel type (oil, gas, coal, renewables, nuclear, other)	142	168.8	195.8	225
Gas(fossile)	4.5	5.7	7.7	12.7
coal	133.3	150.6	173	193.9
Renewables	4.2	12.5	15.1	18.4
Other	3.1	3.3	3.3	3.3
Energy Demand by Sector				
Energy Demand by Sector	3530.25	3974.09	4333.97	4653.81
Energy demand by sector split by fuel (delivered)				
13. Energy Industries	1968.29	2254.70	2533.55	2769.58
13a. Oil (fossil)	68.94	73.48	77.19	80.34
13b. Gas (fossil)	132.54	156.99	175.34	209.45
13c. coal	1742.05	1948.43	2180.73	2350.43
13d. Renewables	24.76	75.80	100.29	129.35
13e. -- Nuclear (IEA definition for energy calc.)				
13e. - Other Please Specify in Column I				
14. Industry	406.96	449.24	452.38	430.02
14a. Oil (fossil)	73.83	71.06	70.85	69.75
14b. Gas (fossil)	164.50	188.65	195.76	189.73
14c. coal	125.52	152.33	161.37	162.09
14d. Renewables	43.10	37.20	24.41	8.45
14e. - Other Please Specify in Column I				
15. Commercial (Tertiary)	684.92	729.84	737.29	777.27
15a. Oil (fossil)	123.13	129.31	124.90	133.77
15b. Gas (fossil)	197.17	221.48	243.50	271.76
15c. coal	240.92	243.92	231.49	223.35
15d. Renewables	123.70	135.14	137.40	148.39
16. Residential	0	0	0	0
16a. Oil (fossil)				
16b. Gas (fossil)				
16c. coal				
16d. Renewables				
16e. - Other Please Specify in Column I				
17. Transport	470.09	540.31	610.75	676.95
17a. Oil (fossil)	470.09	540.31	610.75	676.95
17b. Gas (fossil)				

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

17d. Renewables				
17e. - Other Please Specify in Column I				
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				
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 kilometres				
The growth of freight tonne kilometres				
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				
For Member States using other models:				
Livestock numbers by animal type (for enteric fermentation beef, cows, sheep, for manure management, pigs and, poultry)				
The area of crops by crop type				
Emissions factors by type of livestock for enteric fermentation and manure management (t)				
40. enteric fermentation Dairy cattle	1052.9	1052.9	1052.9	1052.9
41. enteric fermentation Non-dairy cattle	155.8	155.8	155.8	155.8
42. enteric fermentation sheep	359.4	359.7	359.9	360.0
43. manure management Dairy cattle	256.5	256.8	256.9	257.0
44. manure management Non-dairy cattle	33.6	33.6	33.6	33.7
45. manure management sheep	378.3	381.1	381.3	381.3
46. manure management Swine	3.9	3.9	3.9	3.9
47. manure management Poultry				
48. fertilizer use & Crops				
. ... Please add rows and specify fertilizer type...	0.009	0.009	0.009	0.009
. ... Please add rows and specify crop type and pollutant...				
Assumptions in the waste sector				
Waste generation per head of population or tonnes of municipal solid waste	13339	11969	10770	10770
The organic fractions of municipal solid waste	23	23	23	23
Municipal solid waste disposed to landfills, incinerated or composted (in tonnes or %)	96.7	96.7	96.7	96.7

Assumptions in the forestry sector				
Forest definitions				
Areas of:				
managed forests	8973000	9130000	9330000 0	9350000
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				
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 2007 Monitoring Mechanism Excel submission was used as the main source of information.

Poland's Kyoto target is a 6% reduction in emissions compared with the base year. The latest 'with measures' projections in the Monitoring Mechanism submission predict that Poland will overachieve its implied Kyoto commitment of 551.7MtCO₂-eq, by 131.7MtCO₂-eq.

The level of detail in policies and measures chapters differs among the sectors. Examples of policies and measures are summarised in a Table, but mitigation impact by gas and quantitative reduction effects are not provided.

The details of the methodologies for the projections are briefly described in the Fourth National Communication. The scenarios are provided for main economic sectors. No newer information is available.

The projections show that the total greenhouse gas emissions will be increasing in each sector in the projected years (2010, 2015, 2020) except agriculture which will be close to stationary. The rate of increase is the highest in the transport sector. Development trends show that the Polish economy is and will be developing rapidly resulting in higher GHG emissions than at present. GDP growth in 2008-12 is expected to be over 6%.

'With measures' projections predict an increase in total GHG emissions between 2010 and 2020. The projected value for 2020 is 81.6 % of the base year emissions (1988/1995).