Poland

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1. SUMMARY

Poland's Kyoto target is a 6% reduction in emissions compared with the base year (1988/1995). GHG inventories had been recalculated recently and the revised Kyoto base year emission is 563.442774Mt CO2 eq., which is lower than the value submitted earlier. The new Kyoto target is 529.6362Mt CO2 eq.

The details of the methodologies for the projections are briefly described in the Fourth National Communication. The scenarios are provided for main economic sectors. The sectoral 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 is expected to be around 5 % in the projected years. The 'With measures' projections predict an increase in total GHG emissions between 2010 and 2020. However, the projected emission value will still remain much below the Kyoto target; it will be 71.6% of and 81.6 % of the Kyoto base year emissions for 2010 and 2020 respectively. It means that in 2010 the GHG emission reduction will be 28.4% against the 6% Kyoto reduction target.

Since 2005 the Polish economy has been developing and progressing well. Many new policies and measures were introduced and implemented resulting in GHG emission reduction. Basic information about the policies and measures is provided, but the reduction effect by sector and gas has not been quantified. Since the Kyoto target will be achieved, no additional measures are planned to introduce.

2. GHG PROJECTIONS AND PROGRESS TO KYOTO TARGETS

Kyoto base year is 1988 for CO2, CH4, N2O and 1995 for fluorinated gases. The reason that Poland selected 1988 for its base year instead of 1990 is that 1990 was the starting year of recession of Polish economy, followed by deep economy, environmental changes and reforms. Two national projections for greenhouse gas emissions were carried out for the years 2010, 2015 and 2020: a "with measures" (WEM) scenario and a "no measures" (WOM) scenario. Average annual growth in GDP is forecasted to be 5.1% till 2010, increase slightly until 2015 and subsequently drop to 4.8% by 2020. The population is expected to decrease by about 1% till 2020. Energy efficiency will be constantly improving and the share of gas and renewables will be increasing. Sectoral projections were made for 2010, 2015 and 2020 for WEM and WOM scenarios. Each sector is showing increasing tendency from 2005 except solvent use. The projections from 2006 and 2007 are different

due to the change of base year emission. There has been GHG inventory recalculations carried out; the latest inventory data for the Kyoto base year are lower than those submitted earlier. The revised projection shows that emission in 2010 will be 71.6% of the Kyoto base year emissions. Projected emissions in 2020 will also remain below the Kyoto base year; it is projected to be 81.6% of the Kyoto base year emission. (Poland's MM submission, June 2007).

Table 1 shows, for all gases and main sectors:

- GHG emission projections for the scenario "with existing measures" (WEM) and, as reported by the Poland, however no "with additional measures" (WAM) was estimated;
- Historic emissions (in the "reference year") as reported together with projections.

For Poland the reference year is 1988 and the Kyoto base-year: 1988 for CO_2, CH_4 and N_2O, and 1995 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 scenario. 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 Poland, the correction factor is small (0.960027).

[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)	448.2	289.4	NE	23.2	13.5	NE	2.7	1.4	NE	NA	NA	NE	474.1	304.4	NE
Energy supply	271.9	210.6	NE	23.0	13.3	NE	1.2	1.0	NE	NA	NA	NE	296.1	225.0	NE
Energy – industry, construction	58.5	34.3	NE	0.1	0.1	NE	0.3	0.1	NE	NA	NA	NE	58.8	34.6	NE
Energy – other (commercial, residential, agriculture)	117.8	44.5	NE	0.1	0.0	NE	1.2	0.3	NE	NA	NA	NE	119.2	44.8	NE
Transport (energy)	23.5	44.5	NE	0.1	0.1	NE	0.5	1.0	NE	NA	NA	NE	24.1	45.6	NE
Industrial processes	21.7	17.0	NE	0.3	0.3	NE	5.0	4.7	NE	0.3	2.5	NE	27.4	24.5	NE
Waste	0.6	0.3	NE	6.4	9.1	NE	1.2	0.8	NE	NA	NA	NE	8.2	10.2	NE
Agriculture	NA	NA	NE	19.2	12.1	NE	33.0	22.9	NE	NA	NA	NE	52.4	35.0	NE
Other	0.9	0.3	NE	NA	NA	NE	0.1	NA	NE	NA	NA	NE	1.0	0.3	NE
Total (excl. LULUCF)	494.9	351.5	NE	49.3	35.2	NE	42.5	30.8	NE	0.3	2.5	NE	586.9	420.0	NE

Key:
Reference year: 1988
WEM: 'with existing measures' projection
WAM: 'with additional measures' projection

Source: Poland's MM submission, June 2007

Table 2. Summary of projections by sector and by gas in 2010 compared to 1990 emissions (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)	322.5	276.6	NE	20.2	13.2	NE	1.7	2.5	NE		NA	NE	344.3	292.2	NE
Energy supply	228.1	201.0	NE	18.0	13.1	NE	1.1	2.2	NE	NA	NA	NE	247.1	216.3	NE
Energy – industry, construction	42.4	32.8	NE	0.1	0.1	NE	0.2	0.1	NE	NA	NA	NE	42.7	33.1	NE
Energy – other (commercial, residential, agriculture)	52.0	42.7	NE	2.1	0.0	NE	0.3	0.1	NE	NA	NA	NE	54.5	42.8	NE
Transport (energy)	24.9	42.7	NE	0.1	0.1	NE	0.3	1.0	NE	NA	NA	NE	25.4	43.8	NE
Industrial processes	20.3	16.3	NE	0.4	0.3	NE	3.7	4.5	NE	NA	2.4	NE	24.3	23.5	NE
Waste	0.5	0.3	NE	8.0	8.7	NE	1.1	0.8	NE	NA	NA	NE	9.6	9.8	NE
Agriculture	NA	NA	NE	19.0	11.6	NE	30.4	21.9	NE	NA	NA	NE	49.4	33.6	NE
Other	0.5	0.3	NE	NE	NA	NE	0.1	NE	NE		NA	NE	0.6	0.3	NE
Total (excl. LULUCF)	368.7	336.1	NE	47.7	34.0	NE	37.3	30.7	NE	NA	2.4	NE	453.6	403.2	NE

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

Source: Poland's MM submission, June 2007, and Annual greenhouse gas inventory 1988 – 2006, April 2008

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

	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	85.8	NE	100	68.2	NE	100	148.3	NE	100	NE	NE	100	84.9	NE
Energy supply	100	88.2	NE	100	75.8	NE	100	201.8	NE	100	NE	NE	100	87.6	NE
Energy – industry, construction	100	77.4	NE	100	202.3	NE	100	51.6	NE	100	NE	NE	100	77.4	NE
Energy – other (commercial, residential, agriculture)	100	82.1	NE	100	0.2	NE	100	38.0	NE	100	NE	NE	100	78.6	NE
Transport (energy)	100	171.4	NE	100	113.3	NE	100	291.4	NE	100	NE	NE	100	172.6	NE
Industrial processes	100	80.4	NE	100	92.5	NE	100	122.3	NE	100	NE	NE	100	96.7	NE
Waste	100	61.3	NE	100	47.8	NE	100	71.5	NE	100	NE	NE	100	102.0	NE
Agriculture	100	NE	NE	100	63.9	NE	100	72.3	NE	100	NE	NE	100	68.0	NE
Other	100	55.6	NE	100	NE	NE	100	NE	NE	100	NE	NE	100	44.6	NE
Total (excl. LULUCF)	100	91.2	NE	100	74.3	NE	100	82.3	NE	100	NE	NE	100	88.9	NE

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

Source: Poland's MM submission, June 2007, and Annual greenhouse gas inventory 1988 – 2006, April 2008

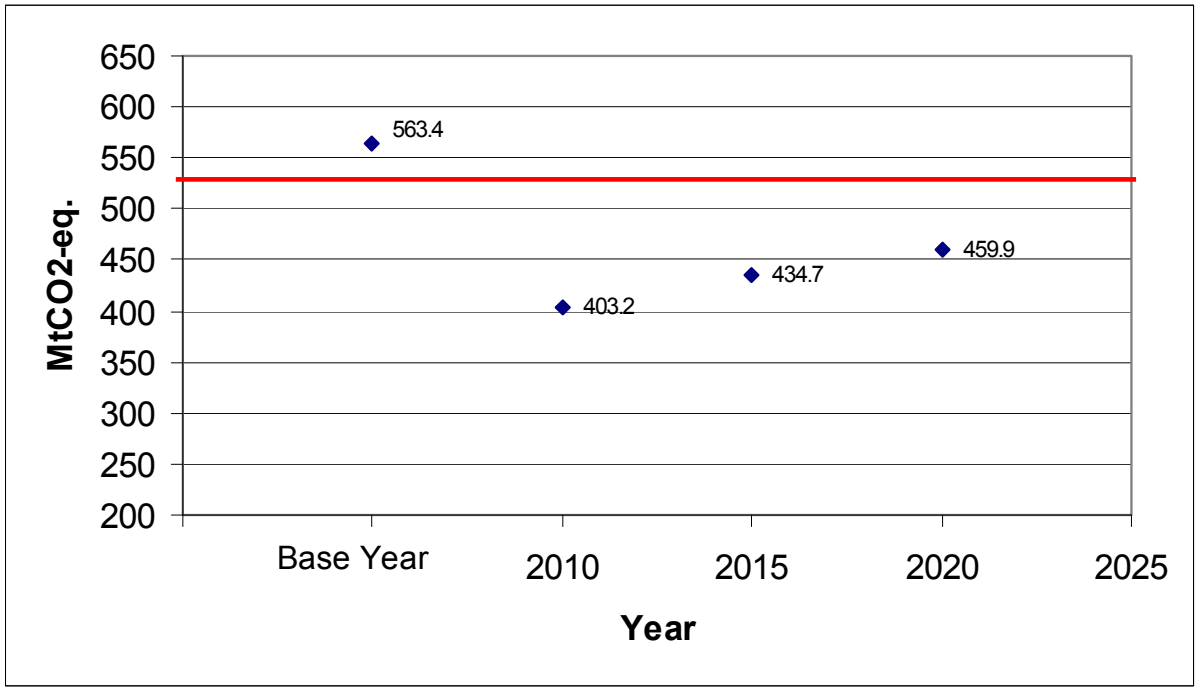
Table 4. Summary of projections in 2010 compared to base year emissions under the Kyoto Protocol

	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.	563.4	403.2	NE
	Index (base-year emissions = 100)	100	71.6	NE

Source: Poland's MM submission, June 2007, and Annual greenhouse gas inventory 1988 – 2006, April 2008

In Figure 1, the same correction factor used in Table 2 has been applied to the projections for 2010, 2015 and 2020. The graph shows WEM scenario for the year 2010, 2015 and 2020.No WAM scenario was projected, because with WEM scenario the projected GHG emission will be below the Kyoto target (indicated by red line in the figures below). Reduction effect of carbon sinks and Kyoto mechanisms was not estimated.

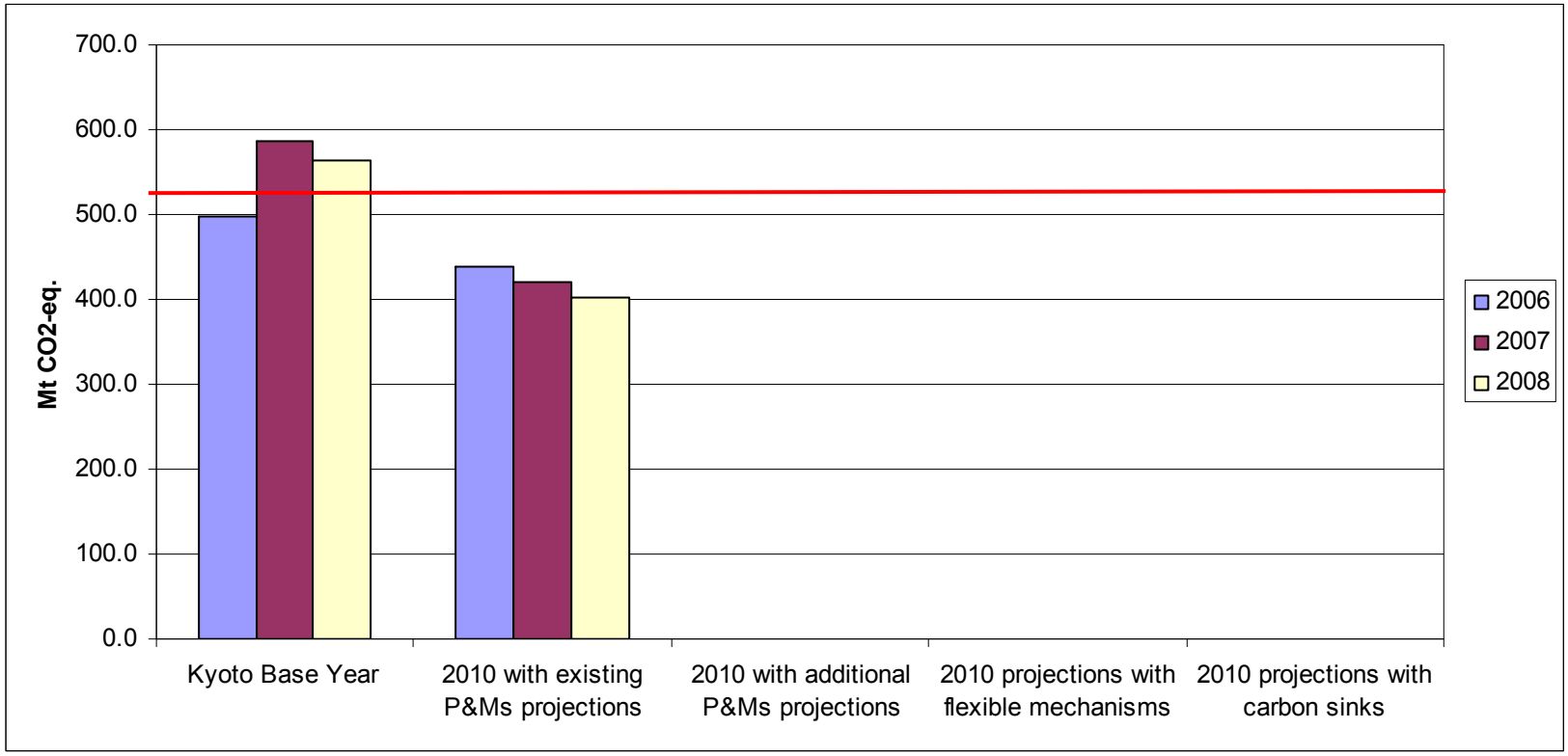
Figure 1. Greenhouse gas projections in 2010, 2015 and 2020 (Mt CO2–eq.)



Source: Poland's MM submission, June 2007.

In 2008 there was no new submission of projections. The difference between 2007 and 2008 projections shown in Figure 2 is due to correction for changes in the reference year. Kyoto target will be met without introducing additional measures. Also, flexible mechanisms and sinks are not needed for compliance with Kyoto target.

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



Source: Poland's MM submission, June 2007.

3. CLIMATE CHANGE MITIGATION POLICIES AND MEASURES

Due to the economic recession in Poland since 1990, the national total GHG emission was far below the Kyoto obligation. (For this reason, the Kyoto base year was chosen as 1988/95.) Latest inventory report shows that total GHG emission in 1990 is much lower than in the Kyoto base year, consequently it will not be difficult to comply with the Kyoto target. Since 2005 economic activities have been progressing, but many policies and measures have been implemented (see table 5) resulting in GHG emission reduction. The most effective policies and measures have been the increase of share of renewable energy sources, co-generation, biomass in fuel balance and fuel conservation, use of biofuels, biogas from landfill sites and waste-water treatment plants, and the implementation of energy saving methods and technologies. Since the Kyoto target will be achieved, no WAM scenario was developed. (Source: Monitoring Mechanism submission, June 2007)

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

	Top down calculation	
	Existing Measures	Planned Measures
Energy (total, excluding transport)	53.2	NE
Energy supply	0.9	NE
Energy – industry, construction	37.3	NE
Energy – other (commercial, residential, agriculture)	15.0	NE
Transport (energy)	-0.8	NE
Industrial processes	0.0	NE
Waste	0.0	NE
Agriculture	0.0	NE
Cross-sectoral	0.0	NE
Total (excluding LULUCF)	52.4	NE

Note: The effects of measures detailed above are calculated firstly by determining the difference between total projections in each scenario ('top down calculation') and secondly by summing the reported effect of individual measures ('bottom up calculation'). A bottom up calculation was not possible as a reduction effect of individual policies and measures was not quantified.

Source: Poland's MM submission, June 2008, for the top down calculation.

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	
Crosscutting	Small (GEF) project	economic	CO2	implemented				
Crosscutting	EU emission trading	economic	CO2	implemented				
Crosscutting	Joint Implementation	economic	CO2,CH4	implemented				
Crosscutting	Recovery and recycling waste	regulatory	CH4	implemented				
Crosscutting	modernization of the land filling of solid waste		CH4	implemented				
	utilization of landfill gas and biogas for energy production	Economic, Regulatory	CH4	implemented				
Crosscutting	implementation of biological wastewater treatment processes	economic	CH4, N2O	implemented				
	reduction of energy intensity in wastewater treatment processes		CO2	implemented				
Energy supply	promotion of renewable energy sources	fiscal, regulatory	CO2	implemented				
Energy supply	promotion of combined heat and power production	economic	CO2	implemented				
Energy supply	Introduction of “green certificates”, certificates of origin for electric power produced from renewable energy sources	economic, regulatory	CO2	implemented				
Energy supply	demethaning of coal mines, exemption from excise tax for electricity from coal mining		CO2	implemented				
Energy consumption	energy saving	economic	CO2	implemented				
Energy consumption	rational energy consumption	economic, education	CO2	implemented				
Energy consumption	increase of energy efficiency of new water heating boilers fired with liquid and gaseous fuels	regulatory	CO2	implemented				
Energy consumption	improvement of efficiency of electrical household appliances		CO2	implemented				

Energy consumption	improvement of technical standards for equipment and facilities	regulatory	CO2	implemented
Energy consumption	implementation of best available techniques	economic, regulatory	CO2	implemented
Energy consumption	introduction of energy standards in the construction sector	regulatory	CO2	implemented
Energy consumption	thermo-modernization of buildings	economic, regulatory	CO2	implemented
Energy consumption	Raising awareness of the users and owners of buildings in energy saving	information, education	CO2	implemented
Energy consumption	Kraków Energy Efficiency Project	economic, information	CO2	implemented
Energy consumption	Polish Energy Efficiency Motors Programme (PEMP)	economic	CO2	implemented
Energy consumption	energy efficiency labels	regulatory	CO2	implemented
Energy consumption	promotion and use of biofuels	regulatory	CO2	implemented
Energy consumption	demethaning of coal mines, exemption from excise tax for electricity from coal mining		CO2	implemented
Energy consumption	Improvement of vehicle energy effectiveness, including measures connected with vehicle construction	research	CO2	implemented
Energy consumption	Technical measures connected with vehicle construction	research	CO2	implemented
Transport	Polish Energy Efficiency Motors Programme (PEMP)	economic	CO2	implemented
Transport	promotion and use of biofuels	regulatory	CO2	implemented

Transport	introduction of road tax	fiscal	CO2	planned
Transport	energy efficiency changes in road transport	economic, fiscal	CO2	implemented
Transport	promotion of environmentally clean motor vehicles	economic, fiscal, regulatory	CO2	implemented
Transport	construction of motorways, by-pass roads and express roads	economic, regulatory	CO2	implemented
Transport	Improvement of vehicle energy effectiveness, including measures connected with vehicle construction	research	CO2	implemented
Transport	Technical measures connected with vehicle construction	research	CO2	implemented
Transport	Introduction of restrictions in speed rates in towns	regulatory	CO2	implemented
Transport	Improvement of the infrastructure for cyclists and pedestrians	planning	CO2	implemented
Transport	promotion of public transport	economic, regulatory	CO2	implemented
Transport	programme of development of combined transport	regulatory	CO2	implemented
Transport	Improvement of the quality of water transport	economic	CO2	implemented
Transport	reducing GHG emissions from air transport	regulatory	CO2	implemented
Transport	Information and educational activity related to the need for behavioural changes	information, education	CO2	implemented

Industrial processes	implementation of best available techniques	economic, regulatory	CO2	implemented
Industrial processes	development of innovation and capacity activities	information, research	CO2	implemented
Industrial processes	technological modernization in industrial plants	economic, information	CO2	implemented
Industrial processes	reduction of methane emissions from production processes and fuel distribution	regulatory	CO2	implemented
Agriculture	rational use of fertilizers	regulatory	N2O	implemented
Agriculture	Rational energy management in agriculture, including energy production from biomass waste, and from solid and liquid manure	economic	CO2, N2O	implemented
Agriculture	Support for using other renewable energy sources in agricultural production	economic	CO2	implemented
Agriculture	Change in the structure of fuels used in favour of hydrocarbon fuels and reduction of Diesel oil consumption	economic	CO2	implemented
Agriculture	Technical modernization of farms	regulatory	CO2, CH4	implemented
Agriculture	improvement of livestock manure management systems	Voluntary/negotiated agreement	CH4	implemented
Agriculture	preference to crops with high CO2 removal factor	Fiscal, regulatory	CO2	implemented
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	economic	CO2	implemented
Agriculture	Investments on new production technologies	economic	CO2, CH4	implemented
Agriculture	combating changes in land-use	regulatory, education	CO2	implemented

Forestry	rational forest management and stimulation of afforestation	regulatory	CO2	implemented
Forestry	A plan for the utilization of wood for energy purposes	economic	CO2	implemented
Forestry	research on the level of carbon removal	research	CO2	implemented
Forestry	combating changes in land-use	regulatory, education	CO2	implemented
Waste	modernization of the landfilling of solid waste		CH4	implemented
Waste	recovery and recycling of waste	regulatory	CH4	implemented
Waste	utilization of landfill gas and biogas for energy production	economic, regulatory	CH4	implemented
Waste	implementation of biological wastewater treatment processes	economic	CH4, N2O	implemented
Waste	reduction of energy intensity in wastewater treatment processes		CO2	implemented

Source: Öko Institut, (accessed June 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 savings ($MtCO_2$–eq.)		Costs (EUR/t)
					2010	2020	

Source: Öko Institut, (accessed 25 June 2008), ECCP Policies and Measures database, http://www.oeko.de/service/pam/index.php

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

Status	CCPM	Sector
National policies and measures already in force **before** CCPM was adopted		

Existing national policies and measures **re-enforced** by CCPM		
New national policies and measures implemented after CCPM was adopted	Kyoto Protocol project mechanisms 2004/101/EC	Cross-cutting
	Emissions trading 2003/87/EC	Cross-cutting
	Integrated pollution prevention and control 96/61/EC	Cross-cutting
	Promotion of electricity from RE sources 2001/77/EC	Energy supply
	Taxation of energy products 2003/96/EC	Energy supply
	Directives on energy labelling of appliances	Energy consumption
	Energy performance of buildings 2002/91/EC	Energy consumption
	Eco-management & audit scheme (EMAS) EC 761/2001	Energy consumption
	Energy labelling for office equipment 2422/2001	Energy consumption
	Efficiency of hot water boilers 92/42/EEC	Energy consumption
	Promotion of biofuels for transport 2003/30/EC	Energy consumption
	Nitrates directive 91/676/EEC	Waste
	Landfill directive 1999/31/EC	Waste
	Directive on waste 2006/12/EC	Waste
Status of national policy or measure **not reported**	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
	Ecodesign requirements for energy-using products 2005/32/EC	Energy consumption
	End-use efficiency and energy services 2006/32/EC	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
	Consumer information on cars 1999/94/EC	Transport

	Agreement with car manufacturers ACEA etc.	Transport
	Marco Polo programme on freight transport	Transport
	Motor challenge, voluntary EC programme	Transport
	HFCs in mobile air conditioning 2006/40/EC	Transport
	F-gas regulation (842/2006)	Industrial Process
	Support under CAP (1782/2003)	Agriculture
	Support under CAP - amendment (1783/2003)	Agriculture
	Rural development support and CAP(2603/1999, 1698/2005 and 1290/2005)	Agriculture
	Support scheme for energy crops under CAP (795/2004)	Agriculture
	Support for rural development from EAGGF (1257/1999)	Agriculture
	Pre-accession measures for agriculture and rural development (1268/1999)	Agriculture
	Packaging and packaging waste (94/62/EC, 2004/12/EC, 2005/20/EC)	Packaging and packaging waste (94/62/EC, 2004/12/EC, 2005/20/EC)

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

There are no policies and measures already in force before CCPM was adopted and also, no existing policies and measures were re-enforced by CCPM. Status of policies and measures related to several EC Directives is not reported

3. METADATA

Sources of information

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

Poland's Annual greenhouse gas inventory 1988 - 2006 and inventory report, April 2008.

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

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

Poland's Fourth National Communication under the United Nations Framework Convention on Climate Change, Ministry of Environment of Poland, December 2006 (hereinafter 4th NC)

Poland's national Inventory report 2006 (May 2008)

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 1988 emissions for carbon dioxide (CO2), methane (CH4) and nitrous oxide (N2O) and 1995 emissions for fluorinated gases (SF6, HFCs and PFCs).

Kyoto base-year emissions have now been reviewed and set for all EEA countries, including Poland. It is equal to 563.4 Mt CO_2-eq.

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. 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.

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**
WM and WAM projections	"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 provided with unique identifier.
Objectives of policies	+++	Good description of objectives
Types of policies	++	Type of policy instrument specified e.g. regulatory, fiscal (in four cases missing)
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	o	Quantification of PaMs is missing
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	+++	Several JI projects accepted, new law to be approved which enables transparent framework for JI projects implementation. Interest in ETS.
Balance between domestic action and flexible mechanisms	o	Domestic PAMs are put into focus

Table 10. Information provided on projections

Category of Information	Level of information provided	Comments
WEM and WAM projections	++	WEM scenario is projected. The country achieved a reduction in emissions without putting in place additional measures
Policies included in each projection	++	WEM contains current PaMs adopted and implemented
Expressed relative to historic reference year data	+++	Projections are presented alongside consistent historic emissions.
Starting year	+++	1988/95
Split of projections	+++	Projection split by all 6 gases (or F-gases together), all sectors and years
Presentation of results	++	Tables are presented for WOM and WEM
Description of methodologies	++	Satisfactory
Sensitivity analysis	+++	Specially for 2020
Discussion of uncertainty	o	Not reported
Details of parameters and assumptions	++	Some key sources are presented
Indicators for projections	++	Some indicators are presented

LIST OF PARAMETERS ON PROJECTIONS

Projections were reported only for the mandatory parameters using the WEM scenario.

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)		5.1	5.2	4.8	%

Population (value at given years or annual growth rate and base year)		-0.6	-0.7	-1.1	%
International coal prices at given years in euro per tonne or GJ (Gigajoule)		49	49,5	50	USD'2004/t
International oil prices at given years in euro per barrel or GJ		40	43	47	USD'2004 /barrel
International gas prices at given years in euro per m3 or GJ		189.3	193.3	197.2	USD'2004 /1000m3
Assumptions for the energy sector					
Total gross inland consumption (PJ) (split by oil, gas, coal, renewables, nuclear, other) **Liquid** **Gaseous** **Solid** **Biomass**		3433.8 273.85 458.03 2453.76 248.14	3723.2 272.94 510.01 2678.2 262.1	3976.9 283.86 566.14 2840.7 286.19	PJ
Total **electricity and heat production** by fuel type (oil, gas, coal, renewables, nuclear, other) **Liquid** **Gaseous** **Solid** **Biomass**		2117.3 29.29 72.1 1940.38 75.5	2391.0 30.38 94.5 2166.1 100	26.23.2 31.95 127.8 2334.4 129.0	PJ
Primary energy demand by sector split by fuel (delivered) **Lignite** **Coal** **Oil** **Gas** **Renewables** **Other fuels**		 13,0 48,2 24,7 14,5 7,0 0,7	 13,9 52,8 27,9 16,6 7,8 0,6	 12,8 57,7 31,3 18,7 9,0 0,4	Mtoe
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 **Cement production** **Iron and steel production:** **Iron ore sintering** **Pig iron** **BOF steel** **Electric furnace steel** **Coke** **Aluminium production**		 14000 8500 6000 7500 4300 11.3 55.0	 14000 8500 6000 7500 4300 11.3 55.0	 14000 8500 6000 7500 4300 11.3 55.0	thousand tonnes
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) **Cattle** **In it: Dairy cattle** **Sheep** **Pigs** **Poultry**		 5050 2450 332 18036 170200	 4900 2250 335 18214 171000	 4850 2150 340 18393 171500	thousand
The area of crops by crop type **Agricultural land area** **Area of N-fixing crops** **Area of other than N-fixing crops**		 16170 294 10876	 15800 314 10586	 15560 338 10362	thousand ha
Emissions factors by type of livestock for enteric fermentation and manure management (t) **Dairy cattle** **Non-dairy cattle** **Sheep** **Pigs** **Poultry**	For 2005-2020	**Enteric ferm.** 101.31 50.14 7.42 1.5 ---	**Manure Mngt.** 7.23 4.79 0.15 6.54 0.078		kg CH4/ animal/year
Assumptions in the waste sector					
Waste generation per head of population or tonnes of municipal solid waste		315,8	286,2	289,3	kg per capita
The organic fractions of municipal solid waste					
Municipal solid waste disposed to landfills, incinerated or composted (in tonnes or %) **Municipal solid waste disposed to landfills** **Municipal solid waste incinerated**		 11969 45	 10770 1200	 10770 2500	thousand tonnes thousand tonnes
Assumptions in the forestry sector					
Forest definitions					
Areas of:					
managed forests		9130	9330	9530	thousands ha
unmanaged forests		-	-	-	

2. Recommended parameters on projections	**2005**	**2010**	**2015**	**2020**	**Units**
Assumptions for general economic parameters					
GDP growth rates split by industrial sectors in relation to 2000					
Comparison projected data with official forecasts					
Assumptions for the energy sector					
National coal, oil and gas energy prices per sector (including taxes)					
National electricity prices per sector as above (may be model output)					
Total production of district heating by fuel type					
Assumptions for the industry sector					
Assumptions fluorinated gases:					
Aluminium production and emissions factors					
Magnesium production and emissions factors					
Foam production and emissions factors					
Stock of refrigerant and leakage rates					
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					