Turkey

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1. SUMMARY

Turkey is an Annex I Party to the UNFCCC. The 7th Conference of Parties (2001) recognized special circumstances of the country. As such, under "common but differentiated responsibilities" Turkey does not have an emission reduction target. The GHG emissions of the country are projected to increase almost threefold in the coming years due to high economic growth and increased energy demand.. However, it is also important to note that Turkey is promoting new policies and undertaking measures to ensure energy is supplied in the most sustainable way possible. Moreover, on 11 June 2008, the Commission on Environment of the Turkish Grand National Assembly approved a draft law that enables Turkey's accession to the Kyoto Protocol. A bill on becoming a Party to the Kyoto Protocol was presented to the Turkish Government National Assembly Presidency.

2. GHG PROJECTIONS AND PROGRESS TO KYOTO TARGETS

Turkey is a Party to the United Nations Framework Convention on the Climate Change; however, it is not a Party to the Kyoto Protocol yet. Turkey does not have a quantifiable target for the GHG emission reductions. Base-year (1990) level of GHG emissions is provided in the 1st NC. It is equal 170.065 Mt of CO2 eq. for carbon dioxide (CO2), methane (CH4) and nitrous oxide (N2O). These emissions exclude emissions from LUCF under Art. 3.7 of the Kyoto Protocol. For the fluoride gases the base year is 1996. It is equal 0.374 Mt of CO2 eq. The analytical methodology has been based on the Energy and Power Evaluation Program (ENPEP). The MAED module of ENPEP was used for projection of energy demand, including electricity. The WASP module was used for electricity generation expansion planning. The BALANCE module projected future fossil and non-fossil energy flows in Turkey. It also calculated the environmental burdens, such as emissions from GHGs and other pollutants. In addition, the VALORAGUA model was used to evaluate the operation of the hydro portion of the electricity system.

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, described in the National Communication. At the moment the effect of the implementation of additional measures has not yet been estimated.

Emission reductions according to the WEM scenario will take place in the power, industry and residential sectors. According to the WEM scenario, national CO_2 emission reductions in 2020 will be 75 Mt per year (or 12%); and sectoral reductions will be 37.2 Mt per year (16.8%) in power sector, 28.7 Mt per year (14.6%) in industry, 9.4 Mt per year (14.4%) in the residential sector.

Table 1 shows projections reference year emissions, while Table 2 shows 1990 data for all gases, from country's latest emissions inventory. A correction factor has been applied to the projections in Table 2, as described in section 4. Metadata.

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	Reference year emissions	With measures	With additional measures	Reference year emissions	With measures	With additional measures	Reference year emissions	With measures	With additional measures	Reference year emissions	With measures	With additional measures	Reference year emissions	With measures	With additional measures
Energy (excl. transport)	**2003**	175.2	260.1**	NE	3.6	2.9**	NE	0.8	1.1**	NE	NE	NE	NE	179.6	264.1**	NE
Energy supply	**2003**	74.2	NE	NE	1.3	NE	NE	0.2	NE	NE	NE	NE	NE	75.7	NE	NE
Energy – industry, construction	**2003**	67.4	NE	NE	0.1	NE	NE	0.2	NE	NE	NE	NE	NE	67.7	NE	NE
Energy – other (commercial, residential, agriculture)	**2003**	33.6	42.91*	NE	2.1	2.7*	NE	0.4	0.4*	NE	NE	NE	NE	36.1	46.0*	NE
Transport (energy)	**2003**	37.8	60.1	NE	0.1	0.2	NE	0.5	0.2	NE	NE	NE	NE	38.4	60.5	NE
Industrial processes	**2003**	18.0	NE	NE	0.1	NE	NE	3.8	NE	NE	NE	NE	NE	21.8	NE	NE
Waste	**2003**	0.0	NE	NE	29.4	NE	NE	0.0	NE	NE	NE	NE	NE	29.4	NE	NE
Agriculture	**2003**	0.0	12.0	NE	15.0	0.0	NE	0.1	0.0	NE	NE	NE	NE	15.2	12.1	NE
Other	**2003**	NO	NE	NE	NE	NE	NE	NE	NE	NE	2.3	NE	NE	2.3	NE	NE
Total (excl. LULUCF)	**2003**	231.0	332.2	NE	48.1	3.1	NE	5.3	1.3	NE	2.3	NE	NE	286.7	336.6	NE

Source: First National Communication, 2007

* Emissions from residential sector only

** Includes energy and industrial process sector emissions

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		
	Reference year emissions	With measures	With additional measures	Reference year emissions	With measures	With additional measures	Reference year emissions	With measures	With additional measures	Reference year emissions	With measures	With additional measures	Reference year emissions	With measures	With additional measures
Energy (excl. transport)	100.7	259.7**	NE	4.4	2.9**	NE	0.7	1.1**	NE	NE	NE	NE	105.8	263.7**	NE
Energy supply	34.0	NE	NE	1.4	NE	NE	0.1	NE	NE	NE	NE	NE	35.6	NE	NE
Energy – industry, construction	37.5	NE	NE	0.1	NE	NE	0.1	NE	NE	NE	NE	NE	37.7	NE	NE
Energy – other (commercial, residential, agriculture)	29.2	42.8*	NE	2.9	2.7*	NE	0.5	0.4*	NE	NE	NE	NE	32.5	45.9*	NE
Transport (energy)	26.0	60.0	NE	0.1	0.2	NE	0.3	0.2	NE	NE	NE	NE	26.3	60.4	NE
Industrial processes	12.9	NE	NE	0.0	NE	NE	0.1	NE	NE	NE	NE	NE	13.1	NE	NE
Waste	NE	NE	NE	6.4	NE	NE	NE	NE	NE	NE	NE	NE	6.4	NE	NE
Agriculture	NE	12.0	NE	18.3	0.0	NE	0.1	0.0	NE	NE	NE	NE	18.5	12.0	NE
Other	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Total (excl. LULUCF)	139.6	331.7	NE	29.2	3.1	NE	1.3	1.3	NE	NE	NE	NE	170.06	336.1	NE
Total (excl. LULUCF)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

* Emissions from residential sector only

** Includes energy and industrial process sector emissions

Source:

Source: for Reference year columns - National Inventories, 2007, CRF for 1990

Source: for correction factor - Table 1, National Inventories, 2007, CRF for 2003

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		
	Reference year emissions	With measures	With additional measures	Reference year emissions	With measures	With additional measures	Reference year emissions	With measures	With additional measures	Reference year emissions	With measures	With additional measures	Reference year emissions	With measures	With additional measures
Energy (excl. transport)	100	257.8	NE	100	67.0	NE	100	147.9	NE	100	NE	NE	100	249.1	NE
Energy supply	100	NE	NE	100	NE	NE	100	NE	NE	100	NE	NE	100	NE	NE
Energy – industry, construction	100	NE	NE	100	NE	NE	100	NE	NE	100	NE	NE	100	NE	NE
Energy – other (commercial, residential, agriculture)	100	146.7	NE	100	94.1	NE	100	75.5	NE	100	NE	NE	100	NE	NE
Transport (energy)	100	231.3	NE	100	217.5	NE	100	68.3	NE	100	NE	NE	100	229.6	NE
Industrial processes	100	NE	NE	100	NE	NE	100	NE	NE	100	NE	NE	100	NE	NE
Waste	100	NE	NE	100	NE	NE	100	NE	NE	100	NE	NE	100	NE	NE
Agriculture	100	NE	NE	100	0.2	NE	100	22.6	NE	100	NE	NE	100	65.2	NE
Other	100	NE	NE		NE	NE		NE	NE		NE	NE		NE	NE
Total (excl. LULUCF)	100	237.6	NE	100	10.6	NE	100	102.8	NE	100	NE	NE	100	197.6	NE
Total (excl. LULUCF)															

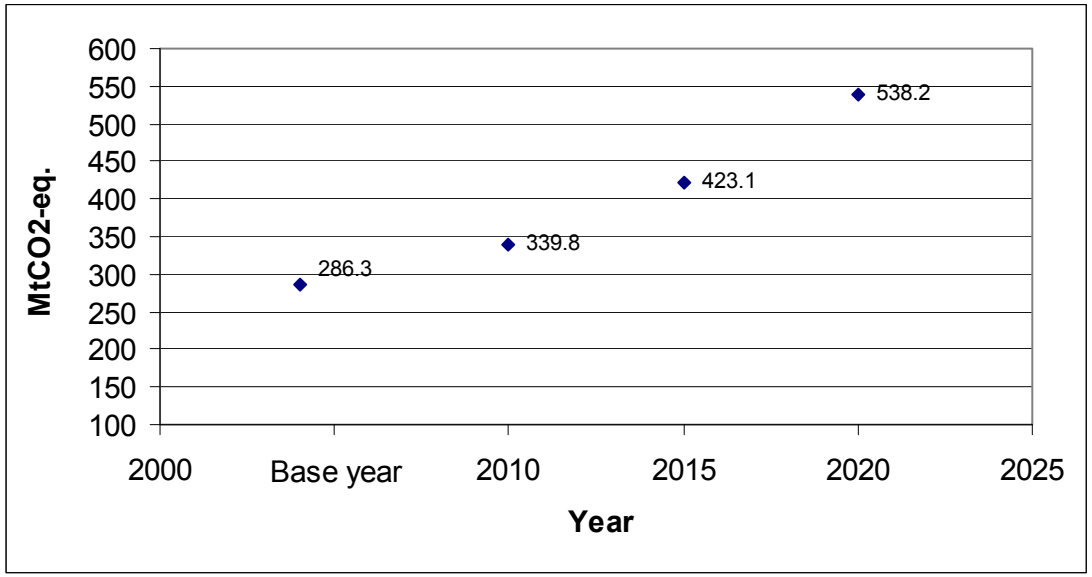
Source: First National Communication, 2007

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.	NA	NA	NA
	Index (base-year emissions = 100)	NA	NA	NA

Since Turkey has no commitments under the Kyoto Protocol, Table 4 is not applicable for Turkey

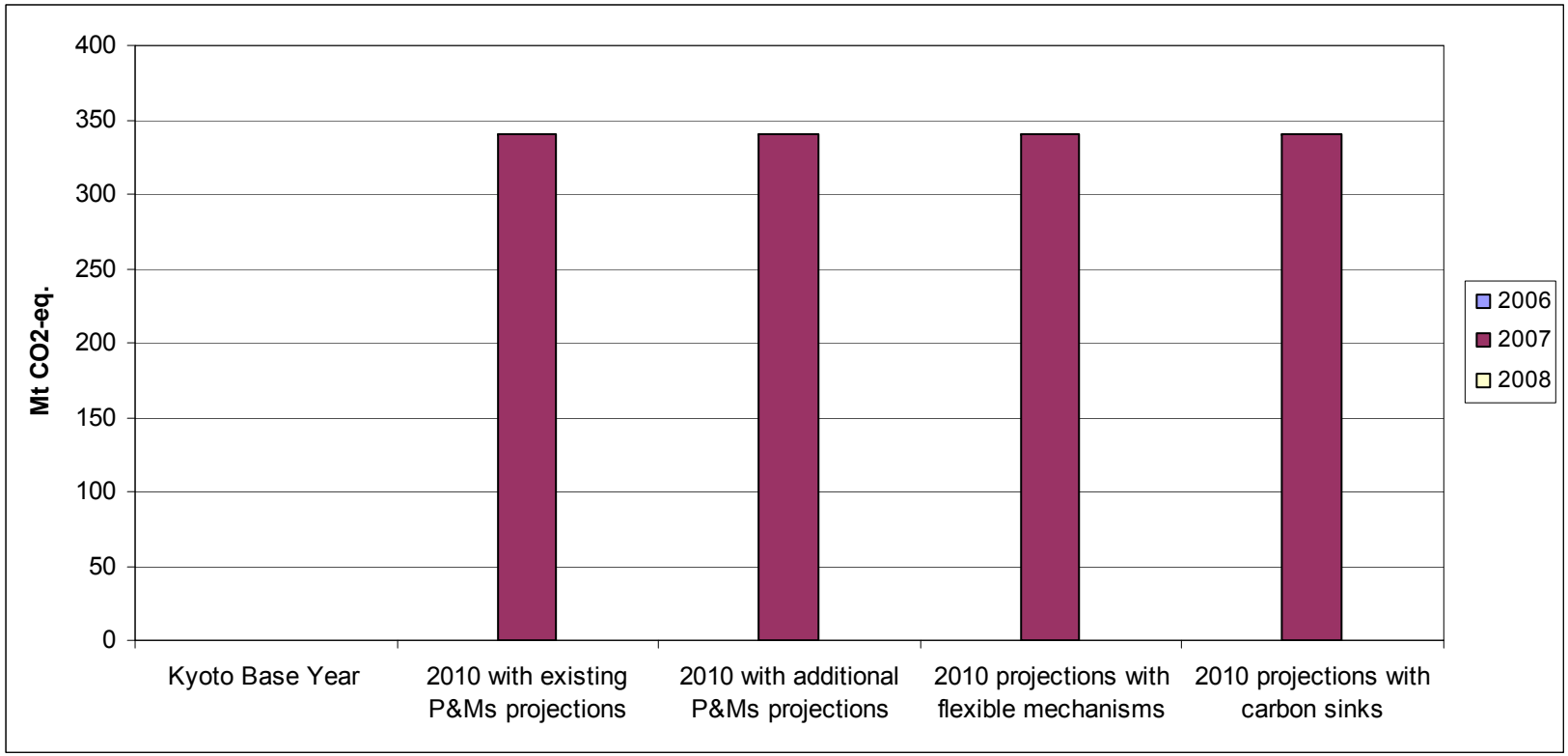
Figure 1. Greenhouse gas projections in 2010, 2015 and 2020 (Mt CO2–eq.)



Source: First National Communication, 2007

The scenario which has been used for the projections is WEM. There are no projections made for sinks.

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



Source: First National Communication, 2007

3. CLIMATE CHANGE MITIGATION POLICIES AND MEASURES

The GHG emissions of the country are expected to increase almost three times in the next years due to the economic development and increased energy demand. However, Turkey is promoting policies and undertaking measures to ensure the energy supply in the most sustainable way possible. In June 2008, Council of Ministers decided to become a party to the Kyoto Protocol. A bill on becoming a Party to the Kyoto Protocol was presented in to the Turkish Government National Assembly Presidency.

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)	6.7	N.E.	N.E.	N.E.
Transport (energy)	0.0	N.E.	N.E.	N.E.
Industrial processes	8.1	N.E.	N.E.	N.E.
Waste	N.E.	N.E.	N.E.	N.E.
Agriculture	0.0	N.E.	N.E.	N.E.
residential	2.8	N.E.	N.E.	N.E.
Total (excluding LULUCF)	17.6	N.E.	N.E.	N.E.

Source: First National Communication, 2007

Note: In Table 5, calculations are based on WEM scenario.

Table 6. Detailed information on Existing Policies and measures

Sector	Name	Type	GHG	Status	Estimated savings ($MtCO_2$–eq.)		Costs (EUR/t)
					2010	2020	
Cross-cutting	Law of Accession of Turkey to the UNFCCC	Policy	CH_4, CO_2 N_2O, HFC, PFC, SF_6	May 2004	N.E.	N.E.	N.E.
Energy	Natural Gas Market Law (Law No: 4646)	Policy	CO_2	2001	N.E.	N.E.	N.E.
Energy	Electricity Market Licensing Regulation (Law No: 4628)	Regulatory	CO_2	2001	N.E.	N.E.	N.E.
Energy	Law on Utilization of Renewable Energy Resources for the Purpose of Generating Electrical Energy (Law No: 5346)	Policy	CO_2	2005	N.E.	N.E.	N.E.
Energy	Natural gas substitution: policy in Industry	Policy	CO_2	2001	N.E.	N.E.	N.E.
Energy	Rehabilitation of existing coal fired power plants	Policy	CO_2	1998	N.E.	N.E.	N.E.
Energy	Construction of new nuclear power unit	Economic Regulatory	CO_2	2015	N.E.	N.E.	N.E.
Energy	Energy Conservation Programme	Regulatory Economic Technical	CO_2	1992	N.E.	N.E.	N.E.
Energy	Labeling household appliances	Economic Regulatory	CO_2	2002	N.E.	N.E.	N.E.
Energy	Labeling Project-CEF	Efficiency	CO_2	2006	N.E.	N.E.	N.E.
Energy	Building Insulation Regulations	Regulatory, economic	CO_2	2000	N.E.	N.E.	N.E.
Energy	Building Cod Project-GEF	Efficiency	CO_2	2006	N.E.	N.E.	N.E.
Energy	Energy Audits	Efficiency	CO_2	1998	N.E.	N.E.	N.E.
Energy	Building Insulation Regulations	Regulatory	CO_2	2000	N.E.	N.E.	N.E.
Energy	SME Strategy and Action Plan (Decree No. 2000/1822)	Policy	CO_2	2004	N.E.	N.E.	N.E.
Energy	Market liberalization Privatization Law No. 4046 (Amended by Law 5496)	Economy	CO_2	2002 2004	N.E.	N.E.	N.E.
Energy	Natural Gas Market Law 4646 Privatization of gas	Economy	CO_2	2001	N.E.	N.E.	N.E.
Energy	Law on Energy Efficiency No:5584	Policy	CH_4, CO_2 N_2O, HFC, PFC, SF_6	2007	N.E.	N.E.	N.E.
Energy	Law on RES No. 5346 Promoting Renewable Energy Sources	Policy	CO_2	2005	N.E.	N.E.	N.E.
Transport	Transportation Master Plan preparation	Policy		2005	N.E.	N.E.	N.E.

Sector	Name	Type	GHG	Status	Estimated savings ($MtCO_2$–eq.)		Costs (EUR/t)
					2010	2020	
Transport	Promotion of vehicles using unleaded gasoline equipped with catalytic converters	Policy	CO_2	2001	N.E.	N.E.	N.E.
Transport	Promotion of taxi cabs using LPG	Fiscal Information	CO_2	2005	N.E.	N.E.	N.E.
Transport	Promotion of diesel fuel	Fiscal	CO_2	2005	N.E.	N.E.	N.E.
Transport	Quality increase of fuel used in heating sector and transportation	Regulatory	CO_2	2005	N.E.	N.E.	N.E.
Transport	Promotion of the natural gas in public buses	Fiscal	CO_2		N.E.	N.E.	N.E.
Transport	Expansion of urban rail transit network	Policy	CO_2		N.E.	N.E.	N.E.
Agriculture	Agricultural Strategy paper	Economic	CO_2 CH4, N2O	2006-2010	N.E.	N.E.	N.E.
Agriculture	Lifestock Decree 8503	Regulatory	CH4		N.E.	N.E.	N.E.
Waste	Harmonization of national and European waste legislation	Policy, Regulatory	CO2 CH4 N2O		N.E.	N.E.	N.E.

Source: First National Communication, 2007

Table 7. Detailed information on Planned Policies and measures

Sector	Name	Type	GHG	Status	Estimated savings ($MtCO_2$–eq.)		Costs (EUR/t)
					2010	2020	
Cross-cutting	Harmonization polluting of Turkish Legislation with the EU Aquis	Policy	CH_4, CO_2 N_2O, HFC, PFC, SF_6	planned	N.E.	N.E.	N.E.
Transport	Promoting less polluting cars	Policy	CH_4, CO_2 N_2O, HFC, PFC, SF_6	planned	N.E.	N.E.	N.E.
Cross-cutting	National Climate Change Adaptation Plan Strategy*	Policy	CH_4, CO_2 N_2O, HFC, PFC, SF_6	planned	N.E.	N.E.	N.E.
Cross-	National Climate Change Action Plan Strategy	Policy	CH_4, CO_2	planned	N.E.	N.E.	N.E.

Sector	Name	Type	GHG	Status	Estimated savings (MtCO2–eq.)		Costs (EUR/t)
					2010	2020	
cutting			N_2O, HFC, PFC, SF_6				

*Through personal communication with the Ministry of Environment and Forestry
Source: First National Communication, 2007

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		
Status of national policy or measure **not reported**		

4. METADATA

Sources of information

First National Communication of Turkey submitted to the UNFCCC, January 2007.

Kyoto base-year emissions

For Turkey there is no Kyoto base year set, since the country has not yet ratified the Kyoto Protocol and has no reduction obligation.
1990 emissions are taken as base year and presented throughout, except Table 1 which presents projections reference year emissions which is 2003 for Turkey.

Projections reference year emissions

Projections reference year emissions are presented in Table 1. Projections reference year for Turkey is 2003.

Projections reference year emissions are defined as projections-consistent emissions data for a given historic year, as chosen by the country. In the Turkish case it is the year 2003. 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, the 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. For Turkey the correction factor is 0.988.

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 no reported) to +++ (representing very detailed and/or clear reporting). Guidance used for this assessment included the reporting requirements laid down in:

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

- UNFCCC reporting guidelines for national communications available in English, French, Spanish ("Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II:

UNFCCC reporting guidelines on national communications - FCCC/CP/1999/7″)

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

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

Category of Information	Example of good practice
Projection scenarios	"With measures" and "with additional measures" projections required, "without measures projection" optional.
Policies included in each projection	Clear presentation of the policies included in each projections scenario.
Expressed relative to historic reference year data	Projections are presented alongside consistent historic emissions.
Starting year	Starting year and emissions used as basis for for projections is detailed.
Split of projections	Projection split by all 6 gases (or F-gases together), all sectors and years
Presentation of results	Clear, both tables and graphs provided and/or used excel reporting template.
Description of methodologies	Description of approach, model and assumptions
Sensitivity analysis	Was an analysis carried out to determine the sensitivity of projections to variance in the input parameters? Are high medium and low scenarios presented?
Discussion of uncertainty	Is an uncertainty range for the projections provided?
Details of parameters and assumptions	Are parameters as required under Monitoring Mechanism 280/2004/EC reported?
Indicators for projections	Are indicators for projections as required under Monitoring Mechanism 280/2004/EC reported?

Table 9. Information provided on policies and Kyoto flexible mechanisms

Information provided	Level of information provided	Comments
Policy names	+++	Clear names and description are given
Objectives of policies	++	Described in the text and in overview tables
Types of policies	++	Information was given within the text, rather than in a list
Which greenhouse gases?	++	CO_2, CH_4, N_2O
Status of Implementation	++	Status of implementation is given for some policies and measures
Implementation body	++	Implementation bodies are specified for clusters of policies and measures
Quantitative assessment of emission reduction effect and cost of policies	o	Assessment is not provided
Interaction with other national and EU level policies	++	Relationships are discussed
Measures implementing community legislation	++	Approximation to EU legislation has started
Arrangements for flexible mechanisms	o	Not relevant
Balance between domestic action and flexible mechanisms	o	Not relevant

Table 10. Information provided on projections

Category of Information	Level of information provided	Comments
Projection scenarios	++	WoM and WEM scenario were projected
Policies included in each projection	o	Not clearly described
Expressed relative to historic reference year data	+	Categories of the projections are not consistent with that of the inventories
Starting year	+++	2003
Split of projections	++	6 sectors for only CO_2, CH_4, N_2O
Presentation of results	+++	Tables with clear data presentation in consistent units available

Description of methodologies	++	Information on the models used provided. Modules, assumptions and key inputs of the model are described
Sensitivity analysis	+	List of important uncertain factors and correlation
Discussion of uncertainty	+	Drivers of uncertainties provided in the energy sector
Details of parameters and assumptions	+	A list of parameters is provided in the energy sector
Indicators for projections	NA	NA

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)	NE	5.5	6.4	5.4	%
Population (value at given years or annual growth rate and base year)	73.1	78.5	83.3	87.8	millions
International coal prices at given years in euro per tonne 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					
Assumptions for the energy sector					
Total gross inland consumption (PJ) (split by oil, gas, coal, renewables, nuclear, other)	73.4	98.8	125.4	160.3	mtoe
Oil (fossil) mtoe	25.1	NE	NE	52.3	mtoe
Gas (fossil) mtoe	8.2	NE	NE	21.7	mtoe
Hard Coal and coke (mtoe)	10.1	NE	NE	34.4	mtoe
Lignite and asphaltite (mtoe)	3.3	NE	NE	3.9	mtoe
Renewable energy sources mtoe	6.9	NE	NE	9.3	mtoe
Nuclear (IEA definition of energy calc) mtoe	12.1	NE	NE	38.3	mtoe
Total electricity production by fuel type (oil, gas, coal, renewables, nuclear, other)	NE	NE	NE	544.0	TWh
Oil (fossil) TWh	NE	NE	NE	19.4	TWh
Gas (fossil) TWh	97.3	NE	NE	198.8	TWh
Coal TWh	44.6	NE	NE	135.9	TWh
Renewable TWh	NE	NE	NE	118.3	TWh
Energy demand by sector split by fuel (delivered)	73.4	98.8	125.4	160.4	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					
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)					
Assumptions in the waste sector					
Waste generation per head of population or tonnes of municipal solid waste					
The organic fractions of municipal solid waste					
Municipal solid waste disposed to landfills, incinerated or composted (in tonnes or %)					
Assumptions in the forestry sector					
Forest definitions					
Areas of:					
managed forests					
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					