

Switzerland

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1. SUMMARY

Switzerland is an Annex-I party signatory to the Kyoto Protocol, and has a target to reduce its greenhouse gas emissions by 8%, from the 1990 baseline in average over the commitment period (2008-2012). Switzerland translated this international commitment into a national target of minus 10% compared to 1990 for energy related CO₂-emissions responsible for nearly 80% of greenhouse gas emissions. In 2005, it became apparent that measures implemented were not sufficient to meet this target stipulated in the national CO₂ Act, one of the reasons being the delay in CO₂-relevant measures, such as the CO₂ incentive tax on heating and process fuels. The Federal Council therefore announced in early 2008 the need for additional measures¹ and decided to reinforce efforts taken by the privately run Swiss Climate Cent Foundation (using the revenues of a private sector surcharge on motor fuels of 1.5 cent per liter) to cover the estimated gap of 0.5 MtCO₂ to meet the legal energy related targets. So far the Swiss Climate Cent Foundation is committed to reduce 1.6 MtCO₂ per year (0.2 MtCO₂ domestically / 1.6 Mt CO₂ by using the Kyoto Protocol's flexible mechanisms). Furthermore, the Federal Council agreed on a package of energy efficiency measures.

The latest result of negotiations with the Swiss Climate Cent Foundation is a 2 MtCO₂-eq. reduction internationally using the Kyoto Protocol's flexible mechanisms and a 0.3 MtCO₂-eq. domestically. As this agreement has not yet been formalised, the additional implied reduction in 2010 emissions of 0.5 MtCO₂-eq. is not included in the data and figures presented in this report.

The *With Existing Measures* and *With Additional Measures* projections, presented in the 4th National Communication and adjusted in accordance with the latest GHG inventory (see Section 4: Metadata) show a 3.2% and 4.7% reduction from base year emissions respectively, against a target of an 8% reduction.

A national secretariat for flexible mechanisms (Designated National Authority) was established in 2004. The Swiss government has *not* set aside any budget for the acquisition of certificates from CDM/JI projects, however, it anticipates that the private sector will participate in CDM and JI through the Climate Cent Foundation, and estimates the effects of this to be a 1.6 MtCO₂ eq reduction in Switzerland's emission projections in 2010. The use of flexible mechanisms to account for 1.6 MtCO₂ eq, in addition to national measures, results in a total emission projection for 2010 of 7.8% below base year emissions, against the 8% target. Whether Switzerland will meet the Kyoto target largely depends on the outcome of negotiations with the Swiss Climate Cent Foundation and the intended use of carbon sinks from forestry and forest management, activities which are not accounted for in the national CO₂ Act.

¹ Politique climatique : négociations avec la Fondation Centime Climatique, Fiche 3, Jeudi 21 Février 2008

2. GHG PROJECTIONS AND PROGRESS TO KYOTO TARGETS

Switzerland's Kyoto base year is 1990 for all gases. A *With Additional Measures* projection is not presented in Switzerland's 4th National Communication but can be calculated from the quantification of individual *additional measures* provided by Switzerland. These savings have been amended since publication of the 4th National Communication and now stand at 0.8 Mt CO₂-eq².

Table 1 shows, for all gases and key sectors:

- GHG emission projections for the two scenarios "with existing measures" (WEM) and "With Additional Measures" (WAM), as reported by Switzerland;
- Historic emissions (in the "reference year") as reported together with projections.

For Switzerland, the reference year is the Kyoto base-year: 1990 for all greenhouse gases.

² Source : Politique climatique: négociations avec la Fondation Centime Climatique, Fiche 3, Jeudi 21 février 2008

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

	Carbon dioxide			Methane			Nitrous oxide			F-gases			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)	26.1	25.1	24.7	0.4	0.3	0.3	0.1	0.1	0.1	NO	NO	NO	26.6	25.6	25.2
Energy supply	1.5	1.7	1.3	0.3	0.2	0.2	0.0	0.04	0.04	NO	NO	NO	1.8	2.0	1.6
Energy – industry, construction	6.1	5.9	5.9	0.01	0.01	0.01	0.1	0.03	0.03	NO	NO	NO	6.2	5.9	5.9
Energy – other (commercial, residential, agriculture)	18.5	17.6	17.6	0.1	0.1	0.1	0.1	0.1	0.1	NO	NO	NO	18.6	17.7	17.7
Transport (energy)	14.2	15.3	14.9	0.1	0.0	0.02	0.1	0.1	0.1	NO	NO	NO	14.4	15.4	15.0
Industrial processes	2.8	1.9	1.9	0.01	0.01	0.01	0.1	0.1	0.1	0.3	1.0	1.0	3.2	3.0	3.0
Waste	1.3	1.2	1.2	0.7	0.2	0.2	0.1	0.1	0.1	NO	NO	NO	2.1	1.5	1.5
Agriculture	NE	NE	NE	3.2	2.9	2.9	2.9	2.4	2.4	NO	NO	NO	6.1	5.2	5.2
Other	NE	NE	NE	NE	NE	NE	0.1	0.1	0.1	NE	NE	NE	0.1	0.1	0.1
Total (excl. LULUCF)	44.4	43.5	42.7	4.5	3.5	3.5	3.4	2.9	2.9	0.3	1.0	1.0	52.5	50.8	50.0

Key:

Reference year: base-year under the Kyoto Protocol (1990 for all gases).

WEM: 'with existing measures' projection

WAM: 'With Additional Measures' projection

Source: Switzerland's 4th National Communication submitted to the UNFCCC, 2005.

Table 2 shows, for all gases and main sectors:

- 1990 GHG emissions as reported in the latest (2008) GHG emissions inventory (1990-2006);

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- Adjusted GHG emission projections for the WEM and WAM scenarios. This adjustment of the projections reported in Table 1 is carried out to allow consistency and comparability between projections and the latest (2008) GHG inventory data³.

Table 2. Summary of projections by sector and by gas in 2010 compared to 1990 emissions (MtCO₂-eq.)

	Carbon dioxide			Methane			Nitrous oxide			F-gases			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)	26.7	25.3	24.9	0.5	0.3	0.3	0.2	0.1	0.1	NO	NO	NO	27.3	25.8	25.3
Energy supply	2.6	1.7	1.3	0.4	0.2	0.2	0.1	0.04	0.04	NO	NO	NO	3.1	2.0	1.6
Energy – industry, construction	6.0	5.9	5.9	0.0	0.0	0.0	0.1	0.03	0.03	NO	NO	NO	6.1	6.0	6.0
Energy – other (commercial, residential, agriculture)	18.1	17.7	17.7	0.1	0.1	0.1	0.1	0.1	0.1	NO	NO	NO	18.2	17.8	17.8
Transport (energy)	14.6	15.4	15.0	0.1	0.02	0.02	0.1	0.1	0.1	NO	NO	NO	14.8	15.5	15.1
Industrial processes	2.8	1.9	1.9	0.0	0.01	0.01	0.2	0.1	0.1	0.2	1.0	1.0	3.3	3.0	3.0
Waste	0.1	1.2	1.2	0.8	0.2	0.2	0.2	0.1	0.1	NO	NO	NO	1.0	1.5	1.5
Agriculture	NE	NE	NE	3.0	2.9	2.9	2.9	2.4	2.4	NO	NO	NO	5.9	5.2	5.2
Other	0.4	NE	NE	NE	NE	NE	0.1	0.1	0.1	NO	NO	NO	0.5	0.1	0.1
Total (excl. LULUCF)	44.6	43.7	42.9	4.4	3.5	3.5	3.6	2.9	2.9	0.2	1.0	1.0	52.8	51.1	50.3

Key:

WEM: 'with existing measures' projection

WAM: 'With Additional Measures' projection

Source: Switzerland's 4th National Communication submitted to the UNFCCC, 2005. Annual greenhouse gas inventory 1990 - 2006 and inventory report, 15 April 2008.

³ 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).

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

	Carbon dioxide			Methane			Nitrous oxide			F-gases			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	94.8	93.3	100	68.2	68.2	100	79.0	79.0	NO	NO	NO	100	94.2	92.7
Energy supply	100	63.8	48.6	100	63.2	63.2	100	78.9	78.9	NO	NO	NO	100	64.0	50.9
Energy – industry, construction	100	98.7	98.7	100	127.9	127.9	100	55.9	55.9	NO	NO	NO	100	98.3	98.3
Energy – other (commercial, residential, agriculture)	100	98.0	98.0	100	85.3	85.3	100	99.5	99.5	NO	NO	NO	100	97.9	97.9
Transport (energy)	100	105.1	102.3	100	21.4	21.4	100	88.3	88.3	NO	NO	NO	100	104.4	101.7
Industrial processes	100	66.1	66.1	100	110.5	110.5	100	57.9	57.9	100	408.5	408.5	100	91.4	91.4
Waste	100	1931.6	1931.6	100	31.9	31.9	100	42.8	42.8	NO	NO	NO	100	148.6	148.6
Agriculture	NE	NE	NE	100	94.6	94.6	100	82.7	82.7	NO	NO	NO	100	88.8	88.8
Other	NE	NE	NE	NE	NE	NE	100	118.8	118.8	NO	NO	NO	100	28.0	28.0
Total (excl. LULUCF)	100	98.1	96.3	100	79.4	79.4	100	80.2	80.2	100	408.5	408.5	100	96.8	95.3

Key:

WEM: 'with existing measures' projection

WAM: 'With Additional Measures' projection

Source: Switzerland's 4th National Communication submitted to the UNFCCC, 2005. Annual greenhouse gas inventory 1990 - 2006 and inventory report, 15 April 2008.

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

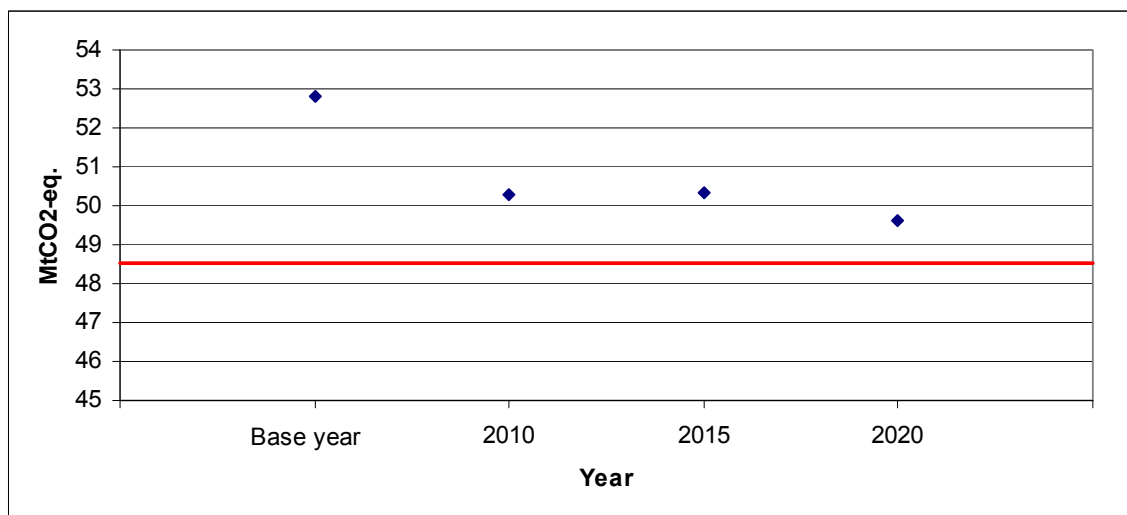
	Unit	Base-year emissions under the Kyoto Protocol	2010 projections 'with existing measures'	2010 projections 'With Additional Measures'
Total GHG emissions (excluding LULUCF)	Mt CO ₂ -eq.	52.8	51.1	50.3
	Index (base-year emissions = 100)	100	96.8	95.3

Source: Switzerland's 4th National Communication submitted to the UNFCCC, 2005. Annual greenhouse gas inventory 1990 - 2006 and inventory report, 15 April 2008.

In Figure 1, the same correction factor used in Table 2 has been applied to the projections for 2010, 2015 and 2020. Figure 1 presents the "With Additional Measures" scenario for 2010.

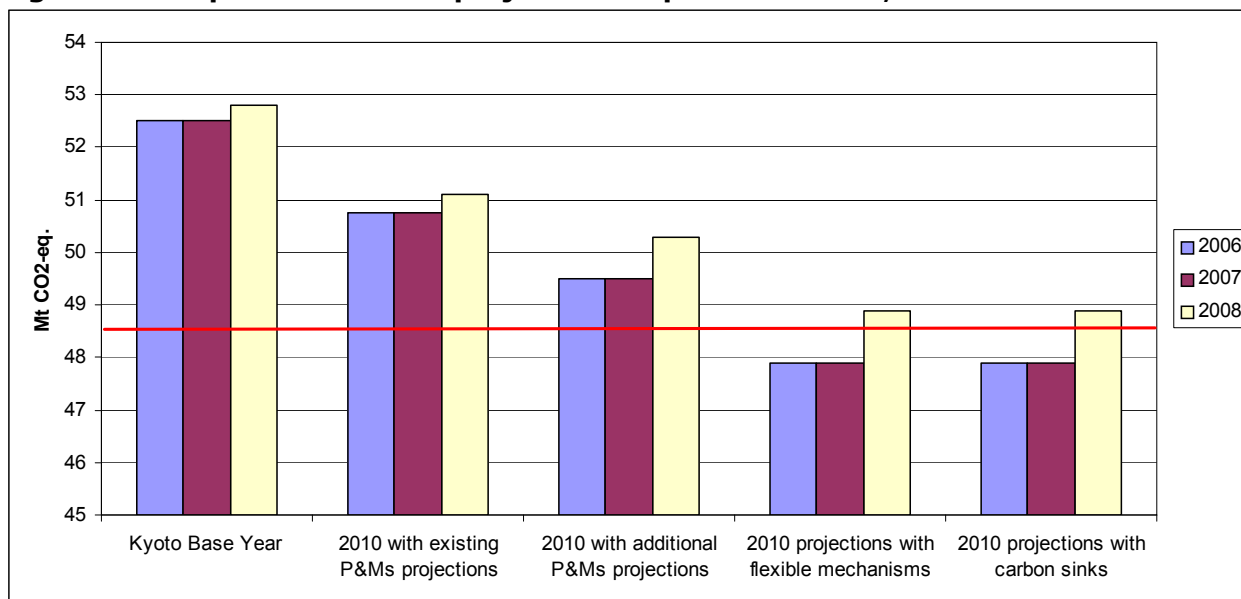
The red lines in Figure 1 and 2 indicate the Kyoto target of 48.6 Mt CO₂-eq., based on the revised Kyoto base year, 2008.

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



Sources: Switzerland's 4th National Communication submitted to the UNFCCC, 2005. Politique climatique: négociations avec la Fondation Centime Climatique, Fiche 3, Jeudi 21 février 2008. Annual greenhouse gas inventory 1990 - 2006 and inventory report, 15 April 2008.

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



Sources: Switzerland’s 4th National Communication submitted to the UNFCCC, 2005. Politique climatique: négociations avec la Fondation Centime Climatique, Fiche 3, Jeudi 21 février 2008. Annual greenhouse gas inventory 1990 - 2006 and inventory report, 15 April 2008.

3. CLIMATE CHANGE MITIGATION POLICIES AND MEASURES

A limited number of ‘additional’ measures were quantified in the 4th National Communication. Revised quantifications were published early in 2008 and are presented below.

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)	NE	NE	NE	0.4
Energy supply	NE	NE	NE	0.4
Energy – industry, construction	NE	NE	NE	NE
Energy – other (commercial, residential, agriculture)	NE	NE	NE	NE
Transport (energy)	NE	NE	NE	0.4
Industrial processes	NE	NE	NE	NE
Waste	NE	NE	NE	NE
Agriculture	NE	NE	NE	NE
Cross-sectoral	NE	NE	4.1	NE
Total (excluding LULUCF)	NE	NE	4.1	0.8

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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').

Source : Politique climatique: négociations avec la Fondation Centime Climatique, Fiche 3, Jeudi 21 février 2008. Personal communication.

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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-sectoral	Federal Act on the Reduction of CO2 emissions	Legal, Voluntary	CO2, precursors	Adopted	4.1		
Energy Consumption	"Energy 2000" programme and continuation of the "SwissEnergy" programme (with constant funding)	Voluntary	CO2	Implemented			
Cross-sectoral	Voluntary agreements with energy-intensive companies and car importers to enhance energy efficiency and reduce CO2 emissions (no CO2 tax)	Voluntary	CO2	Implemented			
Energy Consumption	Continuous tightening of energy requirements for buildings (SIA standard 380/1, labelling)	Institutional, Regulatory	CO2	Implemented			
Transport	Heavy vehicle fee (HVF), transfer of heavy freight from road to rail, reduction in traffic, improvements in car fuel efficiency.	Economic	CO2, precursors	Implemented			
Cross-sectoral	Energy Act: security of supply, rational and efficient energy use	Institutional, Economic, Regulatory	CO2	Implemented			
Cross-sectoral	Cantonal and communal energy laws	Institutional, Economic, Regulatory	CO2	Implemented			
Energy Consumption	Energy efficiency programmes in the commercial and industrial sector	Voluntary	CO2	Implemented			
Transport	Energy efficiency programmes in the transport sector including agreement with automobile importers association and labelling for cars	Voluntary	CO2	Implemented			
Energy Supply	Amendment to energy act: improved feed-in tariffs for renewables and guarantee of origin for electricity	Regulatory	CO2	Implemented			
Transport	Modal shift measures	Institutional subsidies	CO2, precursors	Implemented			

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Sector	Name	Type	GHG	Status	Estimated savings (MtCO ₂ -eq.)		Costs (EUR/t)
					2010	2020	
Forestry	Increase and protection of forested area; sustainability in forest management	Regulatory	CO2	Implemented			
Agriculture	Greenhouse gases in agriculture	Economic, Voluntary	CH4, N2O	Implemented			
Industrial Processes	Regulation of the use of synthetic GHGs, amendment of regulation of hazardous substances	Regulatory, Voluntary	F-gases	Implemented			
Industrial Processes	NM VOC tax: reduction in fugitive fuel emissions	Economic	F-gases	Implemented			

Sources: Switzerland's 4th National Communication submitted to the UNFCCC, 2005. Politique climatique: négociations avec la Fondation Centime Climatique, Fiche 3, Jeudi 21 février 2008. Personal communication.

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-sectoral	Emissions Trading	Economic	CO2	Adopted			
Cross-sectoral	Ecological tax reform: shift from labour to energy use	Economic	CO2, Others	Suspended			
Energy Supply	Incentive CO2 tax on heating and process fuels	Economic	CO2, precursors	Implemented	0.4		
Energy Supply	Electricity Market Act: liberalisation and promotion of renewables	Institutional, Regulatory	CO2, Others	Implemented			
Forestry	Forest management to enhance and conserve sinks	Not yet defined	CO2, Others	Implemented			
Transport	Climate surcharge on gasoline and diesel ("Climate Cent")	Economic, Voluntary	CO2, precursors	Implemented	0.2*		
Transport	Tax cuts for alternative transport fuels (biogas, bioethanol, natural gas, etc.) in mineral oil tax legislation.	Economic	CO2, precursors	Implemented	0.2		

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Sector	Name	Type	GHG	Status	Estimated savings (MtCO ₂ -eq.)		Costs (EUR/t)
					2010	2020	
Transport	Tax incentive for environmentally friendly passenger cars	Economic	CO ₂ , precursors	Planned	Captured in above		
Transport	Programmes in the transport sector: transport infrastructure improvements and modal shift	Infrastructure	CO ₂ , precursors	Planned			

Sources: Switzerland's 4th National Communication submitted to the UNFCCC, 2005. Politique climatique: négociations avec la Fondation Centime Climatique, Fiche 3, Jeudi 21 février 2008. Personal communication.

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Sources of information

Switzerland's 4th National Communication submitted to the UNFCCC, 2005.

Switzerland's Report on Demonstrable Progress under Article 3.2 of the Kyoto Protocol submitted to the UNFCCC, dated 2005.

Annual greenhouse gas inventory 1990 - 2006 and inventory report, 15 April 2008.

Politique climatique: négociations avec la Fondation Centime Climatique, Fiche 3, Jeudi 21 février 2008

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

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

Kyoto base-year emissions

Kyoto base-year emissions are presented throughout, except Table 1 which presents projections reference year emissions (see below). Kyoto base year emissions of greenhouse gases were calculated using 1990 emissions for carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O) and fluorinated gases (SF₆, HFCs and PFCs).

Kyoto base-year emissions have now been reviewed and set for all EEA countries.

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 Country reporting in the sources detailed above was assessed semi-qualitatively. Scoring was attributed according to the level of detail and clarity: from 0 (representing not

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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 Existing 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 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

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	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 8. Information provided on policies and Kyoto flexible mechanisms

Information provided	Level of information provided	Comments
Policy names	+++	All policies clearly named
Objectives of policies	+++	Policy objectives set out clearly, as is the type of policy (economic, voluntary, legislative).
Types of policies	+++	Specified for all.
Which greenhouse gases?	++	Switzerland specifies which gases are affected by each policy, but does not list all of them – only distinguishes between CO ₂ , 'precursors' and 'others'
Status of Implementation	++	The status of each policy is explained, although they are not classed according to IPCC guidelines
Implementation body	+++	The implementing body or bodies for each policy are listed
Quantitative assessment of emission reduction effect and cost of policies	+	Quantification of the impacts of some additional measures only.
Interaction with other national and EU level policies	o	There is no mention of interaction with other policies
Measures implementing community legislation	N/A	Not applicable
Arrangements for flexible mechanisms	++	Some information
Balance between domestic action and flexible mechanisms	++	Some information

Table 9. Information provided on projections

Category of Information	Level of information provided	Comments
Projection scenarios	+	"With Existing Measures" projection scenario only. Quantification of some "additional measures" allows an "additional measures" projection scenario to be calculated.
Policies included in each projection	+	Not clear.
Expressed relative to base year	++	Base year is clearly expressed, and historic data differentiated from projections
Starting year	+++	Projections start in 2005
Split of projections	+++	Projections are split by gas (CO ₂ , CH ₄ ,

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		N ₂ O, HFCs, PFCs and SF ₆ s), and by sector, following IPCC guidelines for sectors. Projections provided for 2005, 2010, 2015 and 2020.
Presentation of results	+++	Results clearly presented in tables and graphs
Description of methodologies (approach, model and assumptions)	+++	Excellent description of the models used and of the assumptions made for these.
Sensitivity analysis	+++	There is a good discussion of sensitivity analysis
Discussion of uncertainty	++	Key model uncertainties are discussed
Details of parameters and assumptions	++	Assumptions are detailed for each sub-sector model
Indicators for projections	N/A	Not applicable.

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Parameters for projections were not reported.

Table 10. 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)					
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)					
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)					
Total electricity production by fuel type (oil, gas, coal, renewables, nuclear, other)					
Energy demand by sector split by fuel (delivered)					
Assumptions on weather parameters, especially heating or cooling degree days					
Assumptions for the industry sector					
<i>For Member States using macroeconomic models:</i>					
The share of the industrial sector in GDP and growth rate					
<i>For Member States using other models:</i>					
The production index for industrial sector					
Assumptions for the transport sector					
<i>For Member States using macroeconomic models:</i>					
The growth of transport relative to GDP					
<i>For Member States using other models:</i>					
The growth of passenger person kilometres					
The growth of freight tonne kilometres					
Assumptions for buildings (in residential and commercial or tertiary sector)					
<i>For Member States using macroeconomic models:</i>					
The level of private consumption (excluding private transport)					
The share of the tertiary sector in GDP and the growth rate					
<i>For Member States using other models:</i>					
The rate of change of floor space for tertiary buildings and dwellings					
The number of dwellings and number of employees in the tertiary sector					
Assumptions in the agriculture sector					
<i>For Member States using macroeconomic models:</i>					
The share of the agriculture sector in GDP and relative growth					
<i>For Member States using other models:</i>					
Livestock numbers by animal type (for enteric fermentation beef, cows, sheep, for manure management pigs and poultry)					
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					

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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					

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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					
<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					

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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					
<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					

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