Norway

Contents

Figures and tables

1. SOURCES OF INFORMATION

Norway's 4th National Communication submitted to the UNFCCC (herinafter '4th NC'), dated December 2005.

Norway's Initial Report under the Kyoto Protocol, dated December 2006.

Norwegian National Budget for 2007, approved September 2006.

National Inventory report 2007, Norwegian Pollution Control Authority.

Personal communications.

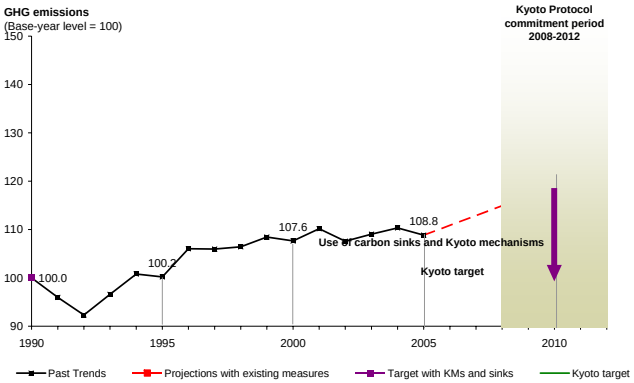
Base-year emissions
Base-year emissions of greenhouse gases are calculated using 1990 emissions for all gases (CO_2, CH_4, N_2O, F-gases (SF6, HFCs and PFCs)).

Base year data is consistent with data reported in Norway's Initial Report under the Kyoto Protocol, dated Dec 2006. This data is currently undergoing a review procedure by UNFCCC and is therefore subject to change.

2. SUMMARY

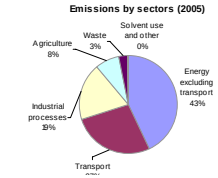
NORWAY

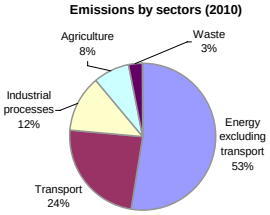
Emissions base year (initial report)	49.8 Mt
Emissions 2005	54.2 Mt
Emissions base year (for projections)	49.8 Mt
Projections 2010 with existing measures	59.2 Mt
No projections with additional measures	n.a.
Kyoto target (absolute)	50.2 Mt
Kyoto target (% from base year)	+ 1.0 %
Change base year to 2005	+ 8.8 %
Change 2004–05	- 1.3 %
Change base year to 2010 with existing measures	+ 18.9 %
No projections with additional measures	n.a.
Distance to linear target path 2005	-7.0 index points
Use of Kyoto mechanisms	10.0 Mt
Sinks (Articles 3.3. and 3.4)	n.a.
Emissions in 1990 (Article 3.7)	n.a.

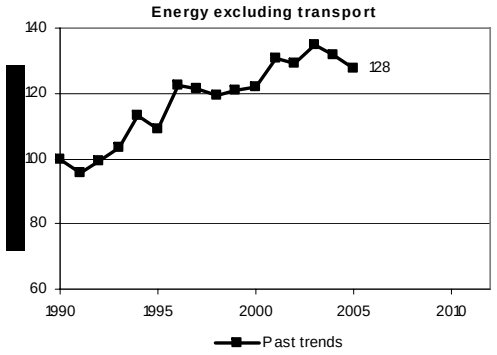


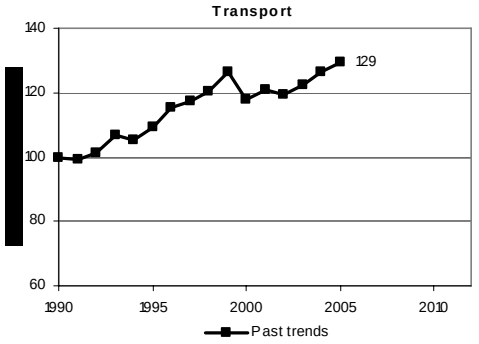
Past emissions: In 2005, total GHG emissions in Norway were 8.8 % above base year levels and 1.3 % below the emission level in 2004. Between 1990 and 2005 emissions increased from energy supply and use, but decreased in all other sectors. The decrease in the last year is mainly due to process related emissions from metal production and decreased energy use in households and services.

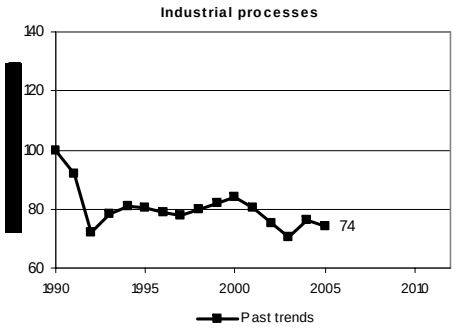
Emission projections: Emissions in 2005 were above the Kyoto target and below the level projected "with measures'. Norway will not achieve the Kyoto target with measures, therefore 10.0 million tonnes of Kyoto units per year of the commitment period will be used. Due to this Norway is projected to reach its Kyoto target.

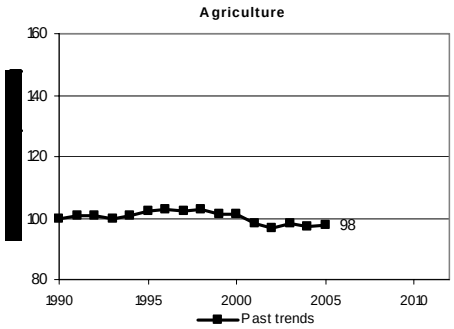









Industrial processes
140
120
100
80
60
1990
1995
2000
2005
2010
74
Past trends


Agriculture
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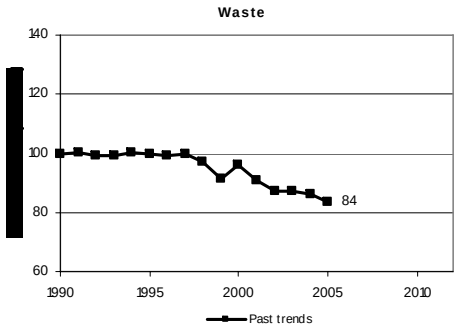
120
100
80
1990
1995
2000
2005
2010
98
Past trends


Waste
140
120
100
80
60
1990
1995
2000
2005
2010
84
Past trends

3. COMPLETENESS OF REPORTING

Table 1. Information provided on policies and measures

Information provided	Level of information provided	Comments
Policy names	+	Some policies are named
Objectives of policies	+	The objectives of some policies are explained, but not comprehensively
Which greenhouse gases?	++	The chapter is structured according to sector, and generally within each sector there are different sections for the various gases, however there is no specific mention of which gases are affected by each measure, or allowance made for one measure having effects across multiple gases
Status of Implementation	+	Status is not specified but can be deduced from historical explanation
Implementation body specified	o	No mention of implementation bodies
Quantitative assessment of implementation	o	There is no quantitative assessment of the impact of implementation
Interaction with other policies and measures discussed	o	No discussion of interactions with other policies

Source: 4th National Communication.

Norway's 4th NC contains a chapter devoted to policies and measures, which gives information on the emissions from various sectors (energy industries and transformation industries, transport, industry, agriculture, forestry, waste management), and lays out any policies and measures in place within each sector. However, this information does not follow the above guidelines and is not fully transparent.

The Norwegian Government's new white paper presented on 22 June 2007 on climate policy contains proposals for concrete new measures to reduce greenhouse gas emissions. The Government proposes substantial cuts in emissions both in Norway and abroad. The Government has made a commitment to overachieve the Kyoto target for 2008-2012 by 10 per cent, which will largely be done through by the use of Kyoto mechanisms. The mechanisms will play an important role in fulfilling the government's target of 30 % reductions in 2020, and will also be used to achieve a carbon neutral economy in 2050. See http://www.regjeringen.no/en/dep/md/Press-Centre/Press-releases/2007/New-measures-to-reach-Norways-ambitious--2.html?id=473402. Additional policies and measures as proposed in the Governments white paper of June 2007 are estimated to give a total effect of 8.5 – 14.5 Mt CO2-eq for 2020. It is important to be aware that the impact of the policies described in the white paper is only partly reflected in this country profile.

Table 2. Information provided on projections

Category of Information	Level of information provided	Comments
Scenarios considered	+	Only one scenario is considered: the 'baseline' scenario, which is, in fact, a 'with measures' scenario.
Expressed relative to base year	+	Base year is 1990 for all gases
Starting year	++	The base year for the projections in the 2007 National Budget is 2003
Split of projections	++	Projections are split by sector and by gas, although the sectoral split is not to the CRF level.
Presentation of results	++	Results presented clearly in tables
Description of model (level of detail, approach and assumptions)	+++	Good description of the model, the approach and the assumptions
Sensitivity analysis (key inputs to model / high, central and low projections scenarios / robustness of model)	++	Good sensitivity analysis
Discussion of uncertainty	+	There is some discussion of uncertainty in the model
Details of parameters and assumptions	++	Some details of parameters and assumptions provided in Annex I of Norway's 4th NC

Source: 4th National Communication.

4. ASSESSMENT OF POLICIES AND MEASURES

Table 3. Summary of the effect of some policies and measures included in the 2010 projections (Mt CO_2–eq.)[1]

	With measures	With additional measures
Energy (total, excluding transport)	4.5	NE
Energy supply	NE	NE
Energy – industry, construction	NE	NE
Energy – other (commercial, residential, agriculture)	NE	NE
Transport (energy)	NE	NE
Industrial processes	2.6-5.2	NE
Waste	0.9	NE
Agriculture	NE	NE
Cross-sectoral	0.5	NE
Total (excluding LULUCF)	**8.5-11.1**	NE

Source: 4th National Communication, personal communications.
[1] The effect on domestic emissions of selected measures that have been implemented or adopted since 1990. The table expresses direct reductions in emissions from adopted policy and measures. Reductions on a voluntary basis before the adoption of policy and measures are not fully included in the table even if the effect is included in the projections.

A variety of established and adopted policies and measures were presented with quantified savings in the 4th National Communication, as presented in Table 3. Table 3 based Norway's 4th National Communication, published in 2006. Norway stresses that the quantification is not complete, and the estimates are uncertain. Not included are the effects of policies and measures aimed at enhancing energy efficiency, encouraging the use of new renewable energy sources, as well as the effect of measures related to transport and agriculture. The estimated effects of some recently adopted measures, not included in the projections presented in the 4th National Communication, are also presented in the table.

The projections include the effects of all policies and measures to reduce the GHG emissions up to the base year 2003 and only the effects of measures and instruments adopted by the Government after 2003. However, the effect of the GHG emission allowance trading system (established in January 1 2005) is not included in the projections, nor the prohibition of depositing wet organic waste on landfills, the requirement of increased recovery of methane from landfills and the effect of the voluntary agreement between the Ministry of Environment and the process industry.

In the 4th National Communication Norway provides qualitative descriptions of existing policies and measures and some description of new policies and revised targets under existing policies (Norway does not present *with additional measures* projections in this communication). Some of these policies are summarised in Table 4.

Table 4. Detailed information on policies and measures

Sector	Name	Objective	Type of GHG affected	Type of instrument	Status	Implementing entity	Estimated savings ($MtCO_2$–eq.)		Related CCPM
							2010	2020	
Cross-sectoral	Tax on oil products on and off shore and on gas off shore (since 1991) and on gas on shore from 1 July 2007	Reduction in CO_2 emission	CO_2, CH_4, N_2O	Fiscal	Implemented	Ministry of Finance			
	Tax on electricity consumption	Reduction in electricity consumption	CO_2, CH_4, N_2O	Fiscal	Implemented	Ministry of Finance			
	Domestic emissions trading	Domestic scheme compatible with EU-ETS established from January 1st 2005 Scheme for 2008-2010 to be implemented in 2007	CO_2	Regulatory	Implemented For 2008-2012 to be implemented .	Norwegian Pollution Control Authority			
	Research and technology development	Reduce emissions in Norway and other countries	All	Economic	Implemented	All ministries			
	Involve the municipalities in the climate work	Reduce emissions in municipalities	CO_2, CH_4, N_2O			Ministry of Environment and Ministry of local government and regional development			
	Publicly purchase	More environmentally	All		Partly	All public entities			

Sector	Name	Objective	Type of GHG affected	Type of instrument	Status	Implementing entity	Estimated savings ($MtCO_2$–eq.)		Related CCPM
							2010	2020	
		friendly consumption			implemented				
	Participation in CDM					Ministry of Finance			
	White paper on energy policy				Partly implemented	Ministry of Petroleum and Energy			
Oil and gas exploration and Energy consumption *Oil and gas exploration*	Reduction of flaring		CO_2, CH_4, N_2O	Economic, regulatory	Implemented				
	Electricity supply from land (e.g. gas-fired power plants with CCS, electricity from renewable energy sources), centralised electricity production off shore		CO_2, CH_4, N_2O	Economic, regulatory	Partly implementation				
	Energy efficiency improvements on off shore installation		CO_2, CH_4, N_2O	Economic, regulatory					
	CO_2 separation and reinjection at the Sleipner West gas field			Voluntary	Implemented				
Energy consumption	Replacing oil for heating with		CO_2, CH_4, N_2O	Regulatory		Ministry of Petroleum and			

Sector	Name	Objective	Type of GHG affected	Type of instrument	Status	Implementing entity	Estimated savings ($MtCO_2$–eq.)		Related CCPM
							2010	2020	
	renewable energy sources					Energy and ENOVA			
Energy consumption	Energy requirements in new buildings	Reduction in energy consumption	CO_2, CH_4, N_2O	Regulatory	Implemented	Ministry of Local Government and Regional Development			
Energy consumption	Energy efficiency improvements	Standards and labelling for household devices; financial incentives for energy efficiency and energy savings.			Partly Implemented	ENOVA			
Energy consumption	Operation of energy fund		CO_2, CH_4, N_2O	Economic incentives	Implemented	ENOVA (energy agency)			
Energy supply	Encouragement of renewable energy sources	Targets for renewable energy and energy saving, state concessions for the construction of several large new wind-powered plants	CO_2, CH_4, N_2O		Implemented	ENOVA (energy agency)			
Energy supply	Support of fuel switch to natural gas	White paper on domestic use of natural gas			Implemented				
Energy supply	Grant to an international carbon sequestration project				Implemented				
Industry	Integrated climate				Implemented				

Sector	Name	Objective	Type of GHG affected	Type of instrument	Status	Implementing entity	Estimated savings ($MtCO_2$–eq.)		Related CCPM
							2010	2020	
	programme								
	Carbon capture and storage		CO_2	Regulatory					
	Fuel switching	Substitute oil with bioenergy							
	Reducing agents	From fossil coal to charcoal and wood.							
	Pollution prevention and control			Pollution control act; IPPC Directive of the EC	Partly Implemented	Pollution control Authority			
	Agreements/partnerships	Agreement with the aluminium, magnesium and nitric acid industries. Voluntary agreement with the producers of GIS to reduce the SF_6 emissions	SF6	Voluntary	Implemented	Ministry of Environment			
	Efficiency improvements implemented by industries					ENOVA:			
	Tax on imported and produced HFCs and PFCs		HFCs and PFCs	Economic, regulatory		Ministry of Finance			
Transport	Increase content of		CO_2, CH_4,	Economic,		Ministry og			

Sector	Name	Objective	Type of GHG affected	Type of instrument	Status	Implementing entity	Estimated savings ($MtCO_2$–eq.)		Related CCPM
							2010	2020	
	bio fuel blend in auto diesel oil and petrol		N_2O	regulatory		Environment			
	Road pricing		CO_2, CH_4, N_2O	Economic, regulatory		Local authorities			
	Improved public transport		CO_2, CH_4, N_2O	Economic, regulatory		Ministry of Transport and Communications and local authorities			
	Tax exemptions for gas and alternative fuel		CO_2, CH_4, N_2O			Ministry of Finance			
	CO_2 labelling for new cars	More GHG effective vehicles	CO_2, CH_4, N_2O	Economic, regulatory		Ministry of Finance			
	Increase use of natural gas for ships		CO_2, CH_4, N_2O	Economic, regulatory	Implemented (Partly)	Ministry of Transport and Communications			
	Improved energy efficiency at ships in operation and improved technology		CO_2, CH_4, N_2O	Economic, regulatory		Ministry of Transport and Communications and Ministry of Trade and Industry			
Agriculture									
	Research on the application of fertilisers			Economic	Partly Implemented	Ministry of Agriculture and Food			
	Increase production of biogas			Economic, regulatory		Ministry of Agriculture and			

Sector	Name	Objective	Type of GHG affected	Type of instrument	Status	Implementing entity	Estimated savings ($MtCO_2$–eq.)		Related CCPM
							2010	2020	
						Food			
	Increase planting of forest		CO_2	Economic, regulatory		Ministry of Agriculture and Food			
Waste	Waste management			Licensing under the Pollution Control Act;	Implemented	Norwegian Pollution Control Authority			
	Tax on Waste Disposal		CO_2, CH_4, N_2O	Economic regulation	Implemented	Ministry of Finance, Norwegian Pollution Control Authority			
	Prohibiting landfilling of biodegradable waste	Reduce emissions of CH_4	CH_4	Regulatory		Ministry of Environment			
	Agreement with industry to minimise waste			Voluntary	Implemented	Ministry of Environment			
	Measures to increase waste recycling				Implemented	Ministry of Environment			

Source: UNFCCC country profile, the 4th National Communication and personal communications.

5. EVALUATION OF PROJECTIONS

The projections include the effect of policies and measures adopted prior to the publication of the projection in the National Budget. Norway does not present an additional projection where the effect of possible policies and measures is implemented. Emissions in Norway have shown strong growth since the base year and this is projected to continue if no further measures are adopted.

Table 5 shows that a sharp increase in CO_2 is projected. Emissions of all other greenhouse gases will reduce slightly between the base year and 2010.

Table 5. Summary of projections by gas in 2010 (Mt CO2–eq.)

	Base year[1]	With measures[2]
Carbon dioxide (excl. LULUCF)	34.8	48.4
Methane	4.8	4.7
Nitrous oxide	4.7	4.6
HFCs	0.0	0.5
PFCs	3.4	0.9
SF_6	2.2	0.1
Total (excl. LULUCF)	49.8	59.2
% change relative to base year (excl. LULUCF)		18.8%

Source: 1) National Inventory report 2007, Statistics Norway, Norwegian Pollution Control Authority. 2) National Budget 2007

Table 6. Summary of projections (6 gas basket) by sector in 2010 (Mt CO_2–eq.)

	Base year*	with measures	% change relative to base year	with additional measures	% change relative to base year
Energy (total, excluding transport)	17.9	26.8	50%	NE	NA
Energy supply	9.7	NE	NA	NE	NA
Energy – industry, construction	3.7	NE	NA	NE	NA
Energy – other (commercial, residential, agriculture)	4.8	NE	NA	NE	NA
Transport (energy)	11.6	15.840	37%	NE	NA
Industrial processes	13.9	10.8	-23%	NE	NA
Waste	1.9	1.5	-23%	NE	NA
Agriculture	4.4	4.3	-2%	NE	NA
Total (excl. LUCF)	49.8	59.2	19%	NE	NA

Source: 1) National Inventory report 2007, Statistics Norway, Norwegian Pollution Control Authority. 2) National Budget 2007

* Base year is 1990 for all gases.

Table 7. Summary of projections by sector and by gas in 2010 (Mt CO_2–eq.) compared to base-year emissions

	Carbon dioxide			Methane			Nitrous oxide			F-gases (SF6, HFCs and PFCs)		
	Base year	With measures	With additional measures	Base year	With measures	With additional measures	Base year	With measures	With additional measures	Base year	With measures	With additional measures
Energy (excl. transport)	17.19	25.57	NE	0.58	1.04	NE	0.13	0.16	NE	0.00	0.00	NE
Transport (energy)	11.38	15.49	NE	0.07	0.07	NE	0.13	0.28	NE	0.00	0.00	NE
Industrial processes	6.18	7.33	NE	0.02	0.02	NE	2.17	1.92	NE	5.57	1.49	NE
Waste	0.00	0.00	NE	1.85	1.39	NE	0.09	0.11	NE	0.00	0.00	NE
Agriculture	0.00	0.00	NE	2.24	2.20	NE	2.17	2.10	NE	0.00	0.00	NE
Total (excl. LUCF)	34.75	48.39	NE	4.76	4.72	NE	4.69	4.57	NE	5.57	1.49	NE

Figure 1. Share by sector of 2010 greenhouse gas emissions according to the "with measures" projection

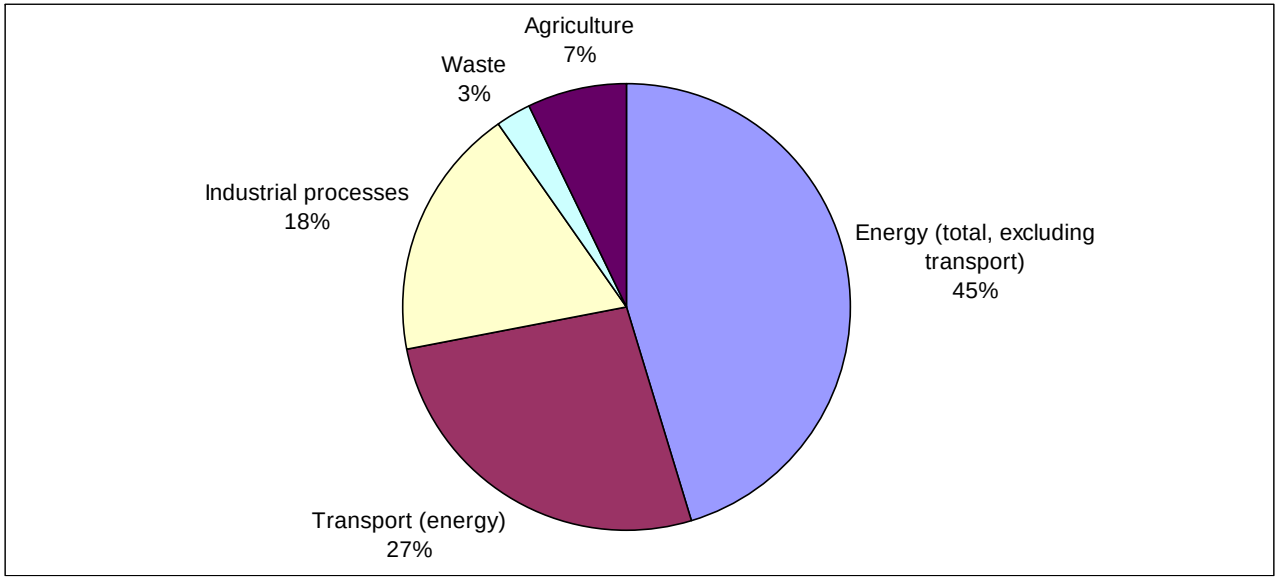


Table 8. Summary of projections (6 gas basket) in 2010, 2015 and 2020 (Mt CO_2–eq.)

	Base year*	2010**	2010, % of base year level	2015	2015, % of base year level	2020**	2020, % of base year level
Total (excluding LULUCF)	49.8	59.2	118.9%	NE	NA	59.2	118.9%

* Base year is 1990 for all gases.
** *With measures* scenario values, as there is no *with additional measures* scenario.

Table 9. Assessment of the target (6 gas basket), with a comparison of 2010 projections in 2005, 2006 and 2007 national reports

Emissions in MtCO2-equiv., excluding LULUCF

	2010 projections from 2005	2010 projections from 2006	2010 projections from 2007	2010 projections from 2007, % of base year level
Base year emissions used for projections	50.133	50.133	49.8	100%
Kyoto Commitment/burden sharing	50.6	50.6	50.3	1.0%
With existing P&Ms projections	61.8	61.8	59.2	118.8%
Gap (-ve means overachievement of target)	11.2	11.2	8.9	17.8%
With additional P&Ms projections	61.8	61.8	59.2	118.8%
Remaining gap	11.2	11.2	8.9	17.8%
Effect of flexible mechanisms	0.0	0.0	0.0	0.0%
Remaining gap (with use of flexible mechanisms)	11.2	11.2	8.9	17.8%

Notes:
Above table excludes LULUCF.
There is no information from 2005.
2007 base year data is consistent with data reported in Norway's Initial Report under the Kyoto Protocol, dated December 2006. This data is currently undergoing a review procedure by UNFCCC and is therefore subject to change.

Kyoto Mechanisms

According to the projections, the current gap to be covered through further national measures or net acquisitions of AAUs, CERs and/or ERUs ("Kyoto units") under the Kyoto mechanisms (Articles 6, 12 and 17) is about 9 million tonnes annually, or about 45 million tonnes for the period 2008-2012. In the 4th National Communication, Norway expresses some uncertainty over the exact ratio of flexible mechanisms and new policies that will meet their Kyoto target for 2008-2012. However, the Norwegian Government has made a

commitment to overachieve the Kyoto target for 2008-2012 by 10 per cent, which will largely be done through by the use of Kyoto mechanisms. Such mechanisms will play an important role in fulfilling the government's target of 30 % reductions in 2020, and will also be used to achieve a carbon neutral economy in 2050. The Kyoto mechanisms are also vital vehicles for transferring technology and economic resources.

Minor quantities will be acquired through the involvement in pilot schemes through the World Bank (Prototype Carbon Fund) and the Testing Ground Facility as well as through bilateral projects.

Norway implemented an emission trading system from January 1 2005. In September 2005, they reported to the ETC/ACC that a total of 20.5 million emissions allowances were allocated for the period 2005-2007. Norway estimates that about 15 per cent of their emissions are covered by emissions trading. About 67 percent of the total allowances for the years 2005-2006 are allocated to the petroleum-related industry, that is, gas-fired power plants, natural-gas terminals, refineries, and the petrochemical industry. The mineral industry receives 26 percent of the allowances. An article describing the Norwegian emission trading system can be found at http://www.cicero.uio.no/fulltext.asp?id=3628&lang=no. From January 1 2008 the emission trading system will expand and the system will cover 40 per cent of the total emission of greenhouse gases in Norway. The Norwegian trading system is structured in line with EU's system. However, an important difference is that in the Norwegian system the off shore sector have to purchase all their quotas.

6. DESCRIPTION OF MODELLING APPROACH

Overview of modelling approach
The modelling approach is well described in the 4th NC and its Annex. MSG, a general equilibrium model is used to calculate projections, in addition to output adjustment for short-term variables. For energy-related emissions, the projections are largely based on macroeconomic model simulations supplemented by available micro studies. Projections of CO2 emissions from the petroleum sector and for all non-CO2 emissions from all sources are based on sector- and plant-specific information collected from the industries concerned.

Sensitivity analysis
Although there is no detailed description in the 4th NC of sensitivity analysis being carried out (different scenarios being tested), there is some general discussion of sensitivity to changes in the parameters.

Details of the uncertainty assessment
There is some discussion of uncertainty due to uncertainty in input parameters and sensitivity to change.

7. PROJECTION INDICATOR REPORTING

No indicators were reported upon.

8. REPORTING OF PARAMETERS ON PROJECTIONS

Norway reported on some of the mandatory parameters, providing information on change or growth of parameters between 2003 (the base year used) and 2010. Some of the macroeconomic assumptions underlying the projections, are summarised below:

Table 10. Macroeconomics development and energy use. Baseline scenario

	Billion NOK	Annual average growth rate		
	2004	1990-2004	2004-2010	2010-2020
Gross domestic product (GDP)	1716.9	3.2	2.4	1.5
International shipping and off shore activity	384.6	4.7	0.9	-2.5
Mainland Norway	1332.3	3.0	2.8	2.2
Primary industry	24.0	2.3	0.9	0.9
Manufacturing and mining	165.9	1.3	1.9	2.1
Building and construction	68.2	0.9	3.0	1.2
Service sector	907.9	3.2	3.0	2.2
Private and government consumption	1131.7	3.2	2.8	2.6
Gross fixed capital formation				
Mainland Norway	227.0	3.9	4.1	1.8
International shipping and off shore activity	82.8	0.5	1.1	-2.5
Memo:				
Number of persons employed (1000)	2301.9	0.8	1.0	0.3
Petroleum products (Mtonnes)	264	5.8	0.9	-2.1
Oil price (NOK per barrel, 2007 prices)	274	1.4	1.5	-3.1

Source: Statistics Norway and Ministry of Finance.

Table A1 Key macroeconomic assumptions

		Percentage annual growth	
	2003	2003/10	2010/2020
Population	4.6	0.5	0.5
Number of persons employed (1000)	2298.3	0.5	0.5
GDP (volume)	1561.9	2.0	1.8
-Petroleum activities and sea transport	315.8	-0.6	-2.2
-Mainland Norway	1246.1	2.5	2.3
--Manufacturing	140.6	3.1	2.7
—of which energy intensive manufacturing	13.8	3.6	3.6
-Other goods production	124.8	3.9	2.4
-Private services	573.5	2.7	2.6
-General government	257.1	1.0	1.0
- Correction items	150.1	1.8	2.8
Private consumption	719	3.3	3.2
Government consumption	356.2	1.2	0.8
Gross fixed capital formation	271	1.2	1.8
Mainland Norway	207.6	3.0	2.1
Petroleum activities and sea transport	63.4	-7.8	-0.6

Table A2 Supply and use of electricity, TWh

	2003	2010	2020
Net domestic use	105	124	141
of which			
Excluding energy intensive manufacturing	75	86	101
+ Net export	-8	-7	-1
+ Power losses	10	12	14
= Production	107	129	154
Renewable energy sources	106	124	128
Other types of power	1	5	26

Table A3 Net domestic use of transport and heating oil. 1000 tonnes [1)]

	1999	2010	2020
Transport oil	5323	5883	6277
Heating oil	2692	2691	2967

1 Including energy-sectors and excluding sea transport. The classification in MSG may differ from energy accounts. That is why no account figures for 2003 is supplied.

Table A 4 Supply and use of petrol and autodiesel [1] 1000 tonnes

	1999	2010	2020
Total supply	15107	12099	11925
-Production	14194	10887	10462
-Import	914	1212	1463
Export	9601	6093	5525
Statistical differences/ changes in inventories	123	123	123
Net domestic use	5383	5883	6277
Energy intensive manufacturing	7	9	10
Rest of economy	5376	5873	6268

1 pure model simulation results.

Table A5 Electricity per unit of production. GWH/million 1999 NOK

	1999	2010	2020
Total	0.089	0.082	0.078
Mainland Norway	0.106	0.095	0.085
Energy intensive manufacturing	1.961	1.746	1.285
Rest of mainland economy	0.076	0.067	0.062

Table A6 Heating oil per unit of production. Tonnes pr million 1999 NOK

	1999	2010	2020
Total	2.183	1.773	1.631
Mainland Norway	2.558	2.016	1.770
Energy intensive manufacturing	8.322	8.133	5.986
Rest of mainland economy	2.463	1.913	1.689

Table A7 Petrol and autodiesel per unit of production. Tonnes pr million 1999 NOK

	1999	2010	2020
Total	4.366	3.875	3.451
Mainland Norway	5.192	4.476	3.789
Energy intensive manufacturing	0.433	0.418	0.312
Rest of mainland economy	5.271	4.544	3.855

9. COUNTRY CONCLUSIONS

Norway is an Annex I party signatory to the Kyoto protocol, and has a target to keep its emissions increase (from a base year of 1990 levels) to 1% in 2010. However, their current emission projections for the *with measures* scenario foresee an increase of 19%, well above their Kyoto target.

Emission projections for 2010 *with measures* are for a total of 59.2 $MtCO_2$ eq. Within this, energy use at 26.8 $MtCO_2$ eq and transport at 15.8 $MtCO_2$ eq have the largest share. This contrasts with base year emissions, where transport had a lesser significance, and industrial processes emissions were more prominent. Indeed, between 1990 and 2010, the emissions projections forecast largest increases in emissions in the **energy supply included emissions from oil and gas production** (87%), **energy, industry and construction** (19%) and **transport** (37%) sectors; whilst emission in other sectors such as **energy, other** (-6%), **agriculture** (-2%) and **industrial processes** (-23%) are projected to decrease.

According to the baseline scenario, Norway faces an average annual "deficit" of about 9 million tonnes CO2 eq. for the period 2008-2012, compared to the commitment under the Kyoto Protocol. Norway report that recently adopted measures, not included in the baseline projection, lower the "deficit" to approximately 8.5 million tonnes. However, the Norwegian Government has made a commitment to overachieve the Kyoto target for 2008-2012 by 10 per cent, which will largely be done by the use of Kyoto mechanisms. Such mechanisms will play an important role in fulfilling the government's target of 30 % reductions in 2020, and will also be used to achieve a carbon neutral economy in 2050.

The projections are taken from the National Budget for 2007. Information on policies and measures was taken from the UNFCCC country profile, the 4th National Communication and personal communications. In the projection only adopted measures are included. New policies were described though no additional measures projection was provided. Norway has implemented an emission trading system. Norway intends to close the gap to target through a balance of new policies and flexible mechanisms.