COMPLIANCE COMMITTEE

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Report of the centralized in-depth review of the fourth national communication of Norway

Note by the secretariat

The report of the centralized in-depth review of the fourth national communication of Norway is being forwarded to the Compliance Committee in accordance with section VI, paragraph 3, of the annex to decision 27/CMP.1.

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Report of the centralized in-depth review of the fourth national communication of Norway

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I. Introduction and summary

A. Introduction

1. Norway ratified the UNFCCC in July 1993 and the Kyoto Protocol in May 2002. Its quantified emission limitation and reduction commitment under the Kyoto Protocol (Kyoto Protocol target) is to keep its total greenhouse gas (GHG) emissions below 101 per cent of the base year (1990) level during the first commitment period (2008–2012).

2. This report covers the centralized in-depth review (IDR) of the fourth national communication (NC4) of Norway, coordinated by the UNFCCC secretariat, in accordance with decision 7/CP.11. The review took place from 5 to 10 June 2006 in Bonn, Germany, and was conducted by the following team of nominated experts from the UNFCCC roster of experts: Mr. Amit Garg (India), Mr. Brett Longley (New Zealand), Mr. Miroslav Maly (Czech Republic), Mr. Markus Nauser (Switzerland), Ms. Batimaa Punsalmaa (Mongolia) and Ms. Tatiana Tugui (Republic of Moldova). Mr. Garg and Mr. Nauser were the lead reviewers. The review was coordinated by Mr. Harald Diaz-Bone (UNFCCC secretariat).

3. During the IDR, the review team examined each part of the NC4. It also evaluated the information contained in Norway's report demonstrating progress (RDP) towards achieving its commitments under the Kyoto Protocol, and the supplementary information provided by Norway under Article 7, paragraph 2, of the Kyoto Protocol.

4. In accordance with the guidelines for review under Article 8 of the Kyoto Protocol (decision 22/CMP.1), a draft version of this report was communicated to the Government of Norway, which provided comments that were considered and incorporated, as appropriate, in this final version of the report.

B. Summary

5. The expert review team (ERT) noted that, in general, Norway's NC4 complies with the UNFCCC reporting guidelines.[1] In accordance with decision 22/CP.8, the RDP provides information on the progress made towards achieving Norway's commitments under the Kyoto Protocol. Supplementary information under Article 7, paragraph 2, of the Kyoto Protocol[2] is provided in both the NC4 and the RDP.

1. Completeness

6. The ERT noted that Norway's NC4 contains all the sections of a national communication stipulated by the reporting guidelines. It also noted that Norway's RDP contains all parts stipulated by decisions 22/CP.7 and 25/CP.8. Furthermore, the ERT noted that the supplementary information provided by Norway under Article 7, paragraph 2, of the Kyoto Protocol is complete (see section III.B).

2. Timeliness

7. The NC4 and the RDP were both submitted on 16 February 2006. Decision 4/CP.8 requested the submission of the NC4 by 1 January 2006. Decision 22/CP.7 set the same date for Parties to submit their RDPs.

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[1] "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications." Document FCCC/CP/1999/7, pages 80–100.

[2] See document FCCC/KP/CMP/2005/8/Add.2, decision 15/CMP.1, annex, chapter II.

3. Transparency

8. The ERT acknowledged that Norway's NC4 provides a comprehensive and consistent overview of the national climate policy. It is structured following the outline contained in the annex to the reporting guidelines. However, the ERT noted that the transparency of the reporting on policies and measures, and on projections and the total effect of policies and measures, could be enhanced, for example, by providing a summary table on policies and measures following the structure shown in the UNFCCC reporting guidelines. Also, when reporting additional or new policies and measures that are not included in the "with measures" scenario, a "with additional measures" scenario could increase the transparency of reporting on future emission trends (see also section IV).

II. Technical assessment of the reviewed elements

A. National circumstances relevant to greenhouse gas emissions and removals

9. In its NC4, Norway has provided a comprehensive description of its national circumstances, how these national circumstances affect GHG emissions and removals in Norway for most of the sectors, and how national circumstances and changes in national circumstances affect GHG emissions and removals over time. The ERT noted that the list of key drivers of the emission trends in Norway includes the composition and growth of gross domestic product (GDP), transport activity, offshore oil and gas exploration, and annual variations in precipitation and winter temperatures (number of heating days). Table 1 provides an overview of values of indicators (and changes in these values over time) which partly reflect these national circumstances.

Table 1. Indicators relevant to greenhouse gas emissions and removals for Norway

	1990	1995	2000	2003	Change 1990–2000 (%)	Change 2000–2003 (%)	Change 1990–2003 (%)
Population (million)	4.2	4.4	4.5	4.6	5.9	1.6	7.6
GDP (billion USD 2000 PPP)	113.1	136.6	163.0	170.5	44.1	4.6	50.7
TPES (Mtoe)	21.5	23.9	25.8	23.3	20.0	–9.5	8.6
GDP per capita (thousand USD 2000 PPP)	26.7	31.3	36.3	37.4	36.1	2.9	40.0
TPES per capita (toe)	5.1	5.5	5.7	5.1	13.3	–10.9	0.9
GHG emissions without LULUCF (Tg CO_2 eq)	50.1	49.6	53.8	54.8	7.4	1.8	9.3
GHG emissions with LULUCF (Tg CO_2 eq)	36.7	36.2	33.0	33.8	–10.1	2.5	–7.8
CO_2 emissions per capita (Mg)	8.11	8.54	9.16	9.47	12.9	3.3	16.7
CO_2 emissions per GDP unit (kg per USD 2000 PPP)	0.30	0.27	0.25	0.25	–17.1	0.4	–16.7
GHG emissions per capita (Mg CO_2 eq)	11.82	11.39	11.99	12.00	1.4	0.1	1.5
GHG emissions per GDP unit (kg CO_2 eq per USD 2000 PPP)	0.44	0.36	0.33	0.32	–25.5	–2.7	–27.5

Sources: GHG emissions data are from Norway's 2005 inventory submission; population, GDP and TPES data are from the IEA.
Note 1: The ratios per capita and per GDP unit are calculated relative to GHG emissions without LULUCF; the ratios are calculated using the exact (not rounded) values and may therefore differ from a ratio calculated with the rounded numbers provided in the table.
Note 2: For the abbreviations used, see annex II.

10. The NC4 contains a summary of information on GHG emission trends for the period 1990–2003. However, the ERT noted that Norway has not provided summary tables, including CO_2 equivalent emission trend tables (given in the common reporting format (CRF)), as required by the UNFCCC reporting guidelines.

11. Several national circumstances have implications for Norway's emissions profile and related policies. Norway has a small and open economy, with exports making up almost half of GDP. The structural changes in the Norwegian economy towards a higher share for the service sector have partly offset the growth of GHG emissions dominated by strong growth in the oil and gas industry and the transport sector over the period 1990–2003.

12. Norway's decentralized settlement pattern gives rise to a relatively high demand for transport. Annual per capita travel rose by a factor of four over the period 1960–2003. Similarly, the volume of goods transport increased by 77 per cent between 1980 and 2003. In 2003, 26 per cent of Norway's total GHG emissions are attributed to transport. Investment in the petroleum sector, which contributed about 25 per cent of total GHG emissions in 2003, plays a decisive role in business cycle development in Norway. The Party expects these investments to increase further in the coming years. The emissions from the petroleum sector will, according to the projections, peak around 2010, and then decline up to 2020.

13. Half of Norway's energy use is from renewables, and nearly all electricity is from hydropower, which generates virtually no GHG emissions.

14. Between 1990 and 2003, total GHG emissions excluding emissions and removals of GHGs from land use, land-use change and forestry (LULUCF) increased by 9.3 per cent, while total GHG emissions including net removals from LULUCF decreased by 7.8 per cent. Norway attributes the increase without LULUCF to CO_2 emissions, which increased by 25.6 per cent over this period. Emissions of CH_4 decreased by 2.0 per cent, while emissions of N_2O increased by 5.1 per cent. Emissions have been rising steadily over the period 1990–2003. The ERT noted a steep increase, by 9.6 per cent, in GHG emissions from the energy sector during 1995–1996. The share of fluorinated gases in total GHG emissions declined from 11.0 per cent in 1990 to 2.1 per cent in 2003, mainly due to reductions in emissions of PFCs from aluminium production and also a reduction in SF_6 emissions. Table 2 provides an overview of GHG emissions by sector over the period 1990–2003 (see also the discussion of sector trends in section II.B).

Table 2. Greenhouse gas emissions by sector for Norway, 1990–2003

	GHG emissions (Tg CO_2 equivalent)					Change (%)		Shares[a] (%)	
	1990	1995	2000	2002	2003	1990–2003	2002–2003	1990	2003
1. Energy	29.3	32.0	35.6	37.1	39.2	33.8	5.6	58.4	71.5
A1. Energy industries	6.6	8.4	10.0	11.8	12.8	95.1	9.2	13.1	23.4
A2. Manufacturing industries and construction	3.6	3.9	3.9	3.7	4.0	12.1	9.8	7.2	7.3
A3. Transport	11.3	12.5	13.7	13.9	14.6	28.5	4.6	22.6	26.6
A4–5. Other	4.8	4.1	3.6	4.3	4.4	–8.8	0.9	9.6	8.0
B. Fugitive emissions	3.0	3.2	4.4	3.4	3.4	13.0	–1.3	5.9	6.2
2. Industrial processes	13.5	10.3	11.0	9.6	8.7	–35.4	–8.9	26.9	15.9
3. Solvent and other product use	0.2	0.2	0.2	0.2	0.2	–7.0	0.4	0.4	0.3
4. Agriculture	4.6	4.6	4.7	4.4	4.5	–2.2	1.5	9.2	8.2
5. LULUCF	–13.4	–13.4	–20.8	–20.9	–20.9	56.0	0.2	–26.8	–38.2
6. Waste	2.6	2.5	2.5	2.3	2.2	–14.0	–1.7	5.1	4.0
GHG total with LULUCF	**36.7**	**36.2**	**33.0**	**32.6**	**33.8**	**–7.8**	**3.8**	–	–
GHG total without LULUCF	**50.1**	**49.6**	**53.8**	**53.5**	**54.8**	**9.3**	**2.4**	100.0	100.0

[a] The shares of sectors are calculated relative to GHG emissions without LULUCF; for the LULUCF sector, the negative values indicate the share of GHG emissions which was offset by GHG removals through LULUCF.
Note 1: The changes in emissions and the shares by sector are calculated using the exact (not rounded) values and may therefore differ from values calculated with the rounded numbers provided in the table.
Note 2: For the abbreviations used, see annex II.

B. Policies and measures

15. In its NC4, Norway has provided comprehensive information on the policies and measures adopted to implement its commitments under the Convention and its Kyoto Protocol, and organized the reporting of policies and measures by sector, subdivided by GHG. Each sector has its own textual description of the principal policies and measures. However, the ERT noted that Norway has provided neither summary tables on its policies and measures by sector following the structure shown in the UNFCCC reporting guidelines (para. 17 and footnote a to table 1), nor a concise presentation of the policies and measures, including information on each of the following subject headings: the GHG affected; type or types of policy or measure; and implementing entity or entities (para. 22 of the guidelines). The ERT recommends that the Party follow the UNFCCC reporting guidelines and provide these reporting elements in its next national communication.

16. Table 3 provides a summary of the information Norway reports on its domestic policies and measures.

Table 3. Summary information on policies and measures

Major policies and measures	Examples / Comments/ Effects
Framework policies and cross-sectoral measures	
Norwegian CO_2 tax scheme	Applies to petrol and mineral oil consumption and to oil and gas extraction. Tax has stimulated investment in re-injection of CO_2 from offshore gas production. Reduced rates for industry, domestic aviation, shipping. Exemptions for fishing, international aviation, foreign shipping. Covers 68 per cent of total CO_2 emissions
Emissions trading scheme (ETS)	Domestic scheme in operation (2005–2007) covering industrial emissions that are not subject to the CO_2 tax from 51 installations (10–15 per cent of total GHG emissions). Closely resembles the EU ETS
Kyoto Protocol mechanisms	Used to help close the projected gap of 50 million tonnes over 2008–12 through net acquisition of AAUs, CERs and/or ERUs
Energy	
Pollution Control Act	Requires discharge permits for GHG emissions from industry. Applies to establishment of new gas-fired power plants
Promotion of new renewable energy sources	Policy objectives: to develop 3 TWh/year wind power and 4 TWh/year renewable heat production by 2010
Transport	
Vehicle purchase taxes	Tax is one of the highest in the world and is differentiated according to vehicle weight, engine output and engine volume. Electric cars are exempt from purchase tax, VAT and annual tax
Fuel taxes	CO_2 tax applies to gasoline and diesel (differential rates) together with excise taxes for road, sea and domestic air transport
Subsidies on public transport	Subsidies for expansion (NOK 4 billion support in 1999); encouragement of use of bicycles and pedestrian transport
Domestic aviation and navigation	Government proposes to remove reduced tax rates for mineral oil in these sectors
Industry	
Voluntary agreements with industries	To reduce emissions of CO_2 and PFCs from the aluminium industry, SF_6 from electro industry, and all six Kyoto gases from the whole processing industry, including aluminium
Regulation	Requirement for permits to discharge GHGs
Tax on imports and domestic production of HFCs and PFCs	Supplemented with a reimbursement scheme to refund the tax when the gas is destroyed
Agriculture	
Dissemination of information on enhanced agricultural practices	N_2O emissions are addressed through provision of information to farmers on improved practices for soil cultivation, management of crop residues, and integrated use of manure and mineral fertilizers
Waste management	
Pollution Control Act	Includes a tax on final treatment of waste at landfills and incineration plants, and regulations for landfill operators to hold licences, to collect and combust CH_4, and to prohibit deposition of wet organic waste (from 2009). Measures available to local authorities include regulations and/or agreements on the collection and recycling of packaging and other components of the waste stream
Land use, land-use change and forestry	
Forest management	Protecting national forests and enhancing forest production through legislation, economic support to forest owners, public funding for education and research, public forest service, forest trust fund for silviculture, and support for infrastructure

Note: For the abbreviations used, see annex II.

1. Policy framework and cross-sectoral meaures

17. Norway's climate policy is based on the objectives of the Convention and its Kyoto Protocol. The policies and measures reported are thus envisaged as modifying longer-term trends in anthropogenic GHG emissions and removals. Norway has advocated cost-effectiveness across emission sources and sinks, sectors and GHGs, both domestically and internationally. The NC4 notes this principle as the point of departure for both the design and the implementation of the present climate policy.

18. *The Norwegian CO_2 tax scheme*. CO_2 taxes were introduced in 1991 and have covered a broad range of goods and services since 1999. The NC4 reports that the CO_2 tax is levied on about 68 per cent of total CO_2 emissions, corresponding to more than 50 per cent of total GHG emissions. For households and industry, the CO_2 tax represents a significant proportion of the consumer price for heating oil, although some industries pay lower rates. The high taxes are continuing to influence fuel choices (as between oil, electricity and biomass) dynamically, and contributing to the increased penetration of

more efficient and multi-fuel equipment. The ERT noted that the NC4 does not provide an estimate of the overall mitigation effect for the CO_2 tax scheme. The ERT recommends that, in the light of the introduction of an emissions trading scheme, Norway enhance the transparency of its reporting by providing further information on the monitoring and ex post evaluation of the implementation and effectiveness of the domestic CO_2 tax scheme, as well as on the relative competitiveness of Norwegian industries, both domestically and internationally.

19. *CO_2 taxation and carbon sequestration*. Since 1996, approximately 1 million tonnes of CO_2 has been captured and stored annually from the Sleipner West facility. This is one of the important pilot projects in the world for CO_2 capture and storage, and the ERT compliments Norway on its performance. Norway has indicated that this (domestic) action is a direct response to the CO_2 taxes. The ERT encourages Norway to provide further information on monitoring costs and the extent of leakages from the stored CO_2 in its next national communication.

20. *Emissions trading*. Norway's GHG Emissions Trading Act entered into force on 1 January 2005; it is designed to be compatible with the European Union (EU) Emissions Trading Scheme (ETS) and to cover industries not covered by CO_2 taxes. Currently this includes providing emission allowances to 51 industrial installations. The marginal cost of improving energy efficiency (and therefore reducing emissions) rises with the level of energy efficiency. Therefore production units with higher energy efficiency appear to have a disadvantage since the national allocation plan is based mainly on historical levels of emissions from these installations. Norway does not have national efficiency targets that could provide progressive incentives to improve the GHG efficiency of production to all the enterprises. The ERT therefore encourages Norway to analyse the implications of this instrument on industrial installations with higher energy efficiency.

21. The ERT further noted that the criteria for applying either a CO_2 tax or emissions trading to different industries and sectors are not clearly indicated in the NC4. The ERT encourages Norway to provide this information as well as to assess whether the resulting allocation results in cost-effective GHG mitigation across the entire national economy. The ERT also encourages Norway to indicate which industries and sectors are not covered by economic measures for GHG mitigation, and to clarify the policy towards such industries and sectors.

22. *Other cross-sectoral policies and measures*. The ERT noted that Norway has reported some sector-specific policies and measures under the heading of cross-sectoral policies and measures, including a tax and reimbursement scheme for hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs), and a tax on the final treatment of waste. The ERT encourages Norway to improve the transparency of its reporting by categorizing its policies and measures clearly in its next national communication.

2. Policies and measures in the energy sector

23. Between 1990 and 2003, GHG emissions from the energy sector increased by 33.8 per cent (+9,888.4 Gg CO_2 equivalent), mainly driven by energy industries (+6,259.5 Gg CO_2 equivalent, primarily for the production and extraction of oil and natural gas), road transport (+2,149 Gg CO_2 equivalent emissions) and coastal navigation (+468 Gg CO_2 equivalent emissions). During this period, the production of oil and gas increased by 83 per cent and 173 per cent, respectively. The Party reports that production has become more efficient, with CO_2 emissions per produced tonne of oil equivalent decreasing by 22 per cent in this period. Norway has indicated that CO_2 taxes have resulted in improvements in the performance of installations.

24. In its approach to mitigating GHG emissions from the energy sector, Norway has placed the emphasis on market-based incentives. Incentives (subsidies/tax exemptions/reimbursements) have been provided for energy efficiency, energy conservation and renewable energy programmes. Disincentives (emission and fuel taxes) are provided for emissions. For example, the Party reports that the CO_2 tax has enhanced the penetration of more energy-efficient technologies in the offshore sector. As many

energy-intensive industries are exempted from CO_2 taxes, the ERT recommends that Norway increase the transparency of its reporting on this measure by providing estimated mitigation effects across sectors.

25. *Taxation of motor fuels*. Overall fuel consumption in the road transport sector grew by 21.3 per cent between 1990 and 2003. At the same time, the share of diesel fuel in road transport increased from 30.7 to 47.3 per cent, while the share of gasoline declined from 69.2 to 52.5 per cent. The ERT was informed that, partly due to reduced tax rates, the market price of diesel fuel was lower than the market price of gasoline in Norway.[3] The ERT noted that the information contained in the NC4 did not allow a clear understanding of the effects of this tax differentiation on road transport activity, relative fuel shares and related GHG emissions. It recommends that Norway provide more details on the policy objectives underlying the tax differentiation for motor fuels in its next national communication.

3. Policies and measures in other sectors

26. In 2003, emissions from non-energy sectors accounted for 28.5 per cent of total national GHG emissions (excluding LULUCF). Between 1990 and 2003, these emissions decreased by 25.1 per cent, mainly as a result of decreases in emissions from industrial processes (by 35.4 per cent) and the waste sector (by 14.0 per cent).

27. ***Industrial processes.*** The major contributions to reduced industrial process emissions were decreases in PFC emissions from the aluminium industry (by 79 per cent) and in SF_6 emissions from magnesium production (by 89 per cent) over the period 1990–2003. The ERT noted that the relatively small volumes of these gases, the existence of alternative technologies and the cooperation of industry organizations through voluntary agreements appear to be the decisive factors contributing to the reductions achieved, although the closure of primary production of magnesium in a major facility in 2002 also contributed significantly to reductions in SF_6 emissions.

28. These reductions were offset to some extent by increases in HFC emissions from refrigeration and air conditioning equipment since the mid-1990s. This increasing trend was reversed following the introduction in 2003 of a tax on both imports and the production of HFCs, supplemented by a reimbursement scheme which refunds the tax when these gases are destroyed. This tax and reimbursement scheme provided a strong incentive for choosing HFCs with lower global warming potentials (GWPs) or using alternative substances and processes.[4] The NC4 reports that by 2010 emissions are expected to be about half the level they would have been without this measure.

29. It has been more difficult to reduce process-related industry sector emissions of CO_2, largely because they are tied closely to production levels and few technical solutions are readily available in the main emitting industries (metals and cement).

30. In the ***waste*** sector, regulation combined with taxes has provided a good balance of incentives to reduce the amount of waste generated, reduce the amount deposited at landfills, and increase the amount of landfill gas capture and combustion. CH_4 emissions from waste disposal decreased by 16.7 per cent between 1990 and 2003, mainly through licensing requirements under the Pollution Control Act to reduce the amount of organic waste deposited in landfills, and to promote more extensive landfill gas capture and combustion. These measures were further enhanced by a tax levied on the deposition of waste in landfills and on registered emissions from incinerated waste. The ERT noted that further strengthening of these regulations is in progress and is expected to drive further reductions of CH_4 emissions.

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[3] In 2005, tax rates for both mineral oil tax and CO_2 tax were considerably higher for gasoline (NOK 4.03 per litre and NOK 0.78 per litre, respectively) than for diesel fuel (NOK 2.92 per litre and NOK 0.52 per litre, respectively).

[4] The ERT was informed by the Party that the tax and reimbursement scheme is still under evaluation and a final report on the effect of the scheme is expected be published by the end of 2006.

31. Emissions from ***agriculture*** remained relatively stable over the period 1990–2003. The NC4 indicates the potential for further reductions through improved soil cultivation practices, and improved management of crop residues and fertilizer. Awareness and information campaigns directed at farmers were seen by Norway as the main instruments for achieving this potential. The ERT noted that the potential of other policies and measures to reduce N_2O emissions from agriculture, such as regulations to improve water quality through reduced nitrate run-off, are not discussed in the NC4.

32. Net GHG removals in ***land use, land-use change and forestry*** activities equalled 38.2 per cent of total GHG emissions (excluding LULUCF) and increased by 56.0 per cent (from 13.4 Mt to 20.9 Mt CO_2 equivalent) between 1990 and 2003. Forest land has been the major contributor to a substantial increase in the carbon stock since 1990. This continues a long-term trend supported by forest management practices that were introduced throughout the 20th century to protect and enhance forest production. These include legislation, economic support to forest owners, publicly funded education and research, and support for infrastructure development.

C. Projections and the total effect of policies and measures

1. Projections

33. Projections provided by Norway in its NC4 include a single "with measures" scenario until 2020[5] and are presented relative to actual inventory data for the years 1990–2003. Projections are presented by sector, but using different sectoral categories as used in the policies and measures section of the NC4, and on a gas-by-gas basis for all six GHGs (CO_2, CH_4, N_2O, PFCs, HFCs and SF_6). In addition, projections are provided in an aggregated format for each sector as well as for a national total, using GWP values. However, the ERT noted that Norway has not provided separate emission projections relating to fuel sold for use by ships and aircraft engaged in international transport. Table 4 provides a summary of the GHG emission projections for Norway.

Table 4. Summary of greenhouse gas emission projections for Norway

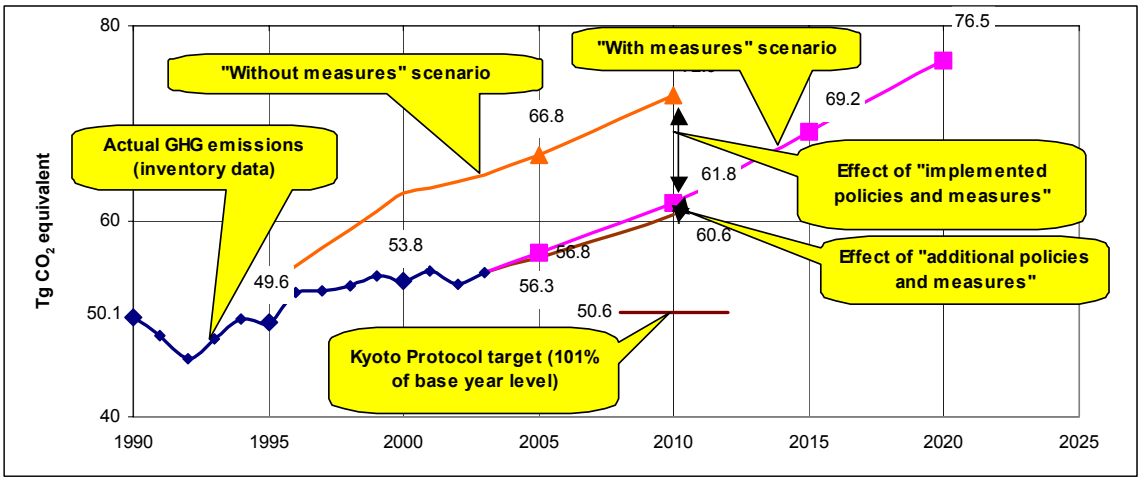
	GHG emissions (without LULUCF) (Tg CO_2 equivalent per year)	Changes compared to base year level (%)
Inventory data 1990[a]	50.1	0
Inventory data 2003[a]	54.8	+9
Kyoto Protocol base year[b]	50.1	0
Kyoto Protocol target[c]	50.6	+1
"With measures" projections for 2010[b]	61.8	+23.4

[a] *Source*: Norway's 2005 GHG inventory submission of Norway; the emissions are without LULUCF.
[b] *Source*: Norway's NC4, section on GHG emission projections; the projections are for GHG emissions without LULUCF.
[c] See paragraph 1.
Note: For the abbreviations used, see annex II.

34. The NC4 projections for Norway are based on various sources and methodologies. For energy-related emissions, the projections are largely based on the MSG (macro-sectoral growth) macroeconomic model, which covers both macroeconomic development and trends in CO_2 emissions. In addition, model results are adjusted on the basis of available micro-level studies on CO_2 emissions from the petroleum extraction sector, some other non-specified emission-intensive sectors and road transport. Projections on non-CO_2 emissions are compiled by the Norwegian Pollution Control Authority. The ERT noted that the effect of policies and measures implemented after the year 2003 has not been taken into account. One of the key assumptions used in modelling is that petroleum extraction in Norway will reach a peak in 2008 and decline thereafter.

[5] The NC4 indicates that the new Government, which took office in October 2005, will present new long-term projections for GHG emissions in Norway in 2006 and will submit them to the UNFCCC secretariat.

Figure 1: Projections for Greenhouse gas emissions



Source: Norway's NC4; the projections are for GHG emissions without LULUCF.
Note: The line "without measures scenario" is calculated from the "with measures scenario" minus the total effect of policies and measures in accordance with the "with measures" definition (see para 38).

35. According to the NC4 "with measures" scenario, total emissions are projected to reach 61.8 Tg CO_2 equivalent emissions in 2010, which means an increase in GHG emissions of 23 per cent (see figure 1). The ERT noted that the resulting difference from the Kyoto Protocol target (of 50.6 Tg, or 101 per cent of the base year emissions level) was 11.2 Tg CO_2 equivalent, which is close to the "deficit" of 10 Mt, as reported in the NC4.[6] The major drivers of growth in GHG emissions over the period 1990–2010 are oil and gas production (+87 per cent), transport (+55 per cent), and public electricity and heat production (+344 per cent). In 2010, the main GHG remains CO_2 and steady growth in its share of total GHG emissions is projected. Emissions of other GHGs are projected to decline (CH_4, PFCs, SF_6) or to show only a modest increase by 2020 (N_2O, HFCs). During the period 2010–2020, GHG emissions are projected to increase by another 11 per cent. GHG emissions in 2020 are projected to depend strongly on demand for energy and structural developments, particularly in energy-intensive industries. The NC4 reports considerable uncertainty as regards the realization of new power projects in the longer term. Figure 1 presents actual GHG emissions and the "with measures" scenario as presented in the NC4, as well as the estimated total effect of selected policies and measures that have been implemented or adopted since 1990, as presented in the NC4 (see also table 5 below).

36. The ERT noted with appreciation that, following the conclusions of the IDR of Norway's NC3, the analysis of the sensitivity of the projections to changes in some key macroeconomic indicators, including GDP growth and growth in total factor productivity, is presented in the NC4. The ERT noted, however, that the sensitivity to changes in petroleum prices is not quantified. Given the important role of the oil industry in Norway's overall economic performance, the impact of higher petroleum prices could be significant. The ERT therefore recommends that Norway quantify the sensitivity of its GHG emission projections to changes in petroleum prices and present the results in its next national communication.

37. The ERT recommends that Norway use the same sectoral categories in the projections section as used in the policies and measures section (see para. 34 of the UNFCCC reporting guidelines).

[6] The NC4 states that, according to the baseline scenario, Norway faces an average annual "deficit" of about 11 million tonnes CO_2 equivalent for the period 2008–2012 compared to the commitment under the Kyoto Protocol. However, recently adopted measures which are not included in the baseline projection are expected to reduce the "deficit" to approximately 10 million tonnes.

2. Total effect of policies and measures

38. In its NC4, Norway presents an estimate of the total effect of its policies and measures in accordance with the "with measures" definition, compared to a situation without such policies and measures, in terms of GHG emissions avoided or sequestered, by gas (on a CO_2 equivalent basis) for the years 1995, 2000, 2003, 2005 and 2010. It also presents relevant information on factors and activities for each sector for the years 1990–2010. However, the ERT noted that Norway has not provided an estimate of the total effect of its policies and measures in the year 2020, as required by the UNFCCC reporting guidelines (para. 40). Table 5 provides an overview of the total effect of policies and measures as reported by Norway for 2005 and 2010.

Table 5. Total effect of policies and measures, estimated for 2005 and projected for 2010

	Absolute value (in Mt CO_2 equivalent)	Relative value (in % of base year emissions)
Total effect of implemented policies and measures in 2005	7.4–10.0	15.0–20.0
Total effect of implemented policies and measures in 2010	8.5–11.0	17.0–22.0
Total effect of planned policies and measures in 2010	0.75–1.25	2.0–3.0
Total effect of implemented and planned policies and measures in 2010	9.3–12.4	19.0–25.0

Source: Norway's NC4.
Note: The total effect of policies and measures is defined in the NC4 as the effect of selected policies and measures that were implemented or adopted by 2003 (implemented policies and measures) plus the estimated effect of some recently adopted policies and measures not included in the "with measures" projections (planned policies and measures).

39. The estimated effects of implemented policies and measures, as reported by Norway, indicate that without those policies and measures that were implemented or adopted before 2003, emissions growth between 1990 and 2010 would have been 17–22 percentage points higher. Planned policies and measures (introduced after 2003) are estimated to add another 2–3 percentage points to this effect (see table 5).

40. The ERT noted that the estimation of the total effect of policies and measures as presented in table 5 is incomplete, as some of the energy efficiency policies and measures have not been taken into account. This is even more crucial in the case of the estimation of the effects of new policies and measures (introduced after 2003), including the climate action plans[7] for all relevant sectors, the promotion of renewable energy sources, and energy savings and the promotion of district heating. The ERT therefore recommends that the Party enhance and broaden the scope of its estimation of the mitigation effects of its policies and measures in Norway, in order to achieve a more comprehensive overview of future trends in GHG emissions. For the same reason, the ERT encourages Norway also to provide "without measures" and "with additional measures" scenarios, if possible.

D. Vulnerability assessment, climate change impacts and adaptation measures

41. In its NC4, Norway has provided information on the expected impacts of climate change in Norway and an outline of the action taken to implement Article 4, paragraph 1(b) and (e), with regard to adaptation. Table 6 summarizes the information on vulnerability and adaptation to climate change.

42. In 1997, the Research Council for Norway (RCN) set up a research programme to study regional climate developments in Northern Europe in a scenario with global warming (RegClim). Results based on the optimistic SRES B2 scenario of the Intergovernmental Panel on Climate Change (IPCC) suggest that the annual average temperature is likely to increase by between 2.5 and 3.5° C for the period

[7] The ERT was informed by the Party that the climate action plans were under development in the second half of 2006, and that the Government intends to present to the Parliament a white paper containing these climate action plans in spring 2007.

2071–2100 (compared to the period 1961–1990). The increase is particularly large for winter minimum temperatures in the northern parts of Norway (up to 4° C), while the summer maximum increases by between 2 and 3° C, with the largest increase in the southern parts of the country. The NC4 reports that changes in precipitation patterns are probably among the more dramatic of the signals, with projected increases in precipitation of between 5 and 20 per cent. The likelihood of high-precipitation weather events is projected to increase considerably, resulting in more high-impact weather and associated impacts.

43. The NC4 reports the projected effects resulting from increased temperature, changed precipitation patterns and some wind effects. For example, with an increase in temperature of 3° C, it is estimated that forested areas will expand about 250 km northwards and about 500 metres further above sea level. The ERT noted that Norway is relatively robust with respect to climate change and climate variability. The country is not seen as particularly vulnerable to a rise in sea level. The population is among the wealthiest in the world and is used to a harsh and variable climate. Nevertheless, the ERT concluded that, according to the RegClim study, climate change will affect some regions, sectors, ecosystems and social groups more than others (see table 6).

Table 6. Summary information on vulnerability and adaptation to climate change

Vulnerability area	Examples / comments / adaptation measures reported
Agriculture and food security	***Vulnerability***: more frequent and intense precipitation can present difficulties with regard to both spring farming and the harvest, and might also increase problems with both existing and new pests and plant diseases, especially in south-eastern Norway ***Adaptation***: changes in the variety of crops cultivated
Biodiversity and natural ecosystems	***Vulnerability***: substantial changes in wildlife and vegetation. The most dramatic consequences may be expected for species that are at the southern or lower limit of their natural arctic and alpine habitats. A rise in temperature will also have some impact on marine as well as fresh water ecosystems ***Adaptation***: no specific adaptation options reported
Coastal zones	***Vulnerability***: the country is not particularly vulnerable to sea-level rise, but increased quantities of nutrients and organic material in coastal waters are expected due to increased run-off ***Adaptation***: flood defence measures, improved early warnings systems and precise forecasting of weather
Fisheries and aqua culture	***Vulnerability***: changes in the species composition, distribution areas and commercial value ***Adaptation***: breed new species with economic advantages
Forests	***Vulnerability***: some benefit from increased CO_2 concentration, but a negative effect of wind, fire, pests and diseases may expected. A warmer climate is also likely to change the composition of forests ***Adaptation***: increased readiness of the fire brigades and the rescue service
Human health	***Vulnerability***: possible increased spread of ticks, snails and other disease carriers, and increase in heat-related deaths
Infrastructure and the economy	***Vulnerability***: economic impacts may include disruptions to business in offshore petroleum production, and costs associated with building, maintaining and repairing infrastructure and buildings ***Adaptation***: development of new guidelines for building, maintenance and drainage; expanded protection measures and drainage system
Water resources	***Vulnerability***: increased and more intense rainfall is likely to increase river run-off and flooding ***Adaptation***: local and regional planning should take the increased risk of flooding into account
Insurance	***Vulnerability***: weather-related damage to property can lead to increased number and size of insurance payments and insurance premiums

44. The ERT acknowledged that Norway is in the process of developing a national strategy for adaptation to climate change. The most immediate adaptation priorities involve organizations responsible for planning and developing major infrastructure, such as transport networks, flood defences and the protection of buildings, civil protection and emergencies. The Ministry of the Environment has alerted the sectoral authorities and provided information to ensure that climate change considerations are taken into account in planning processes wherever relevant. The NC4 states that the Planning and Building Act is currently under revision, with the aim of developing it into a tool to ensure that climate change is taken into consideration in local and regional planning.

E. Financial resources and transfer of technologies

1. Financial resources

45. In its NC4, Norway has provided detailed information on measures taken to give effect to its commitments under Article 4, paragraphs 3, 4 and 5, of the Kyoto Protocol. Norway has provided substantial funds for climate change activities through a number of multilateral organizations, among them the Organisation for Economic Co-operation and Development, the United Nations Environment Programme and the United Nations Development Programme (see table 7). It indicates the extra-budgetary support by Norway for the operations of the Executive Board of the clean development mechanism (CDM), capacity-building for the establishment of registry systems under the Kyoto Protocol, and the organization of UNFCCC conferences and other meetings. Norway has also provided detailed information on the assistance it provides to help developing country Parties that are particularly vulnerable to the adverse effects of climate change to meet the costs of adaptation to those adverse effects. The main channels for Norway's non-ODA (official development assistance) multilateral and regional support are the Global Environment Facility (GEF), the UNFCCC secretariat, the Prototype Carbon Fund and the Nordic Environment Finance Corporation.

Table 7. Summary information on financial resources

Official development assistance (ODA)	USD 7,299 million for the period 2001–2004 (0.87 per cent of GNP). Norway's development assistance budget is set to rise further over the coming years to 0.95 per cent of GNP for the year 2005 and to 0.96 per cent in 2006
Climate-related aid in bilateral and multi-bilateral ODA funding	USD 225.85 million for energy projects in the period 2001–2003
Climate change-related activities for non-ODA	USD 2.7 million for the period 2001–2003
Climate-related support programmes	Total multilateral assistance: USD 603.43 million for the period 2001–2003
Contributions to GEF	USD 21.6 million for the period 2001–2003. Pilot phase, 6.3; GEF-2, 15.2
Pledge for 3rd GEF replenishment	Norway's total commitment to GEF-2 and GEF-3 is approx. USD 57 million
Activities implemented jointly (AIJ)	Norway has been involved in several AIJs, which were reported in the NC3; some of the projects are still ongoing (sum: USD 13.6 million)
JI and CDM under the Kyoto Protocol	Norway supported the establishment of the Secretariat of Renewables and Energy Efficiency Programme in Beijing, China. Norway has also supported research institutions on various issues related to climate change

Note: For the abbreviations used, see annex II.

46. Norway was one of the first countries to initiate projects for activities implemented jointly (AIJ). The NC4 gives detailed information about Norway's assistance provided for the purpose of supporting projects relating to climate change through several AIJ projects in different parts of the world (including Eastern and Central Europe (Romania, the Slovak Republic and Poland), Africa (Burkina Faso), Latin America (Mexico and Costa Rica) and Asia (China)), and different sectors (including energy efficiency, GHG emissions reduction and forest conservation). Norway also participated actively in the shaping of the CDM, in cooperation with Japan, South Korea and Mongolia, focusing on measures to promote renewable energy sources and energy efficiency.

2. Transfer of technology

47. In its NC4, Norway has provided detailed information on measures relating to the promotion, facilitation and financing of the transfer of, and access to, environmentally sound technologies. The ERT noted that Norway has mostly contributed to international technology transfer relating to the energy sector, and table 8.4 of the NC4 shows its bilateral and multilateral ODA funding commitments for energy projects. The ERT noted, however, that this table does not include a column on the recipient country/region, as stipulated in the UNFCCC reporting guidelines, and recommends that Norway add this information in its next national communication.

48. Norway reports on steps taken by governments to improve the ability of developing countries to identify by themselves the measures necessary to promote sustainable development, through strengthening their institutional capacity and financial and technology transfers. Norway supports, inter alia, the participation of developing countries at UNFCCC conferences and other meetings, assistance in developing designated national authorities (DNAs) in various developing countries (Algeria, Nigeria and the Islamic Republic of Iran) and International Energy Agency studies for different projects relating to climate change. The main focus is on pollution abatement and cleaner production activities, with indirect GHG mitigation effects due to reduced use of energy and the disposal of less waste.

49. A significant part of technology transfers takes place through various forms of cooperation between private-sector enterprises. The NC4 states that the Norwegian government does not monitor such private-sector activities and distinguishes clearly between activities undertaken by the public sector and those undertaken by the private sector. In this context, the ERT noted that Norway has not provided table 6 of the UNFCCC reporting guidelines, which allows for a description of success and failure stories relating to technology transfer. Norway has contributed USD 1.4 million to the Least Developed Countries Fund and USD 1.5 million to the Special Climate Change Fund, earmarked for adaptation and technology transfer purposes in developing countries.

F. Research and systematic observation

50. Norway has provided information on its domestic and international actions relating to research and systematic observation, including its participation in the World Climate Programme, the International Geosphere–Biosphere Programme, the Global Climate Observing System (GCOS) and the IPCC. The NC4 also provides information on atmospheric, ocean and terrestrial observation systems in Norway.

51. Research subjects reported in the NC4 include climate processes and systems, modelling and projections, as well as impact assessments, socio-economic analyses, and technologies capable of reducing emissions and increasing GHG removals. The RCN coordinates the research activities for all sectors and disciplines in Norway and had a budget of approximately NOK 4.6 billion in 2005. In 2004, the RCN launched a new 10-year large-scale programme called NORKLIMA: Climate Change and its Impacts in Norway. The programme will run until 2013 and combines three existing research activities. Another research programme, RENERGI (2004–2013), focuses on renewable energy production, energy efficiency and end-use, energy systems, hydrogen, and social science relating to energy and climate change.

52. Norway does not have a separate national GCOS programme but the Norwegian Meteorological Institute (NMI) has included 10 existing meteorological surface observing stations and one upper air station as part of the GCOS. The Institute of Marine Research has an extensive monitoring programme on physical and biological oceanographic parameters.

53. The RDP provides information on financial contributions by Norway to capacity-building and research on climate change in developing countries. The ERT noted, however, that the relevant chapter of the NC4 does not include information on action taken to support related capacity-building and research, as well as to establish and maintain observing systems in developing countries. The ERT encourages the Party to include more information on these issues in its next national communication.

G. Education, training and public awareness

54. The ERT noted that Norway has followed the UNFCCC reporting guidelines in providing information on its actions relating to education, training and public awareness. Activities under Article 6 of the Convention are seen as an important element of climate change policy in Norway and the government will continue to develop and expand programmes in these areas, mainly through the Norwegian Environmental Education Network.

55. Public awareness of environmental and climate change issues is reported to be fairly high in Norway, and climate change has been integrated in the education curricula at many levels. In Norway, over 90 per cent of the population have access to the Internet and the Ministry of the Environment uses all available channels and information activities to provide different target groups with relevant information on a daily basis through its web page.

56. The Environmental Information Act, which entered into force in 2004, involves new obligations for private enterprises to preserve information about factors relating to their operations that may affect the environment and to supply such information to citizens on request.

57. The ERT noted that in Norway public awareness about the environmental effect of products through their life cycles is an essential part of efforts to promote sustainable consumption patterns. The Nordic environmental label (Nordic Swan Label) is the official eco-label in Norway, Sweden, Denmark, Finland and Iceland. The label is awarded only to those products that fulfil strict criteria for environmental impact throughout their life cycles, including energy-saving criteria. The Ministry of the Environment focuses its activities on the promotion of "green" public procurement by publishing guidelines on eco-purchasing, which clarify which goods and services can be regarded as "green".

III. Evaluation of information contained in the report demonstrating progress and of supplementary information under Article 7, paragraph 2, of the Kyoto Protocol

A. Information contained in the report demonstrating progress

58. Norway's RDP includes five chapters that contain all the information required by decisions 22/CP.7 and 25/CP.8. The ERT found this information to be consistent with that provided in its NC4.

59. Under the Kyoto Protocol, Norway has a quantified emission limitation and reduction commitment to keep its total GHG emissions below 101 per cent of the base year (1990) level during the commitment period (2008–2012). Under a "with measures" scenario, total annual GHG emissions are projected to rise to 61,800 Gg CO_2 equivalent in 2010, which represents a 23.4 per cent increase over the base year level. The ERT noted that this growth in emissions would have been 17–22 percentage points higher without the policies and measures that Norway implemented or adopted before 2003. Planned policies and measures (introduced after 2003) are estimated to add another 2–3 percentage points to this effect (see table 5).

60. In its RDP, Norway reports a distance ("deficit") to its Kyoto Protocol target estimated at 10 Tg of CO_2 equivalent annually or about 50 Tg over the five-year period 2008–2012 (see para. 35). Norway indicates in its RDP that it intends to address this gap partly through additional domestic policies and measures, and partly through the use of the Kyoto Protocol mechanisms. Considering that the distance to the Kyoto Protocol target is projected to be a substantial proportion (18.4 per cent) of the total GHG emissions level for the first commitment period, the ERT recommends that Norway provide more detailed information on these additional domestic policies and measures and their estimated mitigation effects, for example, by reporting a "with additional measures" scenario in its next national communication.

61. Norway has advocated cost-effectiveness across emission sources and sinks, sectors and GHGs, both domestically and internationally. The ERT noted that, since the marginal cost of domestic action (as reflected partially in the CO_2 tax rate range of NOK 86–337 per tonne of CO_2) is generally higher than the current international price of CO_2, this advocacy would favour the acquisition of Kyoto units.

62. Norway has established a statutory trading scheme for the years 2005–2007 that will make it possible to test various elements of the system (monitoring, reporting, registry, compliance, penalties,

etc). The ERT was informed that, by June 2007, a proposal for an amendment of the GHG Emissions Trading Act will be presented to Parliament, which will adapt the Act for the period 2008–2012.

B. Supplementary information under Article 7, paragraph 2, of the Kyoto Protocol

63. Norway has provided complete supplementary information required under Article 7, paragraph 2, of the Kyoto Protocol in its NC4 and RDP. This information reflects the steps taken by Sweden to implement the relevant provisions of the Kyoto Protocol. The supplementary information is placed in different sections of the NC4 and RDP. Table 8 provides references to the sections in which supplementary information is provided.

Table 8. Overview on supplementary information under Article 7, paragraph 2, of the Kyoto Protocol

Supplementary information	Reference
Supplementary information relating to the mechanisms pursuant to Articles 6, 12 and 17	Art. 17 (RDP, p. 8; NC4 pp. 36-38), Art. 6 and 12 (NC4, pp. 38)
Policies and measures in accordance with Article 2	NC4 (chapters 4 and 5), RDP (chapter 2)
Domestic and regional programmes and/or legislative arrangements and enforcement and administrative procedures	NC4 (pp. 36-38)
Information under Article 10	RDP (chapter 5)
Financial resources	NC4 (chapter 8)

Note: For the abbreviations used, see annex II.

IV. Conclusions and recommendations

64. Several national circumstances have implications for Norway's emissions profile and related policies, such as the rising share of the service sector in the economy, a decentralized settlement pattern which increases the demand for transport compared with some other countries, increasing oil and gas exploration activities, and the fact that nearly all electricity is hydropower. GHG emissions from the energy sector contribute more than 70 per cent to total national GHG emissions (without LULUCF). Key policies and measures therefore focus on energy-related emissions by utilizing economic instruments such as the CO_2 tax and the Norwegian Emissions Trading Scheme.

65. Under a "with measures" scenario, total GHG emissions are projected to rise to 61,800 Gg CO_2 equivalent, which represents a 23.4 per cent increase over the base year level. The ERT noted that this growth in emissions would have been 17–22 percentage points higher without the policies and measures that were implemented or adopted before 2003. Norway indicates in its RDP that it intends to meet the target partly by implementing additional domestic policies and measures, and partly through the use of the Kyoto Protocol mechanisms.

66. In the course of the IDR, the ERT formulated a number of recommendations, relating to the completeness and transparency of Norway's reporting under the UNFCCC and its Kyoto Protocol. The list includes the following key recommendations.[8]

- The ERT was assisted in its task by the comprehensive yet concise manner in which the Party has presented information in its NC4 and in its response to questions raised during the review. Still, the ERT recommends that Norway provide summary tables on policies and measures by sector, following the structure shown in the UNFCCC reporting guidelines (para. 17 and footnote a to table 1).

[8] For a complete list of recommendations, the relevant sections of this report should be consulted.

- The ERT recommends that Norway, in the light of the introduction of an emissions trading scheme, enhance the transparency of its reporting on the effectiveness of its approach to climate policy by providing further information on the monitoring and ex post evaluation of the implementation and effectiveness of the domestic CO_2 tax, as well as on the relative competitiveness of Norwegian industries, both domestically and internationally.

- As many energy-intensive industries are exempted from CO_2 taxes, the ERT recommends that the Party increase the transparency of its reporting on this measure by providing estimated mitigation effects across sectors. The ERT also encourages Norway to indicate which industries and sectors are not covered by economic measures for GHG mitigation, and what the policy towards such industries and sectors is.

- The ERT recommends that Norway provide more details on the policy objectives underlying the tax differentiation for motor fuels in its next national communication.

- The ERT recommends that Norway use in the projection section the same sectoral categories as used in the policies and measures section (see para. 34 of the UNFCCC reporting guidelines) and to provide a "with additional measures" scenario which includes the estimated effects of planned policies and measures that were introduced after 2003. The ERT noted that this would provide a more realistic indication of the distance to its Kyoto target, and of the extent of and need for further domestic actions and supplementarity under Articles 6, 12 and 17.

Annex I

Documents and information used during the review

A. Reference documents

UNFCCC. 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. Available at <http://unfccc.int/resource/docs/cop5/07.pdf>.

UNFCCC. Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol, decision 15/CMP.1. FCCC/KP/CMP/2005/8/Add.2. Available at <http://unfccc.int/resource/docs/2005/cmp1/eng/08a02.pdf#page=54>.

UNFCCC. Guidelines for review under Article 8 of the Kyoto Protocol, decision 22/CMP.1. FCCC/KP/CMP/2005/8/Add.3. Available at <http://unfccc.int/resource/docs/2005/cmp1/eng/08a03.pdf#page=51>.

UNFCCC. Report on the in-depth review of the third national communication of Norway. FCCC/IDR.3/NOR. Available at <http://unfccc.int/resource/docs/idr/nor03.pdf>.

UNFCCC. Synthesis of reports demonstrating progress in accordance with Article 3, paragraph 2, of the Kyoto Protocol. FCCC/SBI/2006/INF.2. Available at <http://unfccc.int/resource/docs/2006/sbi/eng/inf02.pdf>.

UNFCCC. Report of the individual review of the greenhouse gas inventory of Norway submitted in 2005. FCCC/ARR/2005/NOR. Available at <http://unfccc.int/resource/docs/2006/arr/nor.pdf>.

Norwegian Ministry of the Environment. Norway's fourth national communication under the Framework Convention on Climate Change. Status report as of December 2005. Available at <http://unfccc.int/resource/docs/natc/nornc4.pdf>.

Norwegian Ministry of the Environment. Norway's Report on Demonstrable Progress under the Kyoto Protocol. Status report as of December 2005. Available at <http://unfccc.int/resource/docs/dpr/nor1.pdf>.

B. Additional information provided by the Party

Responses to questions during the review were received from Ms. Ingvild Andreassen Sæverud (Norwegian Ministry of the Environment) including additional information on the most recent developments in the design of climate policy in Norway.

Annex II

Acronyms and abbreviations

AAU	Assigned amount units
AIJ	activities implemented jointly
CDM	clean development mechanism
CER	certified emission reduction unit
CH_4	methane
CO_2 eq	carbon dioxide equivalent
CO_2	carbon dioxide
CRF	common reporting format
DNA	designated national authorities
ERT	expert review team
ERU	emission reduction unit
ETS	emissions trading scheme
EU	European Union
GCOS	Global Climate Observing System
GDP	gross domestic product
GEF	Global Environment Facility
Gg	gigagram
GHG	greenhouse gas; unless indicated otherwise, GHG emissions are the weighted sum of CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 without GHG emissions and removals from LULUCF
GNP	gross national product
GWP	global warming potential
HFCs	hydrofluorocarbons
IDR	in-depth review
IPCC	Intergovernmental Panel on Climate Change
JI	joint implementation
kg	kilogram (1 kg = 1 thousand grams)
km	kilometre
LULUCF	land use, land-use change and forestry
Mg	megagram (1 Mg = 1 tonne)
MSG	macro-sectoral growth
Mt	millions of tonnes
Mtoe	millions of tonnes of oil equivalent
N_2O	nitrous oxide
NC3	third national communication
NC4	fourth national communication
NMI	Norwegian Meteorological Institute
NOK	Norwegian Kroner (1 NOK = 0.16 USD)
ODA	Official Development Assistance
PFCs	perfluorocarbons
PPP	purchasing power parities
RCN	Research Council for Norway
RDP	report demonstrating progress
SF_6	sulphur hexafluoride
SRES	Special Report on Emission Scenarios
Tg	teragram (1 Tg = 1 million tonnes)
toe	tonnes of oil equivalent
TPES	total primary energy supply
TWh	terawatt hours
UNFCCC	United Nations Framework Convention on Climate Change
USD	United States dollars

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