



Norwegian Ministry
of Climate and Environment

Report

Norway's Seventh National Communication

Under the Framework Convention on Climate Change



Table of Contents

1	Executive summary	6
1.1	National Circumstances.....	6
1.2	Greenhouse gas inventory information	8
1.3	Policies and measures	8
1.3.1	Introduction.....	8
1.3.2	Cross-sectoral policies and measures.....	10
1.3.3	Sector specific policies and measures	11
1.4	Projections and the effects of policies and measures and the use of Kyoto Protocol Mechanisms.....	15
1.5	Vulnerability assessment, climate change impacts and adaptation measures.....	16
1.6	Financial resources and transfer of technology	17
1.7	Research and systematic observation	17
1.8	Education, training and public awareness	18
2	National circumstances relevant to greenhouse gas emissions and removals	20
2.1	Government structure	20
2.2	Geographic profile and land use	20
2.3	Population and urban profile.....	30
2.4	Economic profile and industry.....	30
2.5	Petroleum sector	32
2.6	Energy use and electricity production	34
2.7	Transport.....	38
2.8	Agriculture and forestry.....	38
2.9	Fisheries and aquaculture	39
2.10	Manufacturing industries and construction.....	39
3	Greenhouse gas inventory information, including information on national systems and national registries	40
3.1	Descriptive summary	40
3.1.1	Overview	40
3.1.2	Emissions of carbon dioxide (CO ₂).....	44
3.1.3	Emissions of methane (CH ₄)	46
3.1.4	Emissions of nitrous oxide (N ₂ O)	48
3.1.5	Emissions of perfluorochemicals (PFCs)	50
3.1.6	Emissions of sulfur hexafluoride (SF ₆).....	51
3.1.7	Emissions of hydrofluorocarbons (HFCs)	52
3.1.8	International bunkers.....	53
3.2	National systems in accordance with Article 5, paragraph 1, of the Kyoto Protocol	56
3.3	National registry	57
3.3.1	Information on the Union Registry.....	57
3.3.2	Registry administrators – contact information	60
3.3.3	Publicly available information	60
3.3.4	Internet address	60

4	Policies and measures	62
4.1	Polymaking process.....	62
4.1.1	Overview	62
4.1.2	Policy instruments	66
4.1.3	Responsibilities for the different institutions.....	66
4.1.4	Minimisation of adverse impacts in accordance with Articles 2.3 and 3.14 of the Kyoto Protocol	68
4.2	Domestic and regional programmes and/or legislative arrangements and enforcement and administrative procedures.....	69
4.2.1	Domestic and regional legislative arrangements and enforcements	69
4.2.2	Provisions to make information publicly accessible	69
4.3	Policies and measures and their effects.....	69
4.3.1	Introduction.....	69
4.3.2	Cross-sectoral economic policies and measures.....	69
4.3.3	Other Cross-sectoral policies and measures	82
4.3.4	Petroleum Sector	88
4.3.5	Carbon Capture and Storage	94
4.3.6	Energy and transformation industries.....	98
4.3.7	Transport	106
4.3.8	Industry.....	120
4.3.9	Agriculture	128
4.3.10	Land Use, Land Use Change and Forestry.....	134
4.3.11	Waste	140
4.4	Policies and measures no longer in place	142
5	Trends in emissions, projections, the effect of policies and measures and the Kyoto Protocol mechanisms.....	144
5.1	Introduction	144
5.2	Projections.....	144
5.2.1	The baseline scenario.....	144
5.2.2	Uncertainty	153
5.2.3	Other emissions.....	153
5.2.4	Fuel sold to ships and aircraft engaged in international transport.....	156
5.3	Assessment of aggregate effects of policies and measures	156
5.4	Accounting for the Kyoto mechanisms.....	159
5.4.1	First commitment period (2008-2012)	159
5.4.2	Second commitment period (2013-2020)	159
5.5	Supplementarity relating to mechanisms under Articles 6, 12 and 17, of the Kyoto Protocol.....	161
6	Vulnerability assessment, climate change impacts and adaptation measures	162
6.1	Introduction	162
6.2	Climate Change on the Norwegian mainland.....	163

6.3	Vulnerability to climate change and expected impacts on society and nature	169
6.3.1	Introduction.....	169
6.3.2	Nature and ecosystems	170
6.3.3	Human life and health	172
6.3.4	Business and other industry	177
6.4	Adaptation measures.....	179
6.4.1	Domestic adaptation policies and strategies	179
6.4.2	Monitoring, reporting and evaluation	182
6.4.3	Roles and responsibilities	182
6.4.4	Implementations and actions	183
6.5	The Arctic	200
6.5.1	Climate change in the Norwegian Arctic.....	200
6.5.2	Vulnerability to climate change and expected impacts on biodiversity and natural ecosystems.....	203
6.5.3	Vulnerability to climate change and expected impacts on society.....	205
6.5.4	Adaptation measures	205
7	Financial resources and transfer of technology, including information under articles 10 and 11 of the Kyoto protocol.....	210
7.1	Introduction	210
7.2	Provision of 'new and additional' financial resources.....	210
7.2.1	Global Environment Facility.....	211
7.2.2	The Green Climate Fund	211
7.3	Assistance to developing country Parties that are particularly vulnerable to climate change.....	212
7.4	Provision of financial resources, including financial resources under Article 11 of the Kyoto Protocol.....	212
7.4.1	Bilateral Climate Finance	214
7.4.2	Support to multilateral organisations.....	237
7.4.3	The Government of Norway's International Climate and Forest Initiative.....	245
7.4.4	Norwegian assistance to Climate Adaptation	250
7.4.5	Norwegian Assistance to Renewable Energy	251
7.5	Activities related to transfer of technology and capacity building	253
7.5.1	Support to transfer of technology	254
7.5.2	International support and activities related to carbon capture and storage.....	255
8	Research and systematic observation.....	258
8.1	General policy on research and systematic observation	258
8.2	Research and innovation on climate.....	260
8.2.1	Research and innovation programmes under the research council.....	261
8.2.2	Energy technology research, development and demonstration	264
8.2.3	Low Emission Industry – Process21.....	265
8.2.4	Research and observation infrastructure	266

8.3	Norwegian Systematic observation.....	267
8.3.1	Meteorological and atmospheric observations	267
8.3.2	Oceanographic observations	270
8.3.3	Terrestrial observations.....	272
8.3.4	Space based observing programmes.....	276
8.4	Actions taken to support capacity-building related to research and systematic observations in developing countries.....	279
8.5	Opportunities for and barriers to free and open international exchange of data and information	279
9	Education, training and public awareness	282
9.1	Introduction	282
9.2	Education.....	282
9.2.1	Primary and Secondary Education	282
9.3	Information	283
9.3.1	Generation Green – Climate Ambassadors.....	283
9.3.2	The Environmental Information Act.....	283
9.3.3	Public websites	284
9.3.4	Statistics and guidance material to counties and municipalities.....	284
9.4	Consumer information	285
9.5	Public procurement policies	286
9.6	Resource and information centres.....	286
9.7	Science Centers.....	286
9.8	Involvement of the public and non-governmental organisations (NGOs)	287
9.9	Monitoring, review and evaluation of the implementation of article 6 of the convention	287
10	Annexes	288
10.1	Annex I Summary tables on emission trends	288
10.2	Annex II. Summary of reporting of supplementary information under Article 7, paragraph 2, of the Kyoto Protocol, in the NC.....	300
10.3	Annex III Methodology and key macroeconomic assumptions.....	300
10.3.1	Methodology	300
10.3.2	Main differences in projections between current and previous communication	305
10.3.3	Key macroeconomic assumptions.....	306
10.4	Annex IX Norway's Biennial Report under the Framework Convention on Climate Change	309
