

LATVIA

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1. SOURCES OF INFORMATION

Latvia, June 2007, submission under the Monitoring Mechanism.

Latvia's Fourth National Communication under the United Nations Framework Convention on Climate Change, 2006.

Base-year emissions

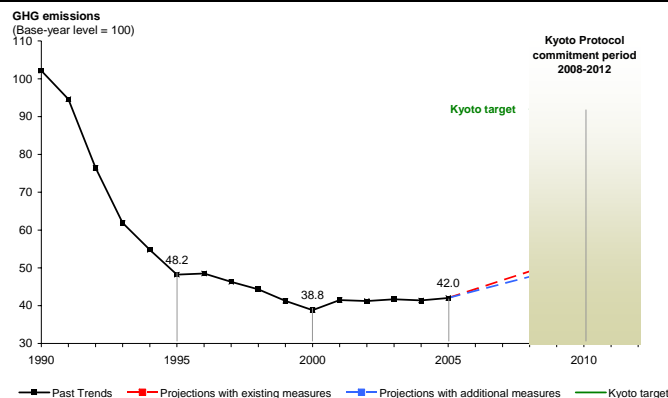
Base-year GHG emissions are calculated using 1990 emissions of carbon dioxide (CO₂), Methane (CH₄) and nitrous oxide (N₂O) and 1995 emissions for fluorinated gases (SF₆, HFCs and PFCs).

Base-year data is as reported by Member States in the sources noted above. Base year data is not consistent with data reported in *The European Community's initial report under the Kyoto Protocol - Report to facilitate the calculation of the assigned amount of the European Community pursuant to Article 3, paragraphs 7 and 8 of the Kyoto Protocol (Submission to the UNFCCC Secretariat)*, EEA Technical report No 10/2006. This data is currently undergoing a review procedure by UNFCCC and is therefore subject to change.

2. SUMMARY

LATVIA

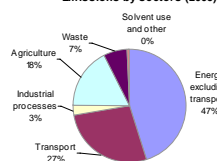
Emissions base year (initial report)	25.9 Mt
Emissions 2005	10.9 Mt
Emissions base year (for projections)	25.3 Mt
Projections 2010 with existing measures	13.6 Mt
Projections 2010 with additional measures	13.0 Mt
Kyoto target (absolute)	23.8 Mt
Kyoto target (% from base year)	- 8.0 %
Change base year to 2005	- 58.0 %
Change 2004-05	+ 1.5 %
Change base year to 2010 with existing measures	- 46.2 %
Change base year to 2010 with additional measures	- 48.6 %
Distance to linear target path 2005	- 52.0 percentage points
Use of Kyoto mechanisms	n.a.
Sinks (Articles 3.3 and 3.4)	n.a.
Emissions in 1990 (Article 3.7)	n.a.



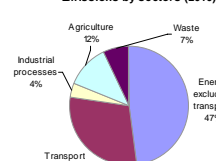
Past emissions: Latvia's GHG emissions were 1.5 % above those of 2004 and 58.0 % below base-year levels in 2005. Between 2004 and 2005, the highest emission increases are reported from manufacturing industries, transport and agriculture. For the decreases between 1990 and 2005, falling fuel consumption in all major energy-related sources was mainly responsible. Emissions from transport decreased in the beginning but after 2000 started to increase. In 2005 they are at about base year levels. Emissions from waste also increased.

Emission projections: Latvia will be below the Kyoto target in their projections and will be at about half of their base year emissions. But total emissions are projected to increase after 2005. The highest increase is projected for transport.

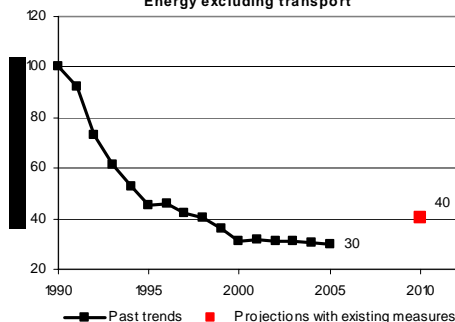
Emissions by sectors (2005)



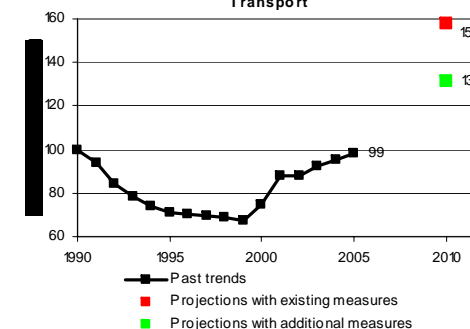
Emissions by sectors (2010)



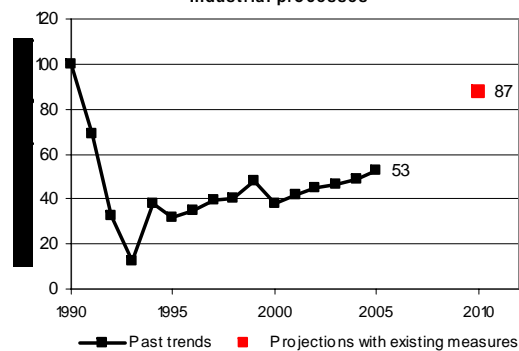
Energy excluding transport



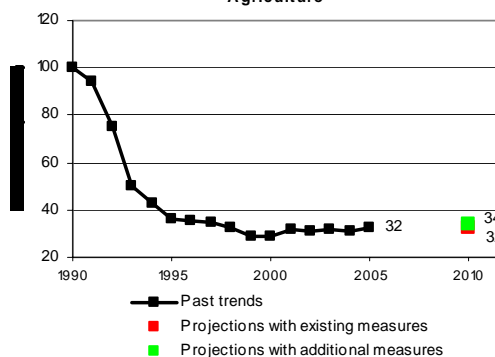
Transport



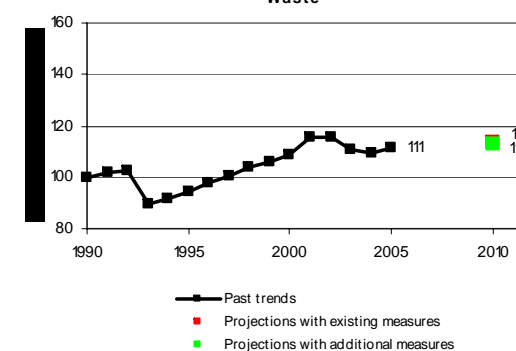
Industrial processes



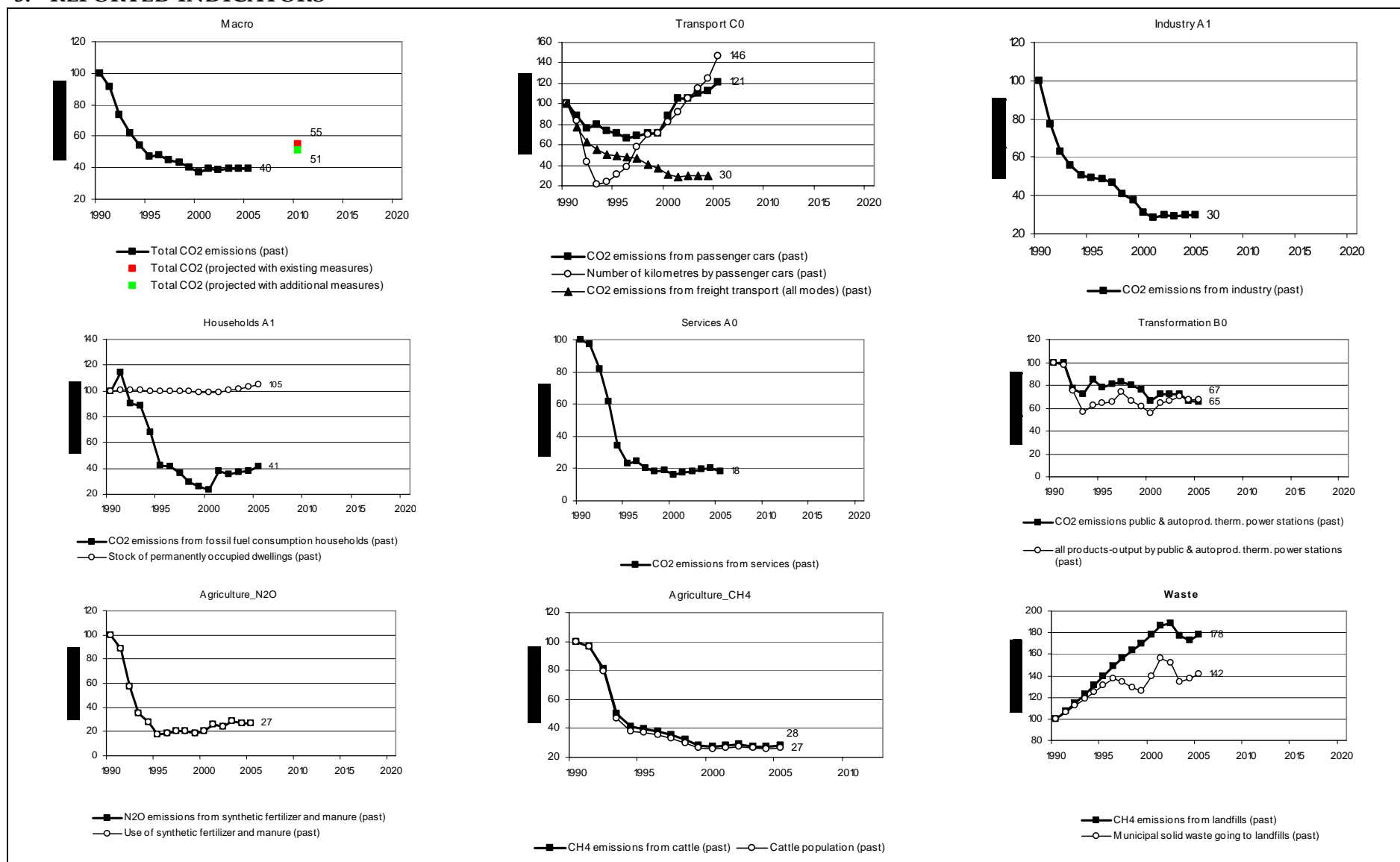
Agriculture



Waste



3. REPORTED INDICATORS



4. OVERVIEW OF CCPM IMPLEMENTATION IN MEMBER STATE

Table 1. Information provided on the implementation of policies and measures

Sector	CCPM	Status
Cross-cutting	Emissions trading 2003/87/EC	N
Cross-cutting	Kyoto Protocol project mechanisms 2004/101/EC	
Cross-cutting	Integrated pollution prevention and control 96/61/EC	
Energy supply	Promotion of cogeneration 2004/8/EC	N
Energy supply	Taxation of energy products 2003/96/EC	N
Energy supply	Internal electricity market 2003/54/EC	R
Energy supply	Promotion of electricity from RE sources 2001/77/EC	R
Energy supply	Internal market in natural gas 98/30/EC	
Energy supply	Emissions from large combustion plants 88/609/EEC	
Energy consumption	Directives on energy labelling of appliances	N
Energy consumption	End-use efficiency and energy services 2006/32/EC	
Energy consumption	Ecodesign requirements for energy-using products 2005/32/EC	
Energy consumption	Energy performance of buildings 2002/91/EC	N
Energy consumption	Eco-management & audit scheme (EMAS) EC 761/2001	N
Energy consumption	Energy-efficiency labelling for office equipment Regulation No. 2422/2001	
Energy consumption	Efficiency fluorescent lighting 2000/55/EC	
Energy consumption	Efficiency of hot water boilers 92/42/EEC	N
Transport	Environmental performance freight transport (Marco Polo Programme)	
Transport	Motor challenge, voluntary EC programme	
Transport	Promotion of biofuels for transport 2003/30/EC	N
Transport	Integrated European railway area (2 nd + 3rd Railway package) (COM(2002)18 final)	
Transport	Transport modal shift to rail 2001/12/EC etc.	N
Transport	Consumer information on cars 1999/94/EC	N
Transport	Agreement with car manufacturers ACEA etc.	
Industrial Process	F-gas regulation (Regulation No 842/2006)	
Industrial Process	HFC emissions from air conditioning in motor vehicles 2006/40/EC	
Agriculture	Support under CAP (1782/2003)	N
Agriculture	Support under CAP - amendment (1783/2003)	R
Agriculture	Nitrates 91/676/EEC	
Agriculture	Transition to rural development support No 2603/1999	
Agriculture	Agricultural production methods compatible with environment Regulation (EEC) No 2078/92	
Agriculture	Aid scheme for forestry measures in agriculture (Regulation (EEC) No 2080/92)	
Agriculture	Emission by engines to power agricultural or forestry 2000/25/EC	
Agriculture	Pre-accession measures for agriculture and rural development Regulation (EC) No 1268/1999	
Waste	Directive on waste 2006/12/EC	
Waste	Landfill directive 1999/31/EC	N
Waste	Packaging and packaging waste (Directive 94/62/EC, 2004/12/EC, 2005/20/EC)	

Legend

New national PAM implemented after CCPM was adopted	N
Existing national PAM re-enforced by CCPM	R
National PAM already in force before CCPM was adopted	B
Not reported	

Source: MS responses to the CCPMs questionnaire, 2005. Personal communications.

5. COMPLETENESS OF REPORTING

The report submitted under the Monitoring mechanism in June 2007 provides a list of policies and measures to reduce greenhouse gas emissions in a range of sectors. The impact of the measures has not been quantified. The figures are presented for one scenario, it is not clear from the text if this is “with measures” (WM) or “with additional measures” (WAM). It was assumed that “adopted” and “implemented” means WM, also when there was nothing indicated it was listed as WM. PaMs under term “planning” were listed among WAM.

Table 2. Information provided on policies and measures

Information provided	Level of information provided	Comments
Policy names	+++	
Objectives of policies	+++	
Which greenhouse gases?	++	CO ₂ , CH ₄ , N ₂ O
Status of Implementation	++	Information is missing in some cases
Implementation body specified	+++	In most cases
Quantitative assessment of implementation	o	
Interaction with other policies and measures discussed	++	In some cases

Table 3. Information provided on projections

Category of Information	Level of information provided	Comments
Scenarios considered	With measures With additional measures	Scenarios are given for sectors corresponding with IPCC sectors and gases.
Expressed relative to base year	No	
Starting year	1999	Not clear from the text
Split of projections	2000,2005,2010,2015,2020	Projections split by IPCC main sectors and gases.
Presentation of results	+++	Results presented in tabular form
Description of model (level of detail, approach and assumptions)	++	Basic description of the models provided
Sensitivity analysis (key inputs to model / high, central and low projections scenarios / robustness of model)	No information	

Discussion of uncertainty	no	
Details of parameters and assumptions	+++	Information on type of indicators used in scenarios provided

+, ++, +++ level of information available increases as the number of + signs increases

No new information is provided in 2007, Table 3 refers to the information provided in the 4th National Communication.

6. ASSESSMENT OF POLICIES AND MEASURES

Priorities of the policy of environment protection in Latvia are set forth in the Declaration on the Planned Action of the Cabinet of Ministers and implemented in the preparatory work for accession to the European Union. The government of Latvia in the Declaration of the Planned Action has taken the commitment to continue work started by the previous governments. The goal is to accelerate the overall development of the country reaching the stage when improvement of macroeconomic indicators results in higher levels of welfare of each resident of Latvia. To reach the goals established by the government in the area of environmental protection, particular attention is devoted to:

- investment projects in the area of: household waste;
- potable water and urban wastewater;
- elimination of hazardous waste and creation of the system of final disposal;
- promotion of the development of environmental projects and their implementation in the private sector;
- implementation of the integrated approach to pollution elimination and control; waste management and packaging;
- implementation of the National Program on Biological Diversity;
- further development of the monitoring system of environment protection in line with the respective EU provisions, and
- development of environment education and environment communication program

Questions related to climate change are addressed by MoE, Latvian Environment, Geology and Meteorology Agency, SHMB, Ministry of Economy, Ministry of Finance and Energy Department of the Latvian Development Agency (LDA ED).

GHG emission reduction is not the primary objective of the measures described in the Chapter on Policies and Measures but is rather a side effect of their implementation. Development scenarios of the sector cover only those activities where it was possible to evaluate the impact on GHG. Knowing that the majority of measures do not have an effect on CO₂ emissions, the impact of all measures is expressed on the CO₂ equivalent basis. The aggregate effect of implementation of measures was estimated as the sum of outcomes of all measures in the presented table.

Table 4. Summary of the effect of policies and measures included in the 2010 projections (Mt CO₂-eq.)

	With measures	With additional measures
Energy (total, excluding transport)	NE	0.0
Energy supply	NE	NE
Energy – industry, construction	NE	NE
Energy – other (commercial, residential, agriculture)	NE	NE
Transport (energy)	NE	0.7
Industrial processes	NE	0.0
Waste	NE	0.0
Agriculture	NE	-0.1
Cross-sectoral	NE	NE
Total (excluding LULUCF)	NE	0.6

Note: The effect of policies implemented or adopted is derived from the difference between the 'with measures' and the 'with additional measures' scenario.

Table 5. Detailed information on policies and measures

NOTE: There are no WM and WAM indicated, so implemented, adopted PaMs are listed under WM, and planned PaMs are listed among WAM

When there is no status indicated at all, it is also listed under WM.

Policies and measures in the “with measures” projection

Sector	Name	Objective	Type of GHG affected	Type of instrument	Status	Implementing entity	Estimated savings (MtCO ₂ -eq.)		Related CCPM
							2010	2020	
Cross-cutting	Implementation of the EU Emissions Trading Scheme		CO ₂	economic	implemented	National Government			Cross-cut: Emissions trading scheme (Dir 2003/87/EC)
Cross-cutting	Active participation in Joint Implementation projects	Attract financial resources for GHG emissions reducing investment projects	All GHG	Voluntary/negotiated agreement	implemented	National Government			
Cross-cutting	Natural Resources Tax		All GHG	fiscal	implemented	National Government			
Cross-cutting	Law on pollution		CO ₂	regulatory	implemented	National Government			
Cross-cutting	Promote the implementation of environmental and energy management systems	By receiving international ISO 14001 certificates or registering in EU EMAS to maintain compliance with particular management standards, ensuring environmentally friendly operation	All GHG	Regulatory Voluntary/negotiated agreement	implemented	Companies / Businesses / industrial associations			
Energy supply	Promotion of biomass use	To increase share of wood in the fuel	CH ₄ CO ₂	Economic Information	implemented	Municipalities / local governments			

Sector	Name	Objective	Type of GHG affected	Type of instrument	Status	Implementing entity	Estimated savings (MtCO ₂ -eq.)		Related CCPM
							2010	2020	
		balance earmarked for district heating	N2O	Regulatory					
Energy supply	Support for energy generation in small hydropower plants	Increase the share of renewable sources in the energy balance	CO2 N2O	economic	implemented	Companies / Businesses / industrial associations			En. supply: Electricity production from renewable energy sources (Dir 2001/77/EC)
Energy supply	Support for wind energy production	Increase the share of renewable sources in the energy balance	CO2 N2O	Economic Research	implemented	Companies / Businesses / industrial associations			En. supply: Electricity production from renewable energy sources (Dir 2001/77/EC)
Energy supply	Law on Energy" (03.09.1998)	Establishment of minimal purchase prices for renewable energies by energy utilities		economic	implemented	National Government			
Energy supply	Amendments to the law "On Energy" (10.05.2001)	Promotion of renewables and regulation regarding district heating	CO2	Economic Regulatory	implemented	National Government			
Energy supply	Promotion of biogas use		CH ₄ CO ₂ N ₂ O	Economic Information Regulatory	implemented	National Government Municipalities / local governments			
Energy supply	Promotion of solar energy use	Increase the share of renewable sources in the energy balance	CO2 N2O	Economic Information	implemented	Research institutions			En. supply: Electricity production from renewable

Sector	Name	Objective	Type of GHG affected	Type of instrument	Status	Implementing entity	Estimated savings (MtCO ₂ -eq.)		Related CCPM
							2010	2020	
									energy sources (Dir 2001/77/EC)
Energy supply	Support the construction of combined heat and power generation plants and energy efficiency projects	More effective use of fuel, simultaneously producing heat and power	CH ₄ CO ₂ N ₂ O	Economic Information Regulatory	Support – planned; energy efficiency implemented	National Government Municipalities / local governments			En. supply: Promotion of cogeneration (Dir 2004/8/EC)
Energy consumption	Support for energy efficiency projects in thermal energy generation and transmission	More effective use of fuel, simultaneously producing heat and electricity, reducing energy loss and emissions	CO ₂ CH ₄ N ₂ O	Economic Information		National Government Municipalities / local governments			
Energy consumption	Support of projects improving energy performance of buildings	Involving end.users to increase energy performance of buildings, thus reducing nergy consumption and the amount of emissions	CO ₂	Information regulatory	implemented	National Government Companies / Businesses / industrial associations			En. consumption: Energy performance of buildings (Dir 2002/91/EC)
Energy consumption	Regulations for labelling of household air conditioners, electric bulbs, dish washing machines, washing machines, drying machines, refrigerators, freezers and	Reducing energy consumption in households	CO ₂	regulatory	implemented	National Government			

Sector	Name	Objective	Type of GHG affected	Type of instrument	Status	Implementing entity	Estimated savings (MtCO ₂ -eq.)		Related CCPM
							2010	2020	
	ovens								
Transport	Improvement of the public transport system in Riga	To improve public transport systems	CO2 N2O	Economic Information	adopted	Municipalities / local governments			
Transport	Development of cycling	To include cycling transport in the general transport system of Riga	CO2 N2O	Economic Information	adopted	Municipalities / local governments			
Transport	Creation of environmentally friendly transport system	Development of transport infrastructure, optimisation of transport types and flows	CO2	Economic	adopted	National Government			
Transport	Optimisation of the traffic flow in cities	To improve the penetrability of streets, provide a comfortable, safe and competitive public transport system	CO2 N2O CH4	Economic Regulatory Information	adopted	National Government Regional Entities			
Industrial Processes	Promote the implementation of best available techniques (BAT), environmentally friendly technologies and cleaner production	Promote the implementation of best available technologies and cleaner production	CO2	Economic Information Regulatory	Implemented	National Government Municipalities / local governments Companies / Businesses / industrial associations			IND: Directive 96/61/EC, IPPC Directive
Agriculture	Sustainable use of agricultural resources	To preserve and improve the environmental and natural resources for sustainable	CH4 N2O CO2	Economic Information Voluntary/negotiated agreement	adopted	National Government Municipalities / local governments Companies / Businesses /			AGR: Council Regulation (EC) No 1268/1999 of 21 June 1999

Sector	Name	Objective	Type of GHG affected	Type of instrument	Status	Implementing entity	Estimated savings (MtCO ₂ -eq.)		Related CCPM
							2010	2020	
		agricultural production				industrial associations			on Community support for pre-accession measures for agriculture and rural development in the applicant countries of central and eastern Europe in the pre- accession period (Rural Development Plan)
Agriculture	Development of environmentally friendly agriculture and promotion of Good agricultural practices	To preserve and improve the environmental and natural resources for sustainable agricultural production	CH ₄ N ₂ O CO ₂	Economic Regulatory	adopted	National Government Regional Entities Companies / Businesses / industrial associations			
Forestry	Increase in forest stand productivity	Increase CO ₂ removals, provide woodworking industry and energy sector with raw material	CO ₂	Information Regulatory	implemented	National Government Municipalities / local governments			
Forestry	Afforestation of unmanaged agricultural land	Increase CO ₂ removals, provide woodworking industry and energy sector with raw material	CO ₂	regulatory	implemented	National Government			
Waste	Processing biologically	To reduce by 2020 the amount of	CH ₄ CO ₂	Economic Information	implemented	National Government Municipalities / local			Waste: Landfill Directive (Dir

Sector	Name	Objective	Type of GHG affected	Type of instrument	Status	Implementing entity	Estimated savings (MtCO ₂ -eq.)		Related CCPM
							2010	2020	
	degradable waste	biodegradable waste for disposal by 35% of the amount of biodegradable waste for disposal in 1995; increase National Government Municipalities / local governments the share of biodegradable waste recovery (recycling and energy recovery)		Regulatory		governments			1999/31/EC)
Waste	Collection of biogas from municipal waste landfills	Reduce GHG emissions in the atmosphere, at the same time generate heat energy or electricity - rational use of natural resources	CH4	Economic Information Regulatory	implemented	Municipalities / local governments Companies / Businesses / industrial associations			Waste: Landfill Directive (Dir 1999/31/EC)
Waste	Restoration of small municipal dumpsites not meeting environmental requirements	Closing of existing dumpsites by 2009 and their complete restoration by 2012	CH4	Information Regulatory	other	Regional Entities Municipalities / local governments			
Waste	Law on waste management	Prevention of waste generation, recycling for material and energy recovery, close and restore existing dumpsites and establish new municipal waste landfills.	CH4	regulatory	implemented	National Government			

Sector	Name	Objective	Type of GHG affected	Type of instrument	Status	Implementing entity	Estimated savings (MtCO ₂ -eq.)		Related CCPM
							2010	2020	
Waste	National Plan for waste management (2006-2012)	Prevention of waste generation, reduction of the volume and harmfulness of waste, recycling for material and energy recovery, safe and environmentally friendly disposal, close and restore existing dumpsites and establish new municipal waste landfills.	CH4	regulatory	implemented	National Government			

Policies and measures in the “with additional measures” projection

Sector	Name	Objective	Type of GHG affected	Type of instrument	Status	Implementing entity	Estimated savings (MtCO ₂ -eq.)		Related CCPM
							2010	2020	
Cross-cutting	Participation in Kyoto protocol flexible mechanisms	To facilitate global climate change mitigation efforts, attract investment for projects reducing GHG	All GHG	Voluntary/negotiated agreement	planned	National Government			
Cross-cutting	Promote the implementation of environmental and energy management systems		CH4; CO2; HFCs; N2O; PFCs; SF6	Regulatory; voluntary/negotiated agreement	planned				
Agriculture	Improving an	reduction of water	CH4	regulatory	planned	National Government			Agri: Nitrates

Sector	Name	Objective	Type of GHG affected	Type of instrument	Status	Implementing entity	Estimated savings (MtCO ₂ -eq.)		Related CCPM
							2010	2020	
	construction of manure storage facilities	pollution, improved manure management	N2O						Directive (Dir 91/676/EEC)
LULUCF	Increase in forest stand productivity		CO2	Regulatory; Information	implemented				
LULUCF	Afforestation of unmanaged agricultural land		CO2	Regulatory	implemented				

Source: Öko Institut, (accessed June 2007) Policies and Measures database, <http://www.oeko.de/service/pam/index.php>

7. EVALUATION OF PROJECTIONS

The national communication presents a more detailed description of one development scenario or the *scenario "with measures"* compared to the scenario *"without measures"* or the baseline scenario. The scenario *"with measures"* is based on the long-term economic development forecast for the time period of 2000 till 2020. This projection is the base of modeling future path of GHG emissions in key sectors of economic activity.

Updated projections were provided in the report submitted under the Monitoring Mechanism in June 2005. The report does not include descriptions of assumptions or methodology for projections (models). The data in tables 5-7 are based on that report.

Table 6: Summary of projections by gas in 2010 (MtCO₂ equivalent)

	Base year	with measures	with additional measures
Carbon dioxide (excl. LULUCF)	18.7	10.4	9.7
Methane	3.6	2.0	2.0
Nitrous oxide	3.0	1.2	1.3
F-gases	0.001	0.017	0.017
Total (excl. LULUCF)	25.3	13.7	13.0
% change relative to base year (excl. LULUCF)		-46,1%	-48,6%

*The base year for F-gases is 1995, for all the other gases 1990

Table 7. Summary of projections (6 gas basket) by sector in 2010 (Mt CO₂-eq.)

	Base-year	with measures	% change relative to base-year	with additional measures	% change relative to base-year
Energy (total, excluding transport)	16.2	6.5	-60%	6.5	-60%
Energy supply	NE	NE		NE	
Energy – industry, construction	NE	NE		NE	
Energy – other (commercial, residential, agriculture)	NE	NE		NE	
Transport (energy)	2.5	4.0	58%	3.3	32%
Industrial processes	0.6	0.5	-17%	0.5	-17%
Waste	0.8	0.9	14%	0.9	13%
Agriculture	5.2	1.7	-68%	1.7	-66%
Total (excl. LULUCF)	25.3	13.6	46%	13.0	49%

Table 8. Summary of projections by sector and by gas in 2010 (Mt CO₂-eq.) compared to base-year emissions

	Carbon dioxide			Methane			Nitrous oxide			F-gases (SF ₆ , 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)	15.600	6.106	6.059	0.530	0.361	0.361	0.087	0.071	0.074	0.000	0.000	0.000
Transport (energy)	2.445	3.828	3.181	0.014	0.020	0.017	0.081	0.155	0.143	0.000	0.000	0.000
Industrial processes	0.504	0.317	0.317	0.000	0.000	0.000	0.508	0.000	0.000	0.001	0.017	0.017
Waste	0.106	0.190	0.190	0.000	0.000	0.000	0.000	0.006	0.006	0.000	0.000	0.000
Agriculture	0.000	0.000	0.000	0.766	0.885	0.876	0.056	0.047	0.047	0.000	0.000	0.000
Total (excl. LULUCF)	0.000	0.000	0.000	2.337	0.708	0.743	2.824	0.955	0.995	0.000	0.000	0.000
	18.654	10.442	9.747	3.647	1.975	1.998	3.555	1.234	1.265	0.001	0.017	0.017

Figure 1. Share by sector of 2010 greenhouse gas emissions according to the "With existing measures" projections

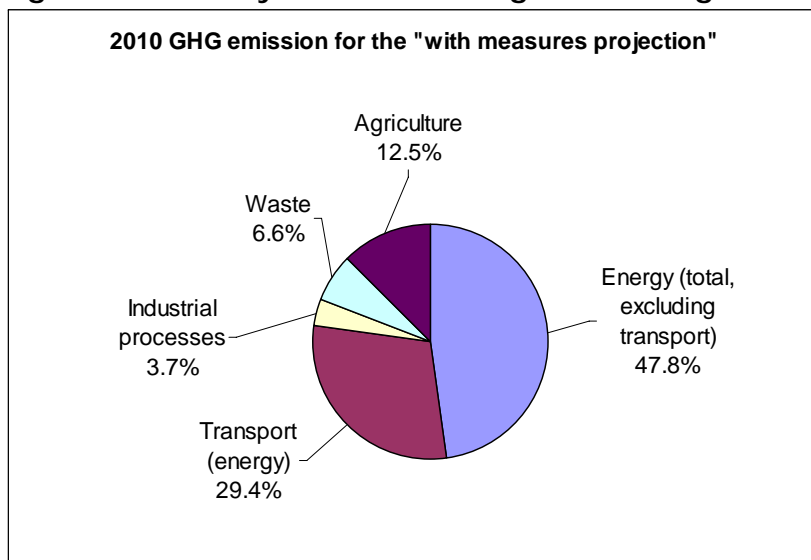


Table 9. Summary of projections (6 gas basket) in 2010, 2015 and 2020 (Mt CO₂-eq.)

	Base-year*	2010	2010 % of base-year level	2015	2015 % of base-year level	2020	2020 % of base-year level
Total (excl. LULUCF)	25.3	13	51.38%	14.86	58.7	16.58	65.5

Base year is 1990 for all gases, except 1995 for F gases

Source is Latvia's Fourth National Communication under the United Nations Framework Convention on Climate Change, 2006. WAM scenario was considered.

Table 10. Assessment of the target (6 gas basket), with a comparison of 2010 projections in 2005, 2006 and 2007 national reports

	Emissions in MtCO ₂ -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	25.300	25.300	25.300	100%
Kyoto Commitment/burden sharing	23.276	23.276	23.276	-8%
With existing P&Ms projections	13.700	13.700	13.700	53.9%
Gap (-ve means overachievement of target)	-9.576	-9.576	-9.576	-38.1%
With additional P&Ms projections	13.000	13.000	13.000	51.46%
Remaining gap	-10.276	-10.276	-10.276	-40.6%
Effect of flexible mechanisms	0.000	0.000	0.000	0.0%
Remaining gap (with use of flexible mechanisms)	-10.000	-10.000	-10.276	-40.6%

Above table excludes LULUCF. LULUCF will be covered in the main report, based on the questionnaire submissions

Sources for 2005 and 2006 data are Latvia's Fourth National Communication under the United Nations Framework Convention on Climate Change, 2006. No official data from 2007. New projections are planned to make.

* Base year data is not consistent with data reported in *The European Community's initial report under the Kyoto Protocol - Report to facilitate the calculation of the assigned amount of the European Community pursuant to Article 3, paragraphs 7 and 8 of the Kyoto Protocol (Submission to the UNFCCC Secretariat)*, EEA Technical report No 10/2006 (23.894 MtCO₂-eq). This data is currently undergoing a review procedure by UNFCCC and is therefore subject to change.

Table 11. Comparison with projections for the trading sector (EU ETS)

There is no detailed sectoral distribution of projection. Source is NC4 and NAP2 submitted by Latvia. Figures are in Mt CO₂-eq.

	NC4	NAP 2 projections	Difference
Energy sector	9.934 ^a		
Energy sector included in EU ETS	6.106 ^b	2.984	- 51.1 %
Industry sector	0.317 ^c		
Industry sector included in EU ETS	0.317	1.051	231.5 %
Total Energy & Industry	10.251	6.935*	- 32.3 %

*The figure shows cap including reserves. The proposed cap was not approved. The EC adopted 3.3 Mt CO₂ annually.

Energy use from industry is normally included in the energy sector for projections under the UNFCCC and included in the industry sector for NAP 2 projections. Due to these and other differences in the sector definitions projections for the individual sectors might not be comparable.

^a CO₂ emission from total energy sector in 2010 including transport sector (WM scenario)

^b CO₂ emission from energy sector in 2010 excluding transport sector (WM scenario)

^c CO₂ emission from industry and solvents in 2010

8. DESCRIPTION OF MODELLING APPROACH

Overview of modelling approach

According to the Fourth National Communication (2006), development of projections of energy sector were assessed with the MARKAL optimization model. Scenarios in industrial processes include CO₂ and F-gases. Scenarios in agricultural sector are based on national rural development program SAPARD. Projections of CO₂ sinks in Forestry and land use are primarily focused on increase of forest area and decrease of annual harvest between 2005 and 2020. In the waste sector it is expected that permanent waste production per resident, after year 2015 to unmanaged landfills, will no longer exist.

New projections are planned to make.

Sensitivity analysis

No information provided.

Details of the uncertainty assessment

No information provided.

9. PROJECTION INDICATOR REPORTING

No information provided.

10. REPORTING OF PARAMETERS ON PROJECTIONS

No information provided.

Table 12. Indicators for projections to monitor and evaluate progress with policies and measures (2005/166/EC) Annex III

N°	Eurostat Sectors	Indicator	2005 2010 2015 2020				Numerator/denominator	2005 2010 2015 2020			
1	Macro	CO ₂ intensity of GDP, t/Euro million					Total CO ₂ emissions, kt GDP, bio Euro (EC95)				
2	Transport C0	CO ₂ emissions from passenger cars, kt Number of kilometres by passenger cars, Mkm									
3	Transport D0	CO ₂ emissions from freight transport (all modes), kt Freight transport (all modes), Mtkm									
4	Industry A1	Energy related CO ₂ intensity of industry, t/Euro million					CO ₂ emissions from fuel consumption industry, kt Gross value-added total industry, Bio Euro (EC 95)				
5	Households A1	Specific CO ₂ emissions of households, t/dwelling					CO ₂ emissions from fossil fuel consumption households, kt Stock of permanently occupied dwellings, 1000				
6	Services A0	CO ₂ intensity of the services sector, t/Euro million					CO ₂ emissions from fossil fuel consumption services, kt gross value-added services, bio Euro (EC95)				
7	Transformation B0	Specific CO ₂ emissions of public and autoproducer power plants, t/TJ					CO ₂ emissions from public and autoproducer thermal power stations, kt all products-output by public and autoproducer thermal power stations, PJ				
8	Agriculture	Specific N ₂ O emissions of fertilizer and manure use, kg/kg					N ₂ O emissions from synthetic fertilizer and manure use, kt use of synthetic fertiliser and manure, kt nitrogen				
9	Agriculture	Specific CH ₄ emissions of cattle production, kg/head					CH ₄ emissions from cattle, kt cattle populations, 1000 head				
10	Waste	Specific CH ₄ emissions from landfills, kt/kt					CH ₄ emissions from landfills, kt				

								Municipal solid waste going to landfills, kt									
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Table 13. List of parameters on projections (Annex IV of Implementing Provisions¹)

1. Mandatory parameters on projections	2005	2010	2015	2020
Assumptions for general economic parameters				
GDP (value at given years or annual growth rate and base year)				
Population (value at given years or annual growth rate and base year)				
International coal prices at given years in Euro per tonne or GJ (Gigajoule)				
International oil prices at given years in Euro per barrel or GJ				
International gas prices at given years in Euro per m3 or GJ				
Assumptions for the energy sector				
Total gross inland consumption (PJ) (split by oil, gas, coal, renewables, nuclear, other)				
Total electricity production by fuel type (oil, gas, coal, renewables, nuclear, other)				
Energy demand by sector split by fuel (delivered)				
Assumptions on weather parameters, especially heating or cooling degree days				
Assumptions for the industry sector				
<i>For Member States using macroeconomic models:</i>				
The share of the industrial sector in GDP and growth rate				
<i>For Member States using other models:</i>				
The production index for industrial sector				
Assumptions for the transport sector				
<i>For Member States using macroeconomic models:</i>				
The growth of transport relative to GDP				
<i>For Member States using other models:</i>				
The growth of passenger person kilometres				
The growth of freight tonne kilometres				
Assumptions for buildings (in residential and commercial or tertiary sector)				
<i>For Member States using macroeconomic models:</i>				
The level of private consumption (excluding private transport)				
The share of the tertiary sector in GDP and the growth rate				
<i>For Member States using other models:</i>				
The rate of change of floor space for tertiary buildings and dwellings				
The number of dwellings and number of employees in the tertiary sector				
Assumptions in the agriculture sector				
<i>For Member States using macroeconomic models:</i>				
The share of the agriculture sector in GDP and relative growth				
<i>For Member States using other models:</i>				
Livestock numbers by animal type (for enteric fermentation beef, cows, sheep, for manure management pigs and poultry)				
The area of crops by crop type				
Emissions factors by type of livestock for enteric fermentation and manure management (t)				
Assumptions in the waste sector				
Waste generation per head of population or tonnes of municipal solid waste				
The organic fractions of municipal solid waste				
Municipal solid waste disposed to landfills, incinerated or				

¹ Commission Decision of 10 February 2005 laying down rules implementing Decision No 280/2004/EC of the European Parliament and of the Council concerning a mechanism for monitoring Community greenhouse gas emissions and for implementing the Kyoto Protocol

1. Mandatory parameters on projections	2005	2010	2015	2020
composted (in tonnes or %)				
Assumptions in the forestry sector				
Forest definitions				
Areas of:				
managed forests				
unmanaged forests				

2. Recommended parameters on projections	2005	2010	2015	2020
Assumptions for general economic parameters				
GDP growth rates split by industrial sectors in relation to 2000				
Comparison projected data with official forecasts				
Assumptions for the energy sector				
National coal, oil and gas energy prices per sector (including taxes)				
National electricity prices per sector as above (may be model output)				
Total production of district heating by fuel type				
Assumptions for the industry sector				
Assumptions fluorinated gases:				
Aluminium production and emissions factors				
Magnesium production and emissions factors				
Foam production and emissions factors				
Stock of refrigerant and leakage rates				
<i>For Member States using macroeconomic models:</i>				
Share of GDP for different sectors and growth rates				
Rate of improvement of energy intensity (1990 = 100)				
<i>For Member States using other models:</i>				
Index of production for different sectors				
Rate of improvement or index of energy efficiency				
Assumptions for buildings (in residential and commercial / tertiary sector)				
<i>For Member States using macroeconomic models:</i>				
Share of tertiary and household sectors in GDP				
Rate of improvement of energy intensity				
<i>For Member States using other models:</i>				
Number of households				
Number of new buildings				
Rate of improvement of energy efficiency (1990 = 100)				
Assumptions for the transport sector				
<i>For Member States using econometric models:</i>				
Growth of transport relative to GDP split by passenger and freight				
Improvements in energy efficiency split by vehicle type				
Improvements in energy efficiency split by vehicle type, whole fleet/new cars				
Rate of change of modal split (passenger and freight)				
Growth of passenger road kilometres				
Growth of passenger rail kilometres				
Growth of passenger aviation kilometres				
Growth of freight tonne kilometres on road				
Growth of freight tonne kilometres by rail				
Growth of freight tonne kilometres by navigation				

2. Recommended parameters on projections	2005	2010	2015	2020
Assumptions for the agriculture sector				
<i>For Member States using econometric models:</i>				
Agricultural trade (import/export)				
Domestic consumption (e.g. milk/beef consumption)				
<i>For Member States using other models:</i>				
Development of area of crops, grassland, arable, set-aside, conversion to forests etc				
Macroeconomic assumptions behind projections of agricultural activity				
Description of livestock (e.g. by nutrient balance, output/animal production, milk production)				
Development of farming types (e.g. intensive conventional, organic farming)				
Distribution of housing/grazing systems and housing/grazing period				
Parameters of fertiliser regime:				
Details of fertiliser use (type of fertiliser, timing of application, inorganic/organic ratio)				
Volatilisation rate of ammonia, following spreading of manure on the soil				
Efficiency of manure use				
Parameters of manure management system:				
Distribution of storage facilities (e.g. with or without cover):				
Nitrogen excretion rate of manures				
Methods of application of manure				
Extent of introduction of control measures (storage systems, manure application), use of best available techniques				
Parameters related to nitrous oxide emissions from agricultural soils				
Amount of manure treatment				

No parameters on projections were reported.

11. COUNTRY CONCLUSIONS

The main document used for this summary was the Fourth National Communication of Latvia submitted in 2006. The key policies and measures are summarized in several tables. Description of scenarios is limited and not very transparent.

The projected decrease from the base year with measures implemented and adopted is -46.1% in the basket of GHGs by 2010, excluding sinks. The “with additional measures” scenario yields reduction by 48.6% in 2010*. Projection data might change after having completed the new projections.

* GHG emissions have been recalculated since the NC4 was completed. Differences between submissions 2006 and 2007 appear because in the submission 2007 some improvements were included, but after the inventory review process done by UNFCCC emissions will be changed. According to the latest calculations the current total GHG emission is about 59% below the base year emissions. Latvia plans to make new projections.