

# Climate Scorecard Sweden



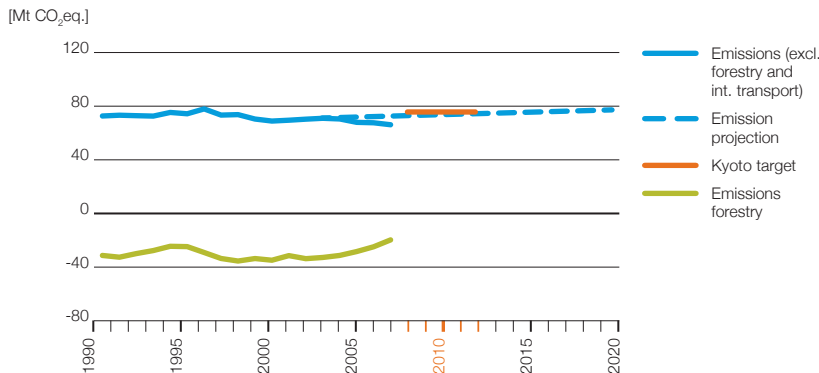
## SUMMARY EVALUATION

- » Emissions relatively low compared to other developed countries due to use of hydropower, biomass and nuclear energy (which WWF does not consider a viable policy option)
- » Significant increase in use of renewable energy (biomass)
- » Comprehensive national climate policy going beyond the EU requirements, but to a large extent through the use of Clean Development Mechanism rather than domestic reductions



## EMISSIONS AND ENERGY

### EMISSION TRENDS



Past emission trend from 1990 to 2007 **-9.1%** ●

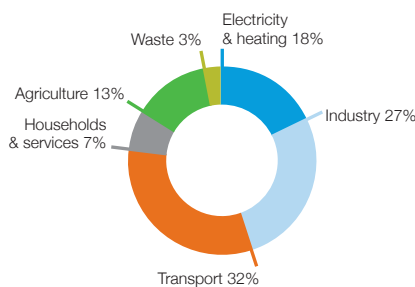
Current (2007) distance to the Kyoto target **-13.2%-points** ●

Increase of the share of renewable energy sources **+4.8%-points** ●

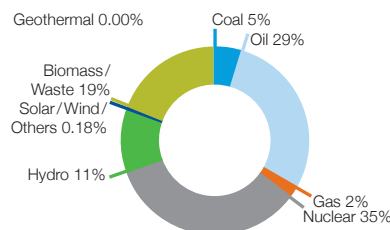
Emissions per capita **10<sup>1</sup> tCO<sub>2</sub>eq./cap** ●

Emissions per GDP **288<sup>1</sup> tCO<sub>2</sub>eq./M\$** ●

### EMISSIONS BY SECTOR



### ENERGY SOURCES



CO<sub>2</sub> per kWh electricity **212<sup>1</sup> gCO<sub>2</sub>/kWh** ●

Energy efficiency in industry **1.4** ●

Emissions in transport per capita **2.3 tCO<sub>2</sub>eq./cap** ●

Emissions in households and services per capita **0.5 tCO<sub>2</sub>eq./cap** ●

<sup>1</sup> WWF does not consider nuclear power to be a viable policy option. The indicators "emissions per capita", "emissions per GDP" and "CO<sub>2</sub> per kWh electricity" for all countries have therefore been adjusted as if the generation of electricity from nuclear power had produced 350 gCO<sub>2</sub>/kWh (emission factor for natural gas). Without the adjustment, the original indicators for Sweden would have been much lower, e.g. 47 gCO<sub>2</sub>/kWh.

## Climate Scorecard

# Sweden

### CLIMATE POLICIES

#### GENERAL

- » Ratified UNFCCC on 23.06.1993, ratified Kyoto Protocol on 31.05.2002
- » Ambitious targets (stronger than the EU targets) presented in federal government climate policy (03/09): 50% renewable energy by 2020, vehicle fleet independent of fossil fuels by 2030, 40% reduction in greenhouse gas emissions outside the European Emissions Trading System by 2020 (2/3 domestic, 1/3 offsets), zero net GHG emissions by 2050
- » Proactive country in EU climate policy generally but played an active role in the EU Climate and Energy package decision in December 2008 to put more emphasis on cost-effective reductions abroad rather than inside the EU through Clean Development Mechanism, which has watered down EU's ambitions

<b>Leadership in climate negotiations</b>	Active in the international and EU negotiations. Preparing for EU presidency second half of 2009. Weak position in securing long-term, predictable financial commitments to help developing countries mitigate and adapt.
<b>Electricity/nuclear</b>	Electricity production today based on only two sources: hydropower and nuclear power; participant in EU Emission Trading Scheme; moderate to high allocation for 2008 to 2012; renewable electricity certificates system since 2003, general carbon tax does not apply for fuels used for electricity generation; establishment of planning framework of 30 TWh for wind power by 2020, 20 TWh on land and 10 TWh offshore; plan to effectively revoke the ban on new constructions of nuclear power plants
<b>Industry</b>	71% of industry emissions covered by EU Emission Trading Scheme; Programme for improving energy efficiency in energy-intensive industries (PFE) through tax exemption on electricity consumption if action to improve their energy efficiency are taken; 50% reduction of general carbon tax for industry will be phased out
<b>Households and services</b>	General carbon tax since 1991 (today at 1010 SEK/tCO <sub>2</sub> ; 95 €/tCO <sub>2</sub> ) significantly increased share of biofuels for district heating; target: phase out of fossil fuels for heating by 2020, but heating with unsustainable nuclear electricity will remain; climate investment programme 2003 to 2008 for municipalities and companies (KLIMP), but now phased out and substituted with significant increase of public demonstration funds for key climate technologies; district heating and cogeneration will be supported, detailed funding plan and allocation scheduled for 2010
<b>Transport</b>	Target: vehicle fleet independent of fossil fuels by 2030. National binding emission standards for automotive manufacturers will be set at highest permissible average of 120 gCO <sub>2</sub> /km for new passenger cars reduced to 95 gCO <sub>2</sub> /km in 2020 (stronger than EU standard); tax exemption for cars emitting less than 120 gCO <sub>2</sub> /km for the first five years starting 2010; carbon differentiated vehicle tax; continued focus on biogas from different types of organic waste to be used as a fuel in the transport sector; very strong national push for biofuels, mainly ethanol, compared to the more urgent need for transport efficiency
<b>Renewables</b>	Action plan for renewable energy to reach 50% target by raising the level of ambition in the electricity certificate system, continuing to facilitate grid connections for renewable electricity and simplified authorisation procedures for wind power by abolishing "double regulation"; planned establishment framework of 30 TWh for wind power by 2020 (20 TWh on-shore, 10 TWh offshore); large rivers in north Sweden and other waterways specified by law will continue to be protected from development; detailed plan expected June 2010

#### Technical notes

For details on method and data sources see the technical annex in the main document "G8 climate scorecards", WWF, 2009.

Sweden specific notes:

- » The overall score for Sweden is 0.47 on a scale from -2.5 to 2.5. Past trends rate 20% (of 33%), current status 22% (of 33%) and policies for the future 17% (of 34%).
- » Additional allowances of 2.1 MtCO<sub>2</sub> per year can be generated optionally from "forest management" (Decision 16/CMP.1 in UNFCCC document FCCC/KP/CMP/2005/8/Add.3). This would represent 3% of the base year emissions.
- » The projections are taken from Sweden's fourth National Communication to the UNFCCC, <http://unfccc.int/resource/docs/natc/swenc4.pdf>
- » The policies are rated as follows: leadership: 0; electricity: 0; industry 0, households: 0, transport: 0, renewables: 0.