



## Germany

### Highlights in 2008

2008 was an active period for German environment policy and important policy commitments of prior years have been followed up with concrete measures. The Integrated Energy and Climate Programme is a main priority and a broad range of implementing

legislation has been adopted. Special emphasis has been put on boosting the energy performance of buildings, more renewables in the heat sector, the expansion of combined heat and power generation, access to the natural gas grid for biogas and the expansion of offshore wind installations.

Important measures in the transport sector include a pollution-linked increase in charges on lorries. However, concerning biofuels in transport, Germany is revising its high domestic targets in the light of the current discussion on the sustainability of biofuels. Although Germany has achieved considerable improvements with regard to air quality in recent years, and an increasing number of cities are introducing low-emission zones, particulate matter and ozone concentrations have continued to be an occasional threat to public health.

### Climate change and energy

	Germany				EU-27 total	rank in EU-27
	2000	2005	2006	target		
Total Kyoto GHG emissions						
– million tonnes (Mt) CO <sub>2</sub> eq.	1 019.5	1 005.0	1 004.8	973.6 (by 2008-2012)	5142.8	
– from energy supply and use, including transport (Mt CO <sub>2</sub> eq.)	828.1	819.4	818.9		4098.7	
– from transport (Mt CO <sub>2</sub> eq.)	184.3	165.5	162.0		992.3	
					EU-27 average	rank in EU-27
– per capita (tonnes CO <sub>2</sub> eq.)	12.4	12.2	12.2		10.4	18
– per GDP (tonnes CO <sub>2</sub> eq. per 1000€ GDP)	494.3	472.9	459.3		495.7	8
– trend (% change compared to base year*)	-17.3%	-18.5%	-18.5%	-21.0% (by 2008-12)	-10.8%	10

\* Base year for CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub> is 1990 and for F-gases is 1995.

		target	EU-27 average
– Projected 2010 emissions trend compared to base year*			
– with existing measures, Kyoto mechanisms and carbon sinks	-22.9%	-21.0%	-13.4%
– with existing and additional measures, Kyoto mechanisms and carbon sinks	-26.2%	(by 2008-12)	-16.3%

\* Base year for CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub> is 1990 and for F-gases is 1995.

	Germany			target	EU-27 average	rank in EU-27
	2000	2005	2006			
Average CO <sub>2</sub> emissions from new passenger cars sold (grams CO <sub>2</sub> /km)	180.8	171.3 (2006)	168.3 (2007)	130 by 2012-15 for EU-27	157.5	20
Electricity produced from renewable energy sources (% gross electricity consumption)	6.5%	(2006) 12.0%	(2007) 15.1%	12.5%	15.6%	11
– from hydropower	3.8%	3.2%	3.4%	(by 2010)	9.2%	
– from wind	1.6%	5.0%	6.4%		3.1%	
– from biomass	1.1%	3.4%	4.8%		3.0%	
Combined heat and power generation (% gross electricity generation)	10.6%	12.6%	12.5%	18% by 2010 for EU-15	10.9%	12
Energy consumption per capita (kg oil eq.)	4 150	4 209	4 237		3 694	20
Energy intensity - Energy consumption per 1000€ GDP (kg oil eq.)	160	158	155		202	4

The latest available data show that Germany's greenhouse gas emissions were 18.5% lower than the base year level, which is not far short of its Kyoto target of -21% for the period 2008-2012. Germany is projected to overachieve it by applying existing measures, Kyoto mechanisms, carbon sinks and additional measures.

The German Integrated Energy and Climate Programme of August 2007 aims at a greenhouse gas emissions reduction of 40% by 2020 compared to 1990 levels. The implementation and legal transposition of the Programme was the main focus of Germany's energy and climate policy in 2008. In June, the Parliament adopted a comprehensive amendment to the Combined Heat and Power (CHP) Law of 2002. The amendment will continue the support for CHP installations through a bonus tariff on the electricity price. It will do this by obliging network operators to connect up CHP plants and buy their electricity. In addition, the bonus will also be extended to modernised and new CHP plants, and electricity for own consumption will become eligible for the bonus.

Also in June, the Renewable Energies Heat Act was adopted, stipulating that by 2020, 14% of Germany's heat requirement must come from renewable sources. Finally, the Renewable Energy Sources Act provides a higher feed-in tariff for wind energy, and also other measures to stimulate the development of both onshore and offshore wind power. All new legislation adopted in June will enter into force in January 2009.

Germany also approved a range of other energy-related laws and measures in 2008. The Biogas Feed-in Ordinance, passed in March 2008, establishes the

legal framework for feeding gas produced from biomass into Germany's natural gas grid. The ordinance obliges the operators of gas grids to connect producers of biogas to the grid. In September 2008 a new Law on the Liberalisation of Electricity and Gas Metrology entered into force. It allows consumers to choose freely their providers of gas and electricity and metering services. One of its aims is to enable consumers to make more informed choices through more transparent measurements of energy consumption.

In addition, energy and climate change related funding programmes were introduced or increased in 2008. The existing CO<sub>2</sub> building renovation programme will be continued until 2011 and will have a total budget of € 3 billion for the period from 2009 to 2011. Special attention will be given to the energy savings potential of urban infrastructure. Up to € 200 million will be allocated to providing municipalities with low-interest loans.

In 2008 the federal government also introduced General Guidelines for the Procurement of Energy Efficient Products and Services, giving priority to environmental and especially energy efficiency considerations when federal bodies tender for goods and services.

Following adoption of the climate and energy package in December 2008, Germany agreed to reduce greenhouse gas emissions by 2020 by 14% compared to 2005 levels in non-ETS sectors (e.g. buildings, road transport, and farming). Furthermore, Germany has committed to achieving by 2020 a share of energy from renewable sources in gross final energy consumption of 18% (up from 6% in 2005).

## Nature and biodiversity

	Germany			target	EU-27 average	rank in EU-27
	2000	2006	2007			
Natura 2000 area (sites designated under Habitats and Birds Directives) as % of terrestrial area *		13.7%	13.6%	13.6%	17.0%	
Sufficiency of site designation under the Habitats Directive	26.2% (2004)			99.3%	99.3%	100%
Area occupied by organic farming (% of Utilised Agricultural Area)	3.2%	4.8%	5.1%	20% **	4.2%	13
Freight transport (billion tkm)	429.8	501.0	522.8		EU total 2505.0	
– % road	66.1%	65.9%	65.7%		76.9%	7 of 26
– % rail	18.2%	21.4%	21.9%		17.4%	11 of 26

\* Germany also has an important Natura 2000 marine area, consisting of 23.2 thousands km<sup>2</sup> in 2008.

\*\* Germany has fixed an indicative target of 20% (no target year) as mentioned in the Federal Organic Farming Scheme.

A National Strategy on Biological Diversity was adopted by the federal government in November 2007 and forms the centrepiece of government efforts to combat biodiversity loss in Germany. This strategy is complemented by a Strategy on the Conservation of Agricultural Biological Diversity which specifically addresses the protection and potential of biodiversity in agriculture, forestry and fisheries.

## Environment and health

	Germany				EU-27 average	rank in EU-27
	2000	2005	2006	Ceiling		
Urban population exposure to air pollution by particles (annual mean concentration, $\mu\text{g}/\text{m}^3$ )	25.8	23.9	25.6	30.0	30.0	8 out of 23
Urban population exposure to air pollution by ozone (SOMO35 level, $\mu\text{g}/\text{m}^3 \cdot \text{day}$ )	2 852	3 322	4 437	2 317	4 417	12 out of 23
Air pollutant emissions (thousand tonnes)				(by 2010)	EU27 total	
– sulphur dioxides ( $\text{SO}_2$ )	637	574	558	520	7946	
– nitrogen oxides ( $\text{NO}_x$ )	1815	1447	1394	1051	11198	
– non-methane volatile organic compounds (NMVOCs)	1613	1385	1349	995	9391	
– ammonia ( $\text{NH}_3$ )	627	620	621	550	4006	
	1991	Latest available year (2001)				
Water exploitation index	24.6%			20.2%	n.a.	20

At the end of 2008, 23 German cities (including Berlin, Munich, Frankfurt and the big cities in the Ruhr area) established low-emission zones to mitigate air pollution by particulate matter, and more are planned for 2009 and 2010. All of these zones were established during 2008, since plans to introduce the first low-emission zones in 2007 already had to be postponed for administrative reasons. Cars and trucks with high emissions of particulate matter are not allowed to enter these zones. A complete overview of cities with existing or planned low-emission zones is available on a website which is regularly updated.

In March 2008, the new Crop Protection Law entered into force. Its aim is to protect crops by ensuring efficient use of crop protection substances. Furthermore, it seeks to mitigate the dangers from crop protection activities for human and animal health, and for the ecosystem. This law updates the guidelines for the licensing, labelling, handling and use of crop protection substances. A National Action Plan on Sustainable Use of Plant Protection Products followed in June 2008 to promote innovative crop protection measures and further develop an integrated approach to crop protection. The Plan sets a target to reduce the risks arising from the use of plant protection products by 25 % by 2020.

## Natural resources and waste

	Germany			Target	EU-27 average	rank in EU-27
	2000	2006	2007			
Municipal waste generated (kg per capita)	643	563	564		522	18
– % landfilled	25.7%	0.7%	0.5%		41.0%	1
– % incinerated	20.7%	32.3%	34.0%		19.9%	
	2000	2005	2006			
Recycling of packaging waste (as % total packaging waste)	78%	68.2%	66.5%	55%-80% (by 2008)	56.5 %	3

In October 2008 the federal government passed a National Strategy for the Sustainable Use and Protection of the Sea, which seeks to reconcile nature conservation with the growing spectrum of uses - like fisheries, shipping, tourism, renewable energy generation, exploitation of fossil energy and mineral resources - and takes into account land-based activities. A range of instruments are to be used including integrated management of the coastline and land use planning in coastal and sea areas.

The main issue in waste management is to simplify waste landfill regulation. A new regulation, adopted by the federal government in September 2008, combines three separate ordinances and three technical guidelines on landfills. In addition an amendment to the packaging ordinance was adopted in April 2008. The aim is to install a proper system for collecting and recycling retail packaging.

## Better regulation and implementation

	Germany			EU-27 total
	31/12/2006	31/12/2007	31/12/2008	
Infringements of EU environmental legislation	16	13	9	481

Past problems with Natura 2000 site designation, reporting and management under the Habitats and Birds Directive have largely been solved and a whole series of infringement cases opened by the Commission on grounds of non-compliance have now been closed.

## Use of market-based instruments

	Germany			EU-27 average
	2000	2005	2006	
Share of environmental taxes in total tax revenue	5.7%	6.3%	6.1%	6.4%

## Environmental Technologies

Germany is a leading producer and exporter of environmental goods and services. The ETAP roadmap currently in place has been followed up by new research programmes adopted in January 2008 on the efficiency of materials and network resources. These programmes form part of the Integrated Energy and Climate Package. The German government committed itself to allocating € 400 million from sales of carbon allowances in the EU emissions trading market to low-carbon research and development projects. Projects will cover areas such as refrigeration technology and biomass research. The German ETAP roadmap was being assessed in 2008 and will be updated in 2009.

## Outlook for 2009

In October 2008 the German Minister of the Environment presented a discussion paper on a new environmental industrial policy. The paper puts forward an ambitious agenda for the radical decoupling of economic growth from resource consumption. It suggests that Germany's economic future essentially lies in making the transition to a resource-efficient, low-carbon economy, and taking a leading role in the global market for environmental products and services. Further action is expected in 2009.

After the original project for a new comprehensive Environmental Code had been abandoned, the federal government decided in March 2009 to introduce four new draft environmental laws into the parliamentary process. The four laws are: (i) on the simplification of environmental law, (ii) on water law reform, (iii) on replacing the Federal Nature Conservation Act, and (iv) on regulating protection from non-ionising radiation.

