

2.10

INDUSTRY



Spanish industry started to feel the effects of the crisis in 2008. In 2009, having suffered the worst of the recession in the last quarter of 2008 and the first quarter of the following year, the country's economy contracted and GDP fell by 3.6% (provisional and at current prices). Domestic demand decreased, jobs were lost and industrial capacity shrank. The figures available when preparing this edition illustrate the significant changes in 2008 in comparison with previous years.

The industrial survey carried out by the INE shows a decrease in the number of industrial enterprises, thereby continuing the trend seen in previous years. Atmospheric emissions of some pollutants, in particular CO₂, NMVOCs and NO_x, decreased, while those of SO₂ rose. As regards fluorinated gases, emissions of SF₆ and PFCs remained stable or increased slightly, while those of HFCs climbed pronouncedly.

Industry's final energy consumption was similar to that of the year before, though there were some variations in its sources — use of coal, natural gas and renewable energy fell, while that of petroleum products increased. Waste generation also rose and



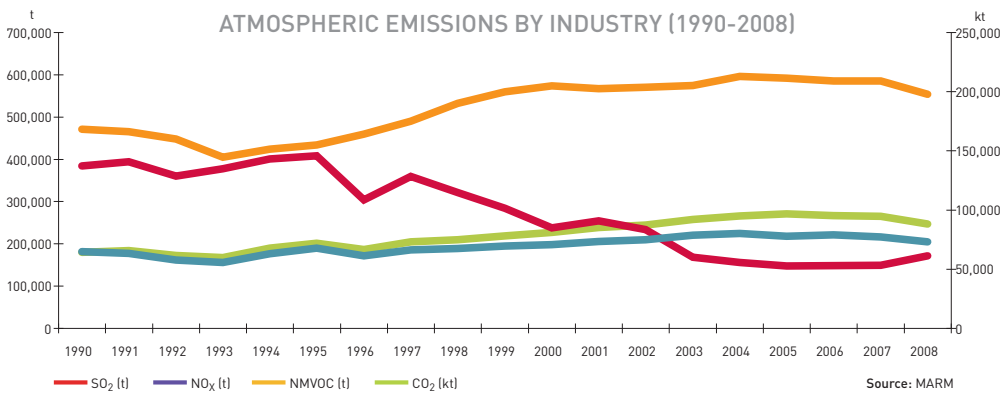
Spain maintained its noteworthy position with regard to the number of companies signed up to Europe's EMAS environmental management system.

The Total Material Requirement indicator, which in previous editions was included here, is now part of the Green Economy chapter.

INDICATOR	GOAL	TREND
Atmospheric emissions by industry	Prevent and reduce pollution	Emissions of CO ₂ , NMVOCs and NO _x fell, while those of SO ₂ rose
Energy consumption by industry	Reduce consumption and improve resource use efficiency	Final energy consumption by industrial processes remained stable
Waste generation by industry	Prevent and reduce pollution	Slight increase in generation of both hazardous and non-hazardous waste
Number of industrial enterprises with Environmental Management Systems	Mainstream environmental concerns into industry	Spain has the second-highest number of companies registered with the EMAS environmental management system
Eco-efficiency of industry	Decouple industrial production from consumption of resources and pollution	CO ₂ emissions are falling, final energy consumption is stabilising and industrial GVA is rising

Atmospheric emissions by industry

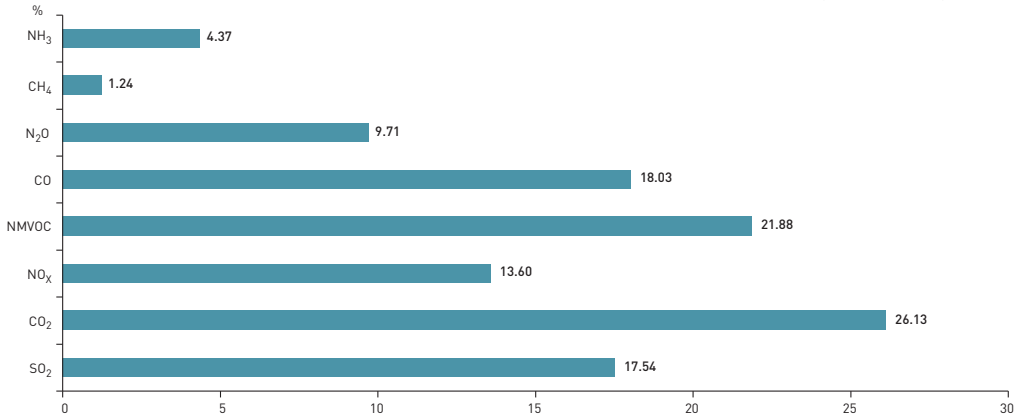
Industry's emissions of CO₂, NMVOCs and NO_x fell markedly, though those of SO₂ rose



The graph detailing industry's pollutant gas emissions shows significant differences in 2008 with respect to previous years. These differences are likely to become more pronounced in subsequent estimates. The sector's CO₂ emissions fell from 94,652 kilotonnes in 2007 to 88,198 kilotonnes in 2008, representing a 6.82% reduction in a single year. In 2008, industry's CO₂ emissions accounted for 26.13% of total emissions of this gas. Emissions of NO_x and non-methane volatile organic compounds (NMVOCs) also decreased. In the first case, NO_x emissions dropped from 216,029 tonnes in 2007 to 204,761 tonnes, a decrease of 5.22%. In the case of NMVOCs, these fell from 585,196 tonnes in 2007 to 553,416 tonnes in 2008, a decrease of 5.43%. In contrast, industry's emissions of SO₂ increased, rising from 149,268 tonnes in 2007 to 171,677 tonnes in 2008, a 15.01% upturn that meant industry accounted for 32.26% of total emissions of this gas.

Over 1990–2008, industry's CO₂ emissions decreased from 28.11% of total emissions to 26.13%. NO_x emissions had been rising since 1990, when they accounted for 12.96% of the total. By 2008, they represented 15.88% of total emissions of this gas. With regard to CO emissions, in 1990 industry contributed 12.91% of total emissions, a figure that had climbed to 32.57% by 2008. As regards N₂O emissions, industry's share shrank from 12.90% of the total in 1990 to 7.58% in 2008. In respect of CH₄, emissions by industry accounted for 0.59% in 1990. However, by 2008 this had risen to 1.84%. Industry's NH₃ emissions decreased from 5.13% of total emissions in 1990 to 3.48% in 2008.

EMISSIONS BY INDUSTRY AS A PERCENTAGE OF TOTAL EMISSIONS (1990-2008)



Source: MARM

NOTES

- For the purpose of calculating emissions of air pollutants, the following groups or sectors (SNAP classification) are considered to form part of the industrial sector: combustion in manufacturing industry, production processes, and solvent and other product use. The categories for combustion and energy transformation are not included, since these emissions are covered by the chapter on energy. Likewise, emissions generated by the extraction and distribution of fossil fuels and geothermal energy are not included either.
- For reasons of scale, the indicator does not include emissions of fluorinated gases, even though these are 100% industrial in origin. Emissions of these gases between 1990 and 2008 were as follows:

EMISSIONS OF FLUORINATED GASES (KG)

	1990	2003	2004	2005	2006	2007	2008
SF ₆	2,800	8,689	10,628	11,365	13,541	14,225	14,814
HFCs	205,400	1,813,521	2,052,598	2,250,498	2,406,353	2,579,749	2,742,910
PFCs	131,825	39,430	40,073	35,943	36,324	36,514	37,480

Source: MARM

SOURCES

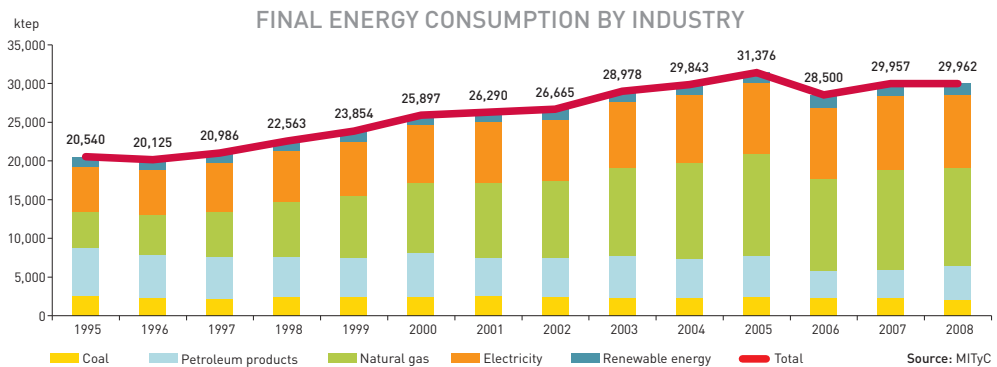
- National Air Pollutant Emissions Inventory. Directorate-General for Environmental Quality and Assessment. MARM.

FURTHER INFORMATION

- <http://www.marm.es>

Energy consumption by industry

Final energy consumption by industry remained practically unchanged in 2008



In 2008, final energy consumption by industry was practically the same as the year before. However, this stability was not maintained for all the energy sources used by industry — in 2008, coal consumption dropped to 90% of the 2007 level. This decrease was offset by the substantial increase in energy derived from petroleum products, which rose by 24% in the same period. Use of natural gas fell by 2.8% and that of renewable energy by 7.5%. As regards the latter, there was a significant increase in 2008 in consumption of thermal solar energy, which rose by 29% on 2007. Energy generated by biomass fell by 6.2%, while biogas share of final energy consumption by industry plummeted by 46%.

The trend in final energy consumption by industry in the European Union has been generally downward, though there have been some upturns, as witnessed between 2006 and 2007. In the EU-27, final energy consumption decreased slightly from 1,175,579 ktoe to 1,157,654 ktoe. However, final energy consumption by industry increased from 319,494 ktoe to 322,846 ktoe. As a result, the proportion of final energy consumption by industry in relation to total consumption rose from 27.18% in 2006 to 27.89% in 2007. According to Eurostat, total final energy consumption in Spain remained stable over the last three years for which data are available — 97,455 ktoe in 2005, 96,167 ktoe in 2006 and 98,703 ktoe in 2007. However, and again according to Eurostat, final energy consumption by industry in Spain showed a notable change — 31,097 ktoe in 2005, 25,891 ktoe in 2006 and 26,702 ktoe in 2007. As a result, the

proportion of final energy consumption by industry in relation to total consumption decreased substantially — 31.91% in 2005, 26.92% in 2006, and 27.05% in 2007.

NOTES

- For the purpose of calculating final energy consumption by industry, only data corresponding to energy consumption are considered. Petroleum products or natural gas that form part of industrial processes but do not directly produce energy are not included.

SOURCES

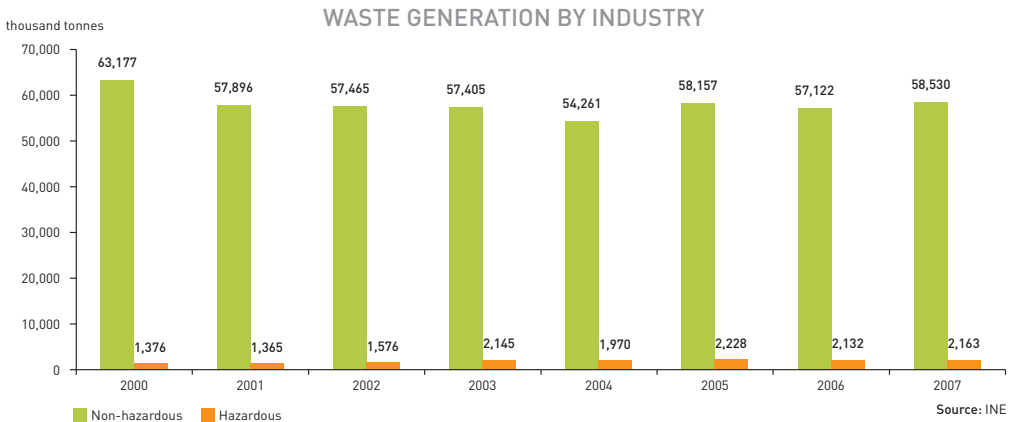
- La Energía en España 2008. MITyC.
- Eficiencia energética y energías renovables. IDAE. MITyC.
- Eurostat.

FURTHER INFORMATION

- <http://www.mityc.es>
- <http://www.idae.es>
- <http://epp.eurostat.cec.eu.int/>

Waste generation by industry

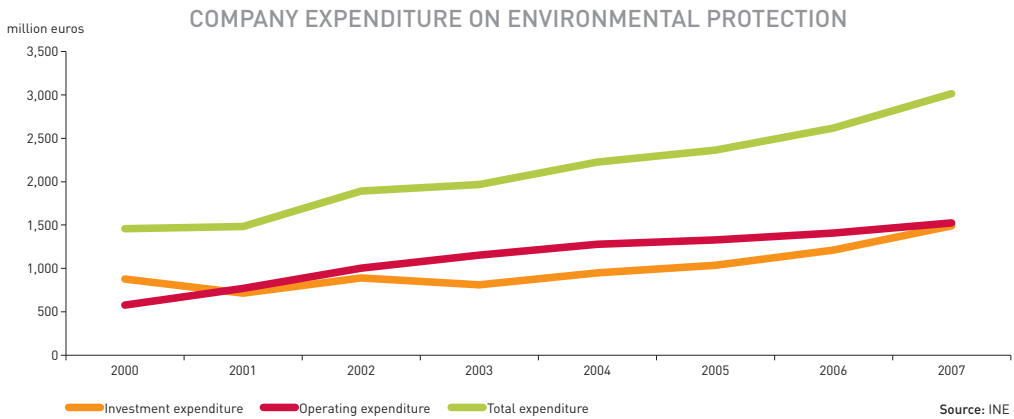
Waste generation by industry increased slightly



In 2007, when industry had yet to suffer the downturn that lay ahead in 2008, waste generation by the sector increased slightly — non-hazardous waste rose by 2.5% and hazardous waste by 1.4%. As regards non-hazardous waste, which increased from 57,122 tonnes to 58,530 tonnes, the difference between 2006 and 2007 was considerable in some sectors (although among mining and quarrying enterprises it dropped by 0.7%) — generation of non-hazardous waste by manufacturing industry increased by 1.5%, while that generated by the energy industry leapt up by 17% year-on-year.

In 2007, industry generated 2,162,614 tonnes of hazardous waste, the breakdown of which by sector is different to that for non-hazardous waste. Generation of hazardous waste fell by 32.4% in the energy industry, increased by 2.5% in manufacturing industry and, significantly, leapt up by 38.5% in mining and quarrying in 2007 in comparison with the previous year.

Corporate expenditure on environmental protection continued to increase and was 15% higher in 2007 than the year before. It is significant that the sharply rising trend in expenditure, which increased by 23% on 2006 and compounded previous years' rises, was maintained. Investment related to environmental protection — over €1.48 billion in 2007 — practically equalled operating expenditure on environment-related items, which came to approximately €1.52 billion.

**NOTES**

- This indicator includes data for the energy industry. The first INE survey aimed to quantify waste generated in economic activities classified as industrial (as per CNAE categories C, D and E, branch 40). The second INE survey aimed to evaluate industrial enterprises' expenditure on reducing or eliminating emissions of air pollutants and noise pollution, on treatment of the wastewater and solid waste generated, and on use of less pollutant raw materials or on use of the same ones but in lesser quantities.

SOURCES

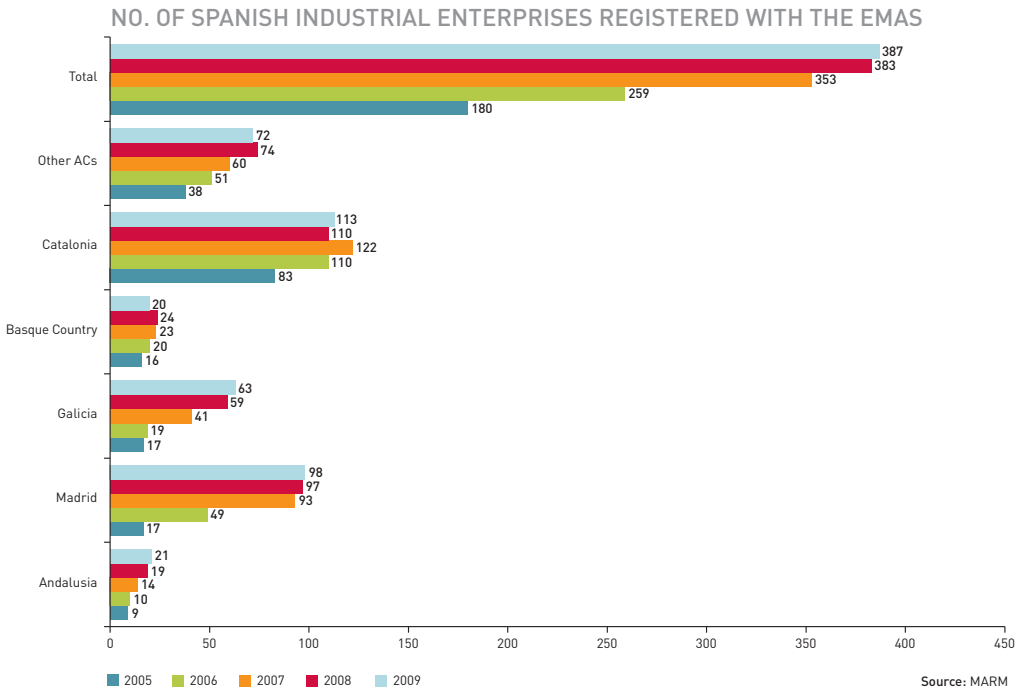
- Survey on waste generation. INE. In Environment statistics (December 2009).
- Survey on Company Expenditure on Environmental Protection. INE. In Environment statistics (November 2009).

FURTHER INFORMATION

- <http://www.ine.es>

Number of industrial enterprises with Environmental Management Systems

Spain has the second-highest number of companies in the EU registered with the EMAS environmental management system



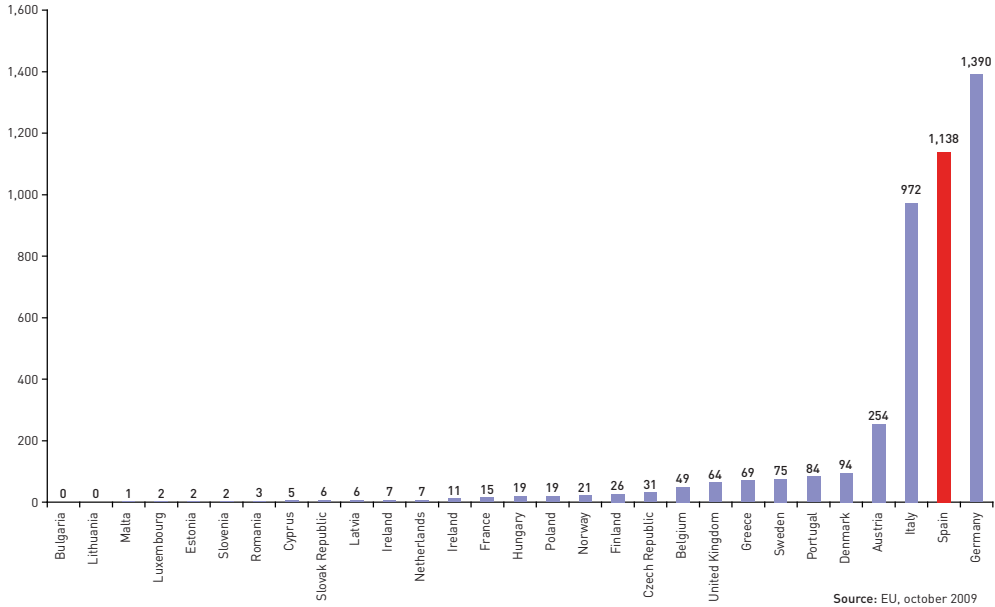
Spain has the second-highest number of companies in Europe registered with the EMAS (Eco-Management and Audit Scheme) environmental management system. This Regulation was revised and amended for the second time by Regulation 1221/2009(CE) of the Parliament and of the Council of 25 November 2009. Considering voluntary commitment to be fundamental to its success, it has sought to promote wider participation and to develop initiatives among registered organisations to foster environmental performance and sustainable development. These are then verified independently.

Spain's second position in Europe by number of enterprises (1,138 organisations and 1,391 sites, behind Germany's 1,390 organisations and 1,841 sites) also places it second (behind Austria) by number of organisations per million inhabitants (according to EMAS-EU data, 28 October 2009).

Although the number of enterprises in Spain registered with the EMAS

environmental management system in 2009 remained stable (1% year-on-year rise), the most significant piece of data is the overall increase of 184% between 2003 and 2009.

NO. OF EU COMPANIES REGISTERED WITH THE EMAS



NO. OF INDUSTRIAL ENTERPRISES IN SPAIN REGISTERED WITH THE EMAS 2003-2009

2003	2008	2009	Increase 2008/2009	Increase 2003/2007
136	383	387	1 %	184 %

Source: MARM

NOTES

- For the purpose of calculating the indicator, the industrial enterprises included are those listed in categories 10 to 41 of the CNAE. This therefore excludes arable and livestock farming and forestry, as well as the construction and service industries.
- Regulation 1221/2009(EC) of 25 November amended previous Regulation 761/2001 of 19 March 2001. The EMAS' current scope extends to cover all enterprises, irrespective of sector. Actions derived from its application include:
 - Creation and implementation of environmental management systems in enterprises and systematic, objective and regular assessment of their operation.
 - Dissemination of information on environmental performance.
 - Active involvement of employees in the programme, achieved through continuous vocational training.

SOURCES

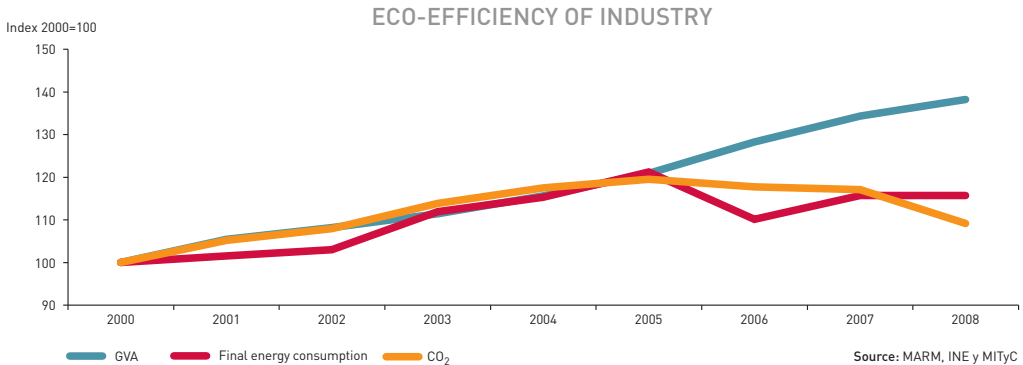
- European EMAS data: EMAS website.
- Data for Spain: MARM. Directorate-General for Environmental Quality and Assessment.

FURTHER INFORMATION

- <http://www.europa.eu.int/comm/environment/emas>
- http://www.mma.es/calid_amb/ma_ind/index.htm

Eco-efficiency of industry

The sector's CO₂ emissions fell significantly, while final energy consumption stabilised and the upward trend in GVA continued



In 2008, industry started to show significant changes in previously well-established trends. GVA continued to grow and built on the significant rise of 2007, when it increased from €132,633 million in 2006 to €138,845 million 12 months later. In 2008, the figure reached €142,859 million. Between 2006 and 2008, industrial GVA grew by 7%.

This occurred at the same time as a sharp decrease in CO₂ emissions by industry, which dropped from 94,652 kt in 2007 to 88,198 kt in 2008, a decrease of 6.8% in a single year. In the period from 2006 to 2008, industry's CO₂ emissions decreased by 7.3%.

Industry's final energy consumption remained stable at 29,962 ktoe, practically the same figure as the year before. This levelling off in final energy consumption contrasts with the 5% increase between 2006 and 2007.

SOURCES

- Gross Value Added at current prices by sector. INE. Spanish National Accounts. Base 2000.
- Consumo de energía final de la industria. IDAE.
- La Energía en España 2008. Ministry of Industry, Transport and Trade.
- Data on emissions of air pollutants taken from the National Air Pollutant Emissions Inventory. Directorate-General for Environmental Quality and Assessment. MARM.

FURTHER INFORMATION

- <http://www.ine.es>
- <http://www.mityc.es>; www.mma.es
- <http://www.eea.eu.int>