2.1 AIR

The emission of pollutant gases into the atmosphere alters its natural balance and reduces air quality, thereby affecting the health of all living things. Climate change should be considered a global and complex environmental threat that is a direct consequence of our current developmental model (based on the burning of fossil fuels as the principal energy source). The emission of greenhouse gases (GHG) in Spain has been increasing due to increased energy demand and a lack of measures aimed at preventing these emissions. The EU considers climate change to be one of the greatest challenges facing humanity in light of its serious consequences, which are predictable and increasingly visible: increasing temperatures, glacial retreat, droughts, floods, etc. The risks for the planet and future generations are enormous, therefore we must act urgently. In our country, as well as political action from the government, the role of the Autonomous Regions and local bodies, which together with NGOs and other interest groups form the action framework contained in a new non-carbon-intensive growth model, should be highlighted.

The main lines of political action include:

Development of the **European Emissions Trading Scheme**, established by the Directive 2003/87/EC of the European Parliament and of the Council, dated

13 October 2003, in force as of 1 January 2005. This Directive establishes a GHG emission rights trading scheme, which aims to reduce these emissions in an economically advantageous manner in order to meet the GHG emissions reduction commitments established in the framework of the Kyoto Protocol. It was transposed into Spanish law by Act 1/2005, dated 9 March, which regulates the GHG emission

INDICATORS	GOALS	TREND
Greenhouse Gas Emissions	To reduce GHG emissions to meet Kyoto targets (115% of the 1990 level) by 2012	Although GHG emissions have increased with respect to last year, national emissions forecasts suggest that the Kyoto commitments can be met by applying additional measures
Emissions of acidifying and eutrophying gases and tropospheric ozone precursors	To achieve Directive targets for national emission ceilings by 2010	Although total emissions of acidifying and eutrophying substances have fallen and emissions of ozone precursors have stabilised, it will not be easy to meet the established targets
Particulate emissions to the atmosphere	To achieve Directive targets for national PM precursor emission ceilings by 2010	Particulate emissions between 2000 and 2007 increased unevenly; with PM2.5 emissions increasing by 6.6% and PM10 emissions by 3.4%
Regional background air quality for health and vegetation protection	To achieve the ambient air quality targets derived from this legislation, as re-established in Directive 2008/50/EC dated 21 May 2008.	Ozone is the only pollutant whose mean concentration exceeds the target values established for 2010

rights trading scheme and promotes the efficient and economic reduction in the emission of these gases (modified by Royal Decree 5/2005 dated 11 March).

II National Assignment Plan (NAP) 2008–2012, based on the EU GHG emission rights trading scheme and which is in force during the Kyoto Protocol's commitment period. This Plan provides for a 16.2% annual reduction with respect to the 2005–2007 Assignment Plan and 20% with respect to industrial emissions in 2005. In total, the emission rights awarded to companies are reduced from 182.175 million tonnes per year for the period 2005–2007 to 152.659 million tonnes (Royal Decree 1370/2006 dated 24 November, which established the National GHG Emission Rights Assignment Plan 2008–2012, and subsequent modifications).

Spanish Climate Change and Clean Energy Strategy (EECCEL) 2007–2012–2020. Approved by the Council of Ministers in late 2007, this defines the actions to be taken to combat climate change and achieve cleaner energy. It covers two relevant scenarios: 2012 (when the Kyoto Protocol's first commitment period comes to an end) and 2020 (reference for strategic objectives). It includes an Urgent Action Plan in response to the main proposals received during the public consultation period and those from the National Climate Council and the Climate Change Policy Coordination Commission. This Strategy reinforces Spain's commitment to the Kyoto Protocol whilst preserving the competitiveness of the Spanish economy, employment, economic and budgetary stability and the energy supply. It presents 198 measures and 75 indicators with the aim of ensuring a reduction in GHG emissions, and is a reference text around which climate change policies at a regional (Autonomous Region) and local level are based. The Urgent Action Plan itself includes more than 80 measures, which account for 65% of the mitigation measures included in the Strategy as a whole.

Voluntary Commitment Scheme for the reduction of GHG emissions. This initiative forms part of the Spanish Climate Control and Clean Energy Strategy's Urgent Action Plan and aims to encourage an annual reduction of at least the equivalent of 1 million tonnes of CO_2 spread over various sectors (transport, residential, commercial and institutional, waste and farming) through voluntary emission-reducing actions by companies and the private sector.

Act 34/2007 dated 15 November, concerning air quality and protection of the atmosphere, was designed as a new tool for managing air quality, replacing the previous legislative framework (Act 38/1972 and Royal Decree 833/1975). This Act lays the foundations in the field of prevention, monitoring and reduction of atmospheric pollution with the aim of avoiding, or minimising, the damage that it can cause to people, the environment and other assets. It establishes a series of

obligations for towns and cities with more than 100,000 inhabitants, including the elaboration of plans and programmes to comply with air-quality targets. Likewise, this Act establishes that if certain pollution levels are exceeded, the Autonomous Regions and town councils must develop concrete measures to prevent and avoid any adverse effects on public health. The main pollution source in major cities is traffic, which generates particles in suspension and nitrogen oxides. It is therefore vital to take decisions in this respect at a local level.

The Autonomous Regions and local bodies, when required to do so by current legislation, are responsible for taking measurements and assessing the concentration of regulated pollutants in their region. In the event that the maximum and/or target values are exceeded in any district or region, they are also responsible for drawing up plans to improve the air quality in that district or region. For its part, the Ministry of the Environment and Rural and Marine Affairs (MARM) is responsible for providing the European Commission with the data and information derived from community legislation and adopting the necessary coordination measures to fulfil this purpose. This includes the harmonisation of criteria and the collection, verification and storage of the information required to appropriately characterise the air quality status in compliance with current legislation and to elaborate the countrywide plans and programmes needed to prevent and reduce air pollution and its trans-boundary effects.

Besides consolidating the regulatory framework as regards air quality, it introduces new aspects such as land zoning and air-quality assessment in the drawing-up and approval of town and land-use plans as well as in the processing of authorisation procedures for potentially polluting activities and installations, the use of environmental indicators to gain an understanding of the effects of atmospheric pollution and its preventative measures, and the development of the Spanish Atmospheric Pollution Information, Monitoring and Prevention System, which will allow a fluid exchange of information between the different administrations and the general public.

The EU's policy directives are based around making energy consumption more efficient and ensuring that it is less polluting, the development of a clean and balanced transport system, involving the business sector to make it more competitive, integrating the environment in land-use planning and agriculture, and promoting research and innovation. The climate strategy in the framework of the European Climate Change Programme (ECCP) includes specific measures to limit the temperature increase to 2 °C above pre-industrial levels. The initiatives to be adopted include reducing GHG emissions as the main objective (this involves monitoring emissions and the development of an emission rights trading system)

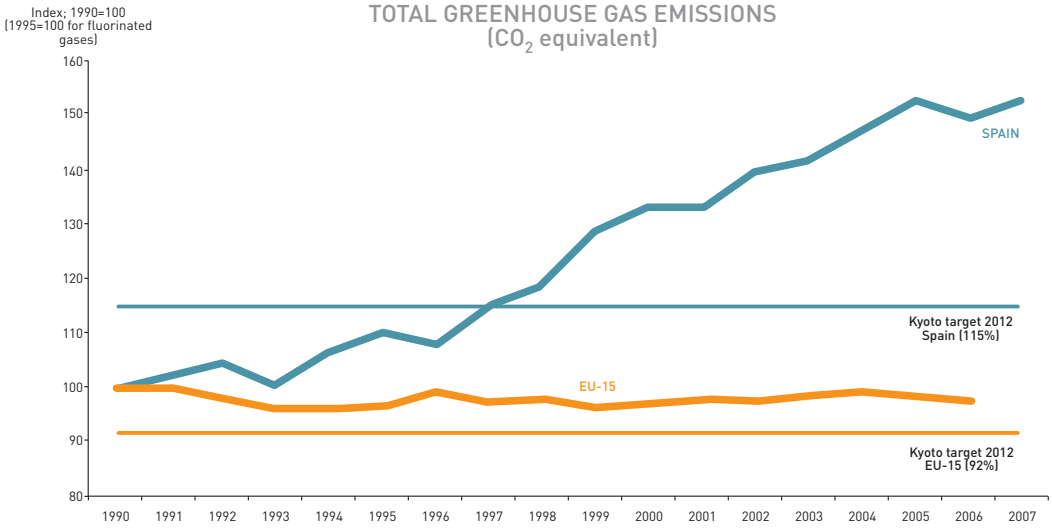
and the monitoring of, and adaptation to, the inevitable consequences of climate change.

In January 2008 the European Commission presented a new package of proposals aimed at compliance with the objectives set by the European Council in March 2007 — a reduction in GHG emissions of at least 20% and an increase in the proportion of the electricity consumed generated from renewable sources to 20% by 2020.

As was the case in previous editions, this chapter groups acidifying and eutrophying emissions and those of tropospheric ozone precursors into a single indicator. It also presents an overview of the background pollution present in Spain obtained from an analysis of the air quality at EMEP stations in the EMEP/GAW/CAMP network, and includes a new indicator regarding particulate emissions to the atmosphere.

Greenhouse gas (GHG) emissions

After the drop recorded the year before, GHG emissions in 2007 grew 2.7% with respect to the previous year.



Source: MARM and Eurostat

Estimated GHG emissions for 2007 were 442,322 kilotonnes of CO_2 equivalents (CO_2-eq), which is a 52.6% increase with respect to the Kyoto Protocol's base year (289,773 kt CO_2-eq); the target for 2012 is not to exceed this value by more than 15%. Emissions in 2007 grew by 2.1% with respect to those in 2006, mainly due to the contribution of the energy sector.

The dominance of CO_2, which accounted for 82.8% of total emissions in 2007, should be highlighted. This gas is followed by CH_4, with 8.8%, and N_2O, which accounted for 6.9% of total emissions. Fluorinated gases only made up 1.5% of emissions.

CO_2 emissions have increased by 60.4% since the Kyoto Protocol's base year, whereas those of CH_4 have increased by 36.6% and N_2O by 9.8%. The increase in 2007 with respect to 2006 ranged from 2.2% for CO_2 to 1.5% for N_2O and 1.4% for CH_4.

Although with a lower proportion of total emissions, as mentioned above, SF_6 emissions in the same period increased by 213.8% while HFC emissions increased by 25.7%. The 70.1% drop in PFC emissions should be noted.

In the sector-based analysis, the contribution of the energy processing sector (including transport) should be highlighted, followed by agriculture, industrial processes, waste treatment and elimination and, finally, solvent use. With the exception of an occasional year, the contribution from energy treatment and waste processing has increased since 1990, whereas the other sectors have reduced or stabilised their contributions. Energy processing has increased by 2.4% with respect to 2006, solvent use 10.3%, waste treatment and elimination 3.1% and agriculture 1.3%. In contrast, industrial processes have reduced by 0.4%.

Total emissions in the EU-27 dropped by 7.7% between 1990 and 2006, although the decrease in the EU-15 was only 2.7%; the target for the five-year period 2008–2012 is an 8% reduction. Spain's commitment under the Kyoto Protocol is not to exceed its base year emissions by more than 15%. Despite this, emissions in 2007 were 37.6% above this value (2006 emissions were 49.5% above target), which means that the mechanisms established to achieve the Kyoto target must be applied.

In 2006, Spain was responsible for 8.4% of total GHG emissions in the EU-27, below countries such as France (10.5%), Italy (11.0%), the UK (12.7%) and Germany (19.5%).

GHG emissions per person in Spain in 2006 were 9.9 tonnes CO_2-eq, a figure which places Spain in twelfth position in the EU-27 and below the European average (10.4 tonnes CO_2-eq/pers in the EU-27 and 10.7 tonnes CO_2-eq/pers in the EU-15). However, as is the case in eight other countries in the EU-27, emissions have risen with respect to 1990, when they were 7.4 tonnes CO_2-eq/pers.

In 2006, Spain was the sixth lowest emitter in the EU-27 (measured as the ratio between GHG emissions and GDP), behind Sweden, France, Austria, the UK and Italy. In that year, Spain emitted 398 g CO_2-eq per unit GDP (measured in terms of purchasing power parity). The EU-27 as a whole emitted 442 g CO_2-eq per unit GDP generated into the atmosphere (402 g CO_2-eq for the EU-15).

However, in agreement with national emissions forecasts prepared by MARM on the basis of the 1990–2006 inventory, the effect of the new macroeconomic climate and growth perspectives should prove beneficial as regards GHG emissions. The three current scenarios (without measures, with measures and with additional measures) lead to the following forecasts. Compliance with the third scenario and the estimated emissions data for 2008 suggest that Spain will meet its Kyoto commitments.

Greenhouse gases	Year	CO_2 equivalents (kt)		
		Trend scenario (without measures)	Baseline scenario (with measures)	Target scenario (with additional measures)
GHG (kt $CO_{2\text{-eq}}$)	Average 2008–2012	492,611	405,018	395,785
GHG (% vs. base year)	Average 2008–2012	70.00%	39.77%	36.58%

Source: MARM

NOTES

- This indicator presents total emissions of the six main greenhouse gases, expressed jointly as CO_2 equivalents (index: 1990=100 and 1995=100 for fluorinated gases).
- The United Nations Framework Convention on Climate Change (1992) and, specifically, the Kyoto Protocol (1997) set out the commitments of developed countries to reduce emissions of these gases and regulate emissions trading among countries whilst also establishing mechanisms to help less developed countries meet their emissions reduction commitments. Within this framework, the EU has undertaken to reduce its greenhouse gas emissions by 8% from 1990 levels within the period 2008-2012. Each EU member state has different obligations in relation to the overall EU commitment to reduce emissions. Spain must stabilise its GHG emissions at 115% of 1990 levels.

SOURCES

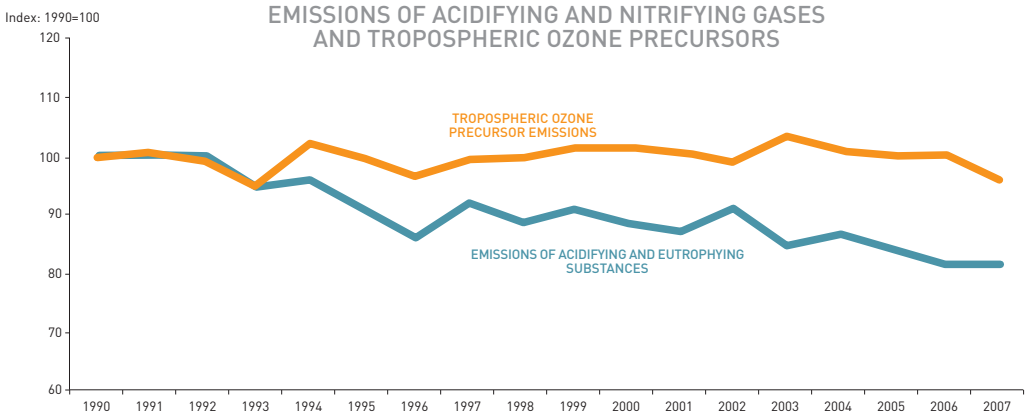
- Spain's Atmospheric Emissions Inventory. Edition 2009 (series 1990–2007), Summary of GHG results. Directorate General for Quality and Environmental Assessment. MARM
- EU Data: Eurostat. Consultation performed via the web page http://epp.eurostat.ec.europa.eu/ (Environmental/Air pollution and climate change/air pollution indicators and climate change data)
- EEA, 2008. *Greenhouse gas emission trends and projections in Europe 2008. Tracking progress towards Kyoto targets.* European Environmental Agency

MORE INFORMATION

- **http://www.marm.es**
- **http://www.eea.europa.eu/**
- **http://cdr.eionet.eu.int/es/eu**

Acidifying and eutrophying gas and tropospheric ozone precursor emissions

Combined emissions of acidifying and eutrophying substances have decreased since 1990 whereas emissions of ozone precursors have stabilised



Source: MARM

Combined emissions of acidifying and eutrophying substances decreased by 18.5% in the period 1990–2007 in a clear downward trend, although they increased slightly in two of these years (1997 and 2002). Combined emissions of tropospheric ozone precursors remained steady, although they increased in 1994, 2000 and 2003. Emissions in 2007 dropped by 4.6% with respect to the previous year, which is the greatest decrease for the whole period.

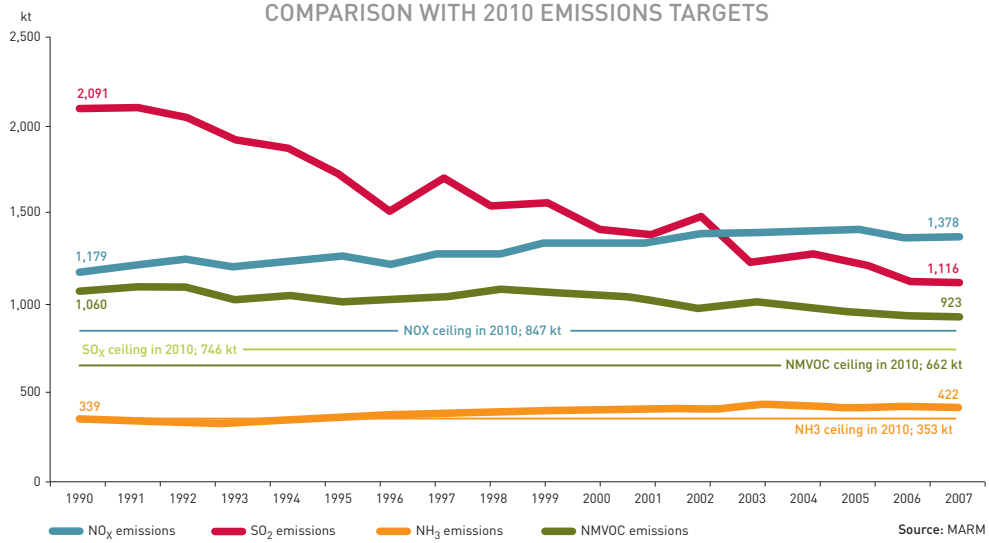
Only SO_2 of the acidifying and eutrophying substances showed a drop in emissions (of 46.7%) — NO_X and NH_3 emissions increased by 18.8% and 23.9%, respectively. Only NH_3 emissions increased with respect to the previous year, with emissions of the other two dropping slightly. As for ozone precursors, CO emissions in the same period (1990–2007) dropped by 37.1% and NMVOC emissions by 13.0%. These reductions are in contrast to the 34.0% increase in CH_4 emissions and the 18.8% increase in NO_X emissions mentioned above. A comparison between 2007 and 2006 shows a drop in emissions for all pollutants, with this drop being very small for NO_X and CH_4 (0.23% and 0.55%, respectively), somewhat larger for NMVOC (6.3%) and significantly larger for CO (17.3%).

Directive 2001/81/EC of the European Parliament and of the Council, dated 23 October 2001, concerning national emissions ceilings for certain atmospheric pollutants, enshrines each country's efforts to reduce its pollutant emissions. "National emissions ceilings" are the maximum amount of a substance, in kilotonnes, which a member state can emit in a calendar year. The ceilings established for Spain for 2010 are as follows: 847 kt of NO_X, 662 kt of NMVOC, 746 kt of SO_X and 353 kt of NH_3.

An analysis of the distance between pollutant emissions and their emissions ceilings reveals a situation which will require a major effort to ensure that the targets established for 2010 are met. Thus, the decreases in SO_X and NMVOC emissions need to be increased by 33.2% and 28.3%, respectively, with respect to 2007 emissions, values which are particularly high when compared with the mean annual reduction for the period 1990–2007. In the case of NMVOC, the reduction observed since 2005 suggests a more positive outlook, with mean annual reductions of 1.5%.

In contrast, NO_X emissions have increased continuously from 1179 kt in 1990 to 1378 kt in 2007, a long way from the emission ceiling of 847 kt. Similarly, NH_3 emissions, which interrupted their downward trend in 1994, need to be reduced by 16.4% from their 2007 levels.

CHANGES IN SO_2, NO_X, NH_3 AND NMVOC EMISSIONS UNDER DIRECTIVE 2001/81/EC ON NATIONAL EMISSIONS CEILINGS. COMPARISON WITH 2010 EMISSIONS TARGETS



In 2003, Spain drew up its first National Emissions Reduction Programme. Its review led to the II Programme (published in the OG of 29/01/2008), which is based on a series of Sector-Based Action Plans in the framework of the "Action Plan for application of the National Emissions Reduction Programme in light of the National Emissions Ceiling Directive".

Nevertheless, as was the case with GHGs, in agreement with national emissions forecasts prepared by MARM on the basis of the 1990–2006 inventory, the effect of the new macroeconomic climate and growth perspectives should prove beneficial as regards emissions of these pollutants. The three current scenarios (without measures, with measures and with additional measures) lead to the following forecasts:

Acidifying and eutrophying gases and tropospheric ozone precursors	Year	Scenarios		
		Trend scenario (without measures)	Baseline scenario (with measures)	Target scenario (with additional measures)
SO_X (t)	2010	1,833,545	400,846	399,584
SO_X (% vs. ceiling)	2010	145.78%	-46.27%	-46.44%
NO_X (t)	2010	1,715,288	1,144,836	1,008,958
NO_X (% vs. ceiling)	2010	102.51%	35.16%	19.12%
COVNM (t)	2010	1,307,158	761,426	745,530
COVNM (% vs. ceiling)	2010	97.46%	15.02%	12.62%
NH_3 (t)	2010	477,984	388,180	406,768
NH_3 (% vs. ceiling)	2010	35.41%	9.97%	15.23%

Source: MARM

NOTES

- The graph for this indicator presents the evolution of the total annual combined emissions of acidifying and eutrophying substances (SO_2, NO_x and NH_3) and tropospheric ozone precursors (NO_x, NMVOC, CO and CH_4) with respect to 1990 as base year (1990 = 100).
- The emissions of acidifying and eutrophying substances are presented as acid equivalents (hydrogen ion generation potential), adding the XXX emissions using the following weighting factors: 31.25 acid equivalents/kg for SO_2 (2/64 acid equivalents/g), 21.74 acid equivalents/kg for NO_x, expressed as NO_2 (1/46 acid equivalents/g) and 58.82 acid equivalents/kg for NH_3 (1/17 acid equivalents/g). Emissions of tropospheric ozone precursors were estimated using the tropospheric ozone depletion potential (expressed as NMVOC equivalents). The weighting factors employed were as follows: 1.22 for NO_x, 1.00 for NMVOC, 0.11 for CO and 0.014 for CH_4.
- The aim of Directive 2001/81/EC of the European Parliament and of the Council, dated 23 October 2001, regarding national emissions ceilings for certain pollutants, is to restrict the emissions of acidifying and eutrophying pollutants and ozone precursors in order to protect human health and the environment. The directive applies to all anthropogenic sources of ammonia (NH_3), nitrogen oxides (NO_x), volatile organic compounds (NMVOC) and sulphur dioxide (SO_2). It should be noted, however, that its territorial scope excludes emissions from the Canary Islands and does not cover all sectors. It should therefore not be confused with total emissions estimated by the inventory, which includes all sectors and all of Spain's national territory.

SOURCES

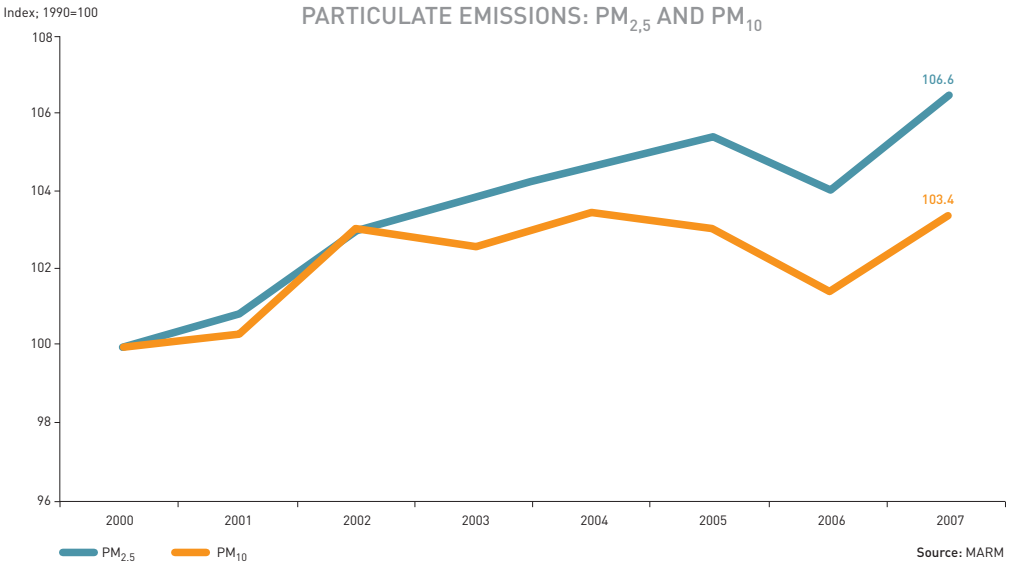
- Spain's Atmospheric Emissions Inventory. Edition 2009 (series 1990–2007). Directorate General of Environmental Quality and Assessment. MARM.

MORE INFORMATION

- http://www.marm.es
- http://www.eea.europa.eu

Particulate emissions to the atmosphere

Particulate emissions again increased in 2007 after the drop seen in 2006



Particulate emissions in the period 2000–2007 increased by 6.6% for $PM_{2.5}$ and 3.4% for PM_{10}. Both dropped strongly in 2006 but increased significantly again in 2007 (2.4% and 1.9% respectively).

By sectors, transport was responsible for the highest particulate emissions in 2007 (60.1% of $PM_{2.5}$ and 49.8% of PM_{10} emissions), followed by non-industrial combustion plants (16.5% and 13.7% respectively) and combustion for energy production and transformation (9.9% and 12.6% respectively). The remainder (industrial combustion plants, combustion-free industrial processes and agriculture, extraction and distribution of fossil fuels and waste treatment and elimination) represent only 13.5% of $PM_{2.5}$ and 23.9% of PM_{10} emissions.

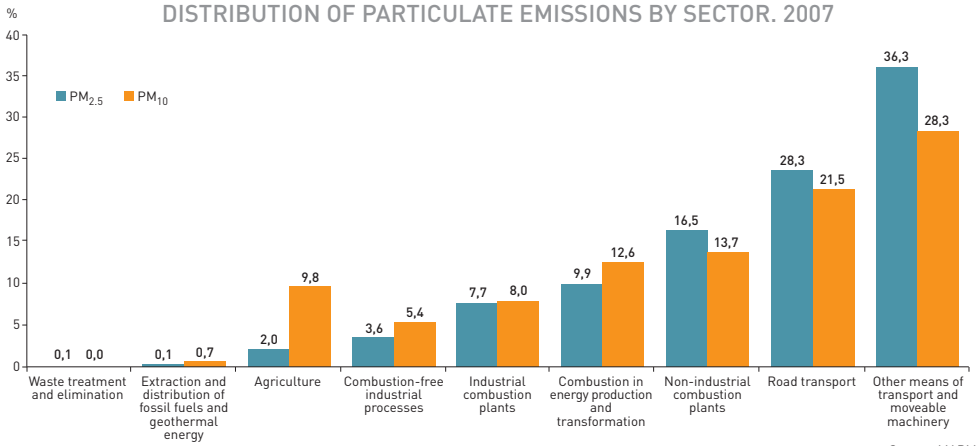
In the 32 countries which make up the European Environmental Agency, particulate emissions (primary, of PM_{10}, and secondary, including these from NO_x, SO_2 and NH_3) dropped by 44% between 1990 and 2006, above all due to the reduction in emissions from the energy industry, due to the replacement of coal as a fuel, and technological improvements. By country, Luxembourg and the Czech Republic,

both of whom have reduced emissions by more than 70%, should be highlighted. It is

estimated that Spain reduced its emissions by 10%, as did Portugal, which places the former in 26th place out of 32 countries.

According to Eurostat, in 2006 Spain occupied fourth place in the EU-27 in terms of PM_{10} emissions, behind France, Poland and Germany.

DISTRIBUTION OF PARTICULATE EMISSIONS BY SECTOR. 2007



Source: MARM

NOTES

- The indicator includes the emission of primary particulate material smaller than 10 and 2.5 m (PM_{10} and $PM_{2.5}$) and secondary particulate material precursors: nitrogen oxides (NO_x), ammonia (NH_3), sulphur dioxide (SO_2), weighted by their corresponding particle-formation factors.
- The EU has not yet established specific limits for primary particle emission, although limits do exist for 2010 for their precursors (NO_x, SO_x and NH_3) in the National Emissions Ceilings Directive (2001/81/EC) and in the Gothenburg Protocol of the Convention on long-range trans-boundary air pollution (Council Decision 81/462/EEC dated 11 June 1981).

SOURCES

- National Atmospheric Pollutants Emissions Inventory. Subdirectorate General of Industrial Air Quality and Environment. MARM.

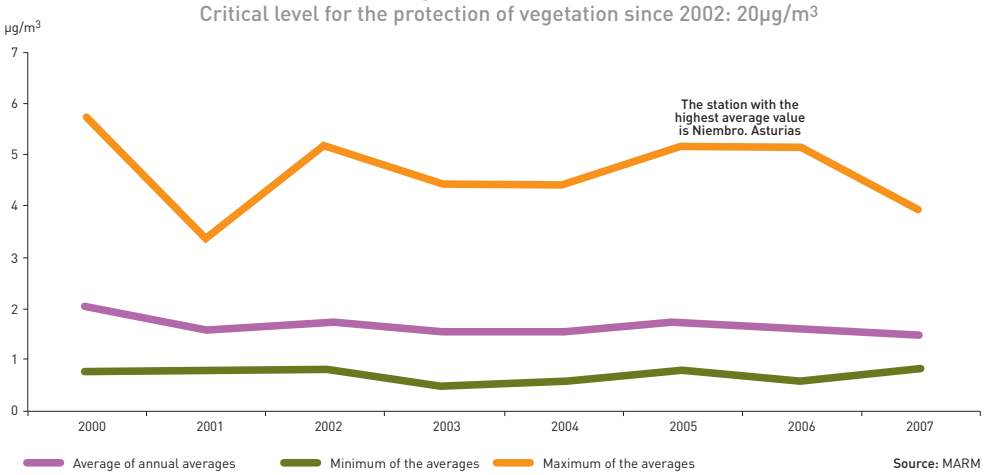
MORE INFORMATION

- http://www.marm.es
- http://www.eea.europa.eu
- http://ims.eionet.europa.eu/IMS/ISpecs/ISpecification20081014123025/IAssessment1226322448209/view_content#
- http://dataservice.eea.europa.eu/atlas/viewdata/viewpub.asp?id=3852

Regional background air quality for the protection of human health and vegetation

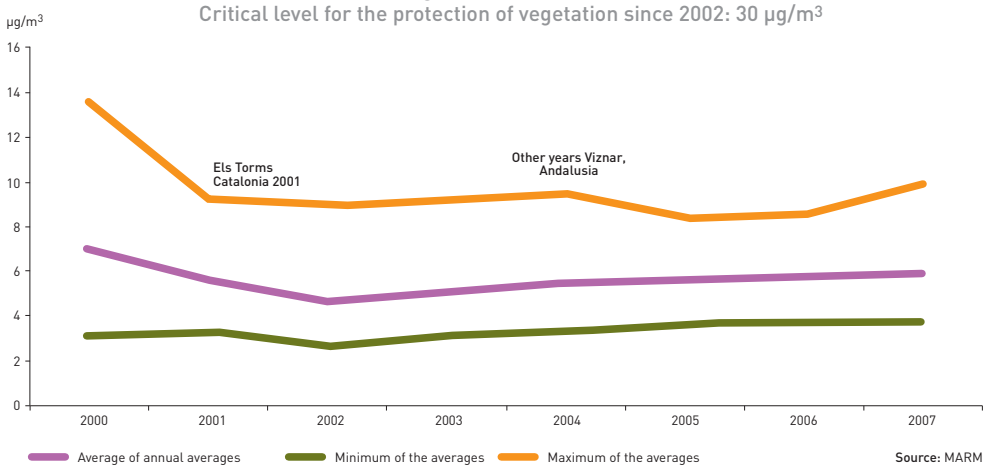
Spanish background pollution shows high values for PM10 and ozone, with the latter exceeding legally established limits

BACKGROUND POLLUTION IN SPAIN: SO_2
(average annual concentration)
Critical level for the protection of vegetation since 2002: 20µg/m³



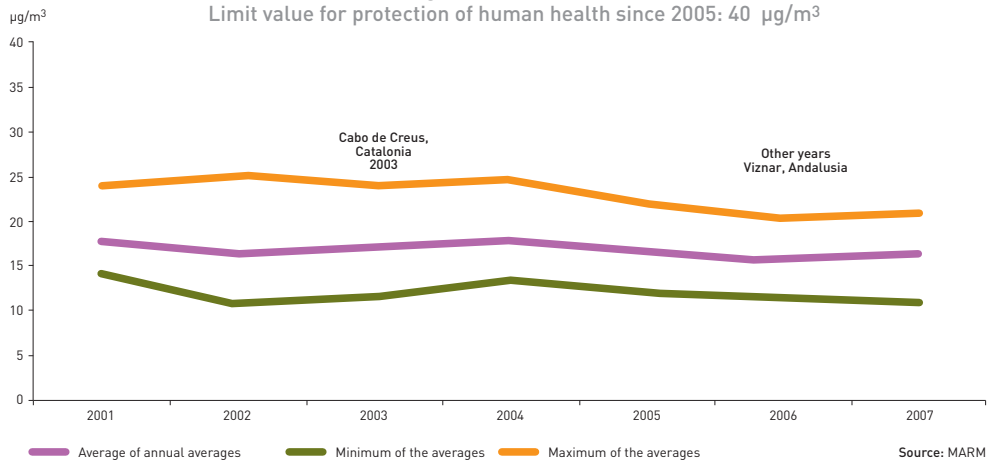
Source: MARM

BACKGROUND POLLUTION IN SPAIN: NO_2
(average annual concentration)
Critical level for the protection of vegetation since 2002: 30 µg/m³



Source: MARM

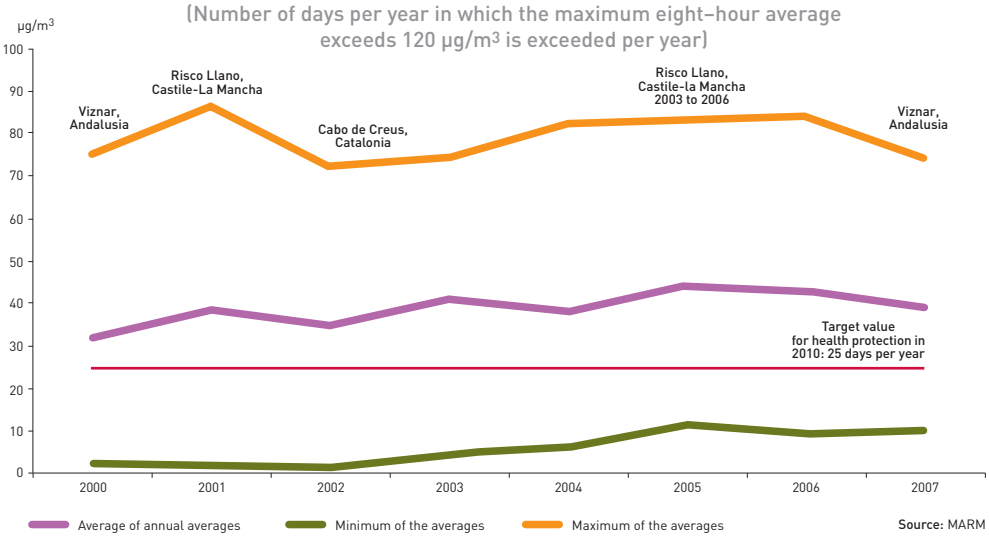
BACKGROUND POLLUTION IN SPAIN: PM_{10}
(average annual concentration)
Limit value for protection of human health since 2005: 40 µg/m³



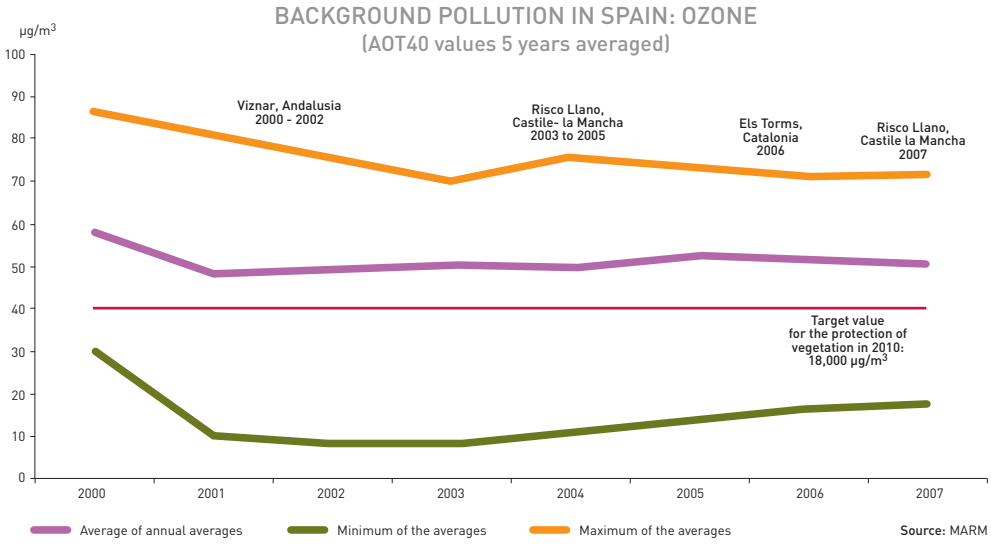
Source: MARM

One way of obtaining a more general impression of the overall air quality in a region not directly affected by pollution sources could be obtained from the information provided by the network of background atmospheric pollution monitoring stations, or EMEP/GAW/CAMP network. The information available from these stations is very wide ranging, and one way of getting some idea of overall air quality is to look at the mean, minimum and maximum of the mean concentrations measured at each of these stations each year.

BACKGROUND POLLUTION IN SPAIN: OZONE
(Number of days per year in which the maximum eight–hour average exceeds 120 µg/m³ is exceeded per year)



Source: MARM



As can be seen from the graphs, the means of the mean annual SO_2, NO_2 and particulate (PM_{10}) values follow different trends, although none of them can be considered to be negative. The trend for SO_2, for example, is to decrease, whereas that for PM_{10} indicates a stabilisation. The trend for NO_2, on the other hand, shows an increase from 2002 onwards after the decreases observed in 2000 and 2001. However, it should be noted that, as would be expected for stations distant from emission sources, current maximum health-protection limits are not exceeded in any case. Similarly, the maximum of the means also remains below these limits.

In the case of ozone, in contrast, analysis of the background pollution shows a mean of mean values above the legally established target values for both human health (determined from the three-yearly average of the number of days per year when the eight-hour maximum of 120 g/m^3 was exceeded) and protection of vegetation (AOT 40). It is important to highlight Spain's geographical and climatic characteristics which, together with those of ozone itself and the fact that it is a secondary pollutant, mean that the levels of this pollutant are higher in regions distant from primary emission sources than those found in urban (due to traffic) or industrial areas.

NOTES

- The intention is to assess the background pollution existing in Spain. For this reason, the average of the average concentrations at all stations is given for each pollutant and year. The minimum and maximum of the averages are also given, along with the name of the station where the latter occurred. The range within which all stations fall is therefore given.
- AOT40 stands for Amount Over Threshold. This index is defined as the sum of the difference between hourly concentrations above 80 µg/m^3 (= 40 parts per billion or ppb) and 80 µg/m^3 over a given period (which, in the case of vegetation protection, is that comprising the months of May, June and July), using only 1-hour values measured between 8:00 and 20:00 each day, Central European Time. (Royal Decree 1796/2003, which transposes Directive 2002/3/EC into Spanish law).
- To obtain the AOT40 figure from the hourly ozone concentrations at each of the stations covered, figures are taken for those years in which 90% or more of the available data are valid, corrected to standardise all at 100% of possible data. Averages are calculated over five years (rolling averages) or, in the absence of a complete consecutive series of annual AOT40 figures, a minimum 3-year average is used (Annex I of Royal Decree 1796/2003, which transposes Directive 2002/3/EC into Spanish law).
- The European Monitoring Evaluation Programme (EMEP), created within the framework of the Geneva Convention, measures background air pollution. The Global Atmosphere Watch (GAW) is a project of the World Meteorological Organisation (WMO). The Comprehensive Atmospheric Monitoring Programme (CAMP), established under the Oslo-Paris agreements, is intended to determine the atmospheric contributions in the NE Atlantic and to study their effects on the marine environment. The EMEP/GAW/CAMP network, which complies with the goals of the three previous programmes, monitors the tropospheric levels of residual (background) air pollution, and its sedimentation onto the earth's surface, in order to protect the environment. The location of the stations in the EMEP network used for the index are shown in the map below:

With the entry into force of the new air-quality directive (Directive 2008/50/EEC) of the European Parliament and of the Council, dated 21 May 2008, on ambient air quality and cleaner air for Europe, the current "upper limits for the protection of vegetation" of SO2 and NOx will be called "critical levels for the protection of vegetation"

SOURCES

- Air-Quality Database. Directorate General for Environmental Quality and Assessment. MARM.

MORE INFORMATION

- http://www.marm.es
- http://www.eea.europa.eu/