Air pollution activities at EEA

European Environment Agency

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Air Pollution, Transport and Noise

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Air pollution, transport and noise (ACC1)
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European Topic Centre
on Air Pollution and Climate Change Mitigation

EIONET
European Environment Information and Observation Network

European Environment Agency

Delivering the MAWP 2014-2018
Air pollution, transport and noise (ACC1)

Objective

To support and inform policy development and implementation in the areas of air pollution, transport and environment and noise by means of data, information/indicators and assessments.

Specifically:

- to collect, process, quality assure, store and disseminate historical and where possible up-to-date (i.e. near real time) data underpinning these policies;
- to support countries with the reporting of data towards the European Commission, the UNECE Convention on Long-range Transboundary Air Pollution and other bodies;
- to adapt and further develop EEA information systems (e.g. Reportnet, databases, viewers) to accommodate anticipated changes in country reporting;
- to make use of Copernicus atmosphere services to support the EEA data and information products on air quality, including near real time data;

Data compilation, quality assurance, dissemination, supporting EU's international reporting

(datasets, dataviewers, maps, 'up to date' information etc)

- to support countries and the European Commission with relevant analyses and compilations of the reported information and with direct policy support;
- to track progress towards, and provide outlooks for, the achievement of targets as defined in relevant EU and international legislation, including the long-term objectives of minimising impact from air pollution and the decarbonisation of the transport sector;

policy support, tracking progress to targets, indicators

- to produce integrated and targeted assessments of air pollution, noise and transport and environment, the impacts on human health, climate change and the environment and the effectiveness and co-benefits of policies and measures in these areas as well as in related environmental areas;
- to increase knowledge and understanding of air pollution and climate change inter-linkages, pursuing an integrated approach to promote efficiencies and improved implementation.

thematic assessments, cross-cutting activities

Key products and processes

Processes

Implementation of air quality 'e-reporting' IT infrastructure,
Support to Air Quality Expert Group/Committee (AQ + emissions)
Support to LRTAP Convention, annual emission inventory review, inventory adjustment procedures
Noise dataflow reporting
Transport: cars and vans CO_2 reporting, fuel quality reporting

Publications 2014

Air pollution by ozone across Europe during summer 2013 – Q1
Good practice guide on noise quiet areas – Q1
Annual NEC Directive status report 2013 – Q2
Environmental impacts of air pollution – critical loads – Q2
European Union emission inventory report under the UNECE Convention on Long-range Transboundary Air Pollution (LRTAP) – Q2
Air quality in Europe – 2014 report – Q4
Noise assessment report – 2014 – Q4
Annual Transport and Environment Reporting Mechanism report (TERM) – Q4
Revealing the costs of air pollution from industrial facilities in Europe – Q4
Towards integrated assessment of air quality and climate policies – Q4

Network meetings in 2014

EIONET Air emissions/TFEIP (May)
EIONET Transport (June)
October EIONET Air Quality workshop (Oct)
October EIONET Noise workshop (Oct)
Expert workshops – COPERT, Air pilots, EPON

Air pollution - what has been the European policy response?

EU legislation limits the emissions of pollutants and sets maximum levels for concentrations of these pollutants in the air.

For **pollutant emissions**, the 2001 National Emissions Ceiling (NEC) Directive sets ceiling limits for emissions of SO_2, NO_X, NMVOC and NH_3. These ceilings should have been met by all EU Member States by 2010.

These ceilings are supported by a range of sectoral measures controlling emissions from road transport, industry, etc.

AIR POLLUTANT SOURCES

For **pollutant concentrations**, two Air Quality Directives (2008/50/EC and 2004/107/EC) set legally binding limits and target values for ground-level concentrations of outdoor air pollutants.

CONCENTRATIONS AND IMPACTS

Provision of up-to-date air quality data

March 2014 –

Particulate matter (PM_{10})

episode

i) Daily limit value: 50 µg/m³

(not to be exceeded >35 days per year)

ii) Annual limit value: 40 µg/m³

Daily averages being observed:

~100-120 µg/m³

Hourly peak concs: ~180-200 µg/m³

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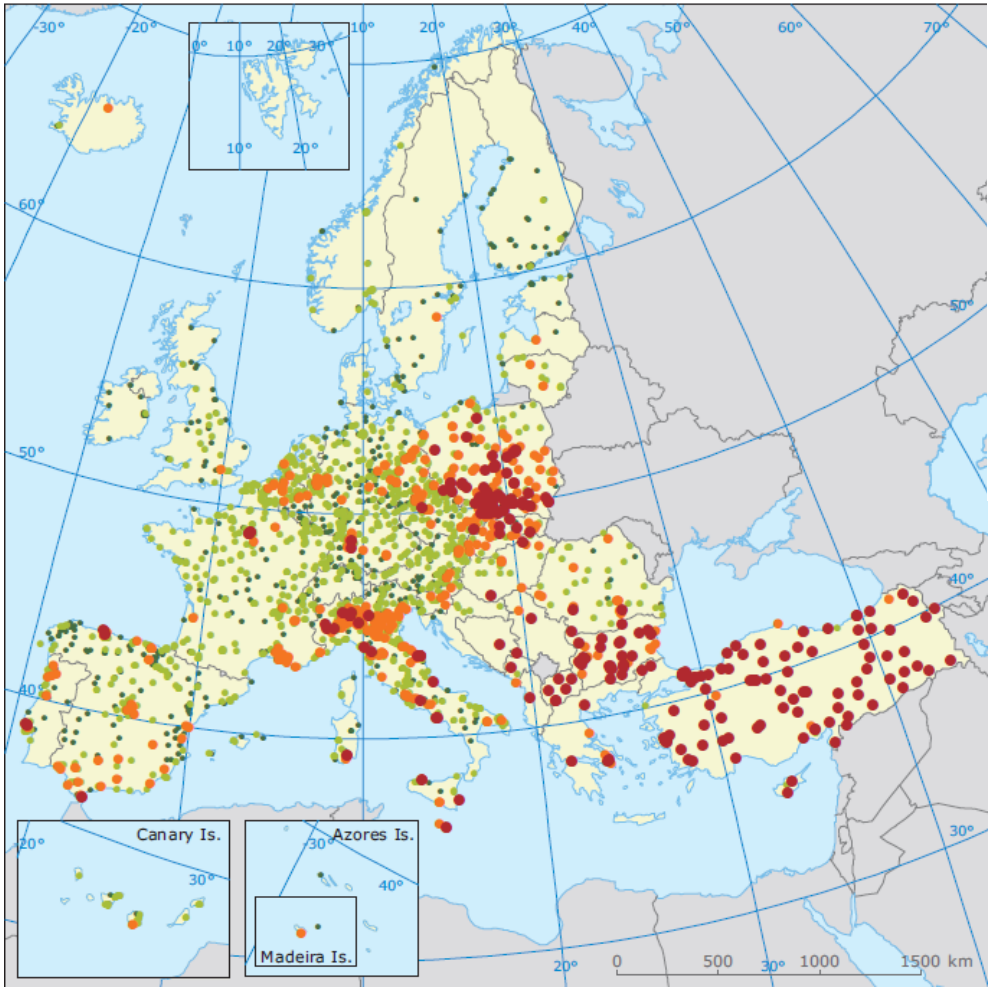
Status of air quality in Europe: exceedance of air quality limit values in urban areas



Annual mean particulate matter (PM_{10}) 2010, based on daily average with percentage of valid measurements ≥ 75 % in µg/m³

- ≤ 20
- 20–31
- 31–40
- > 40
- Countries/regions not included in the data exchange process

Red: exceedances of long term exposure limit (annual mean)

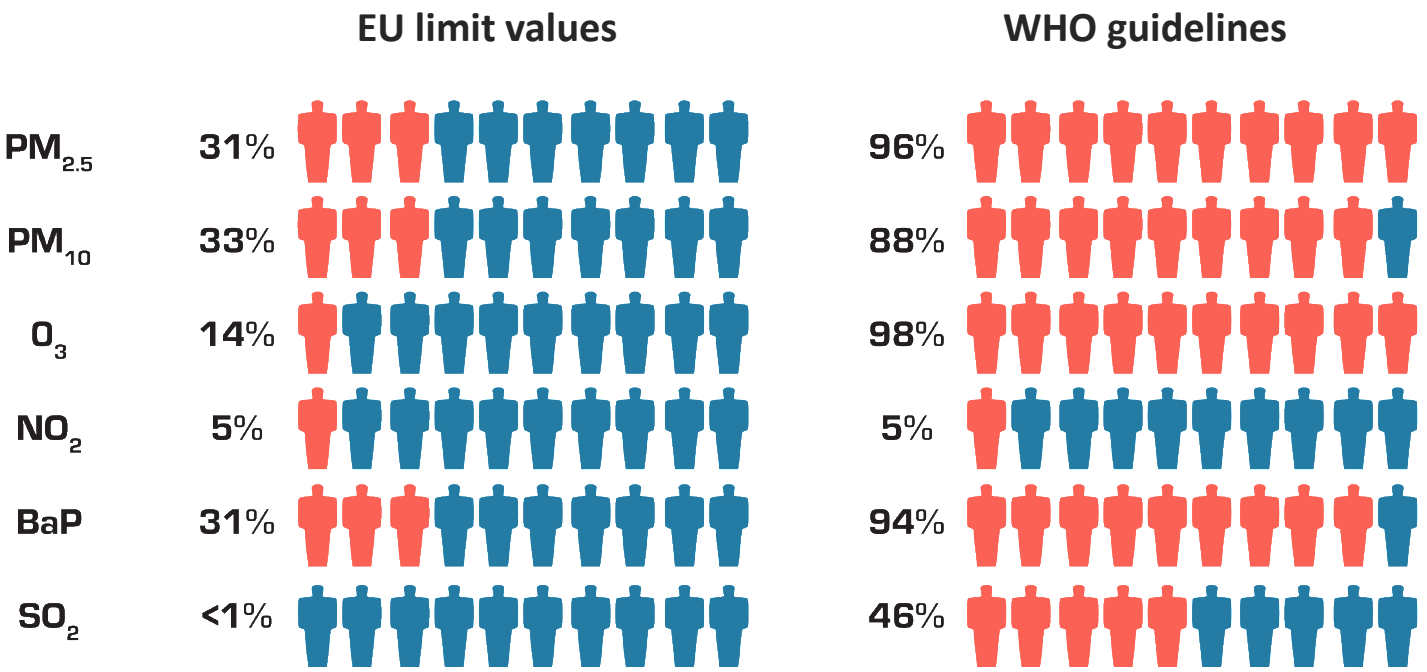
Orange: exceedances of the 24-hour limit value

Pale green: stations reporting exceedances of the WHO air quality guideline for PM_{10} of less than 20 µg/m³ (annual mean) but not in exceedance of EU AQ limit values

Dark green: no exceedance WHO/EU AQ

Exposure to harmful levels of air pollution

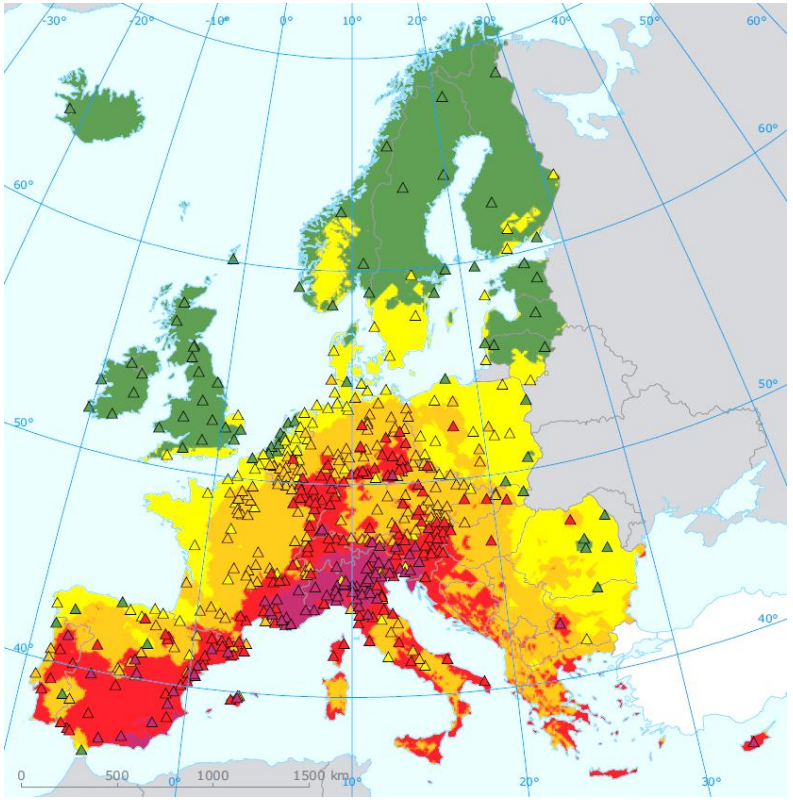
EU urban population exposed to harmful levels of air pollution, according to:



Up to a third of Europeans living in cities are exposed to air pollutant levels exceeding EU air quality standards. And around 90 % of Europeans living in cities are exposed to levels of air pollutants deemed damaging to health by the World Health Organization's more stringent guidelines.

Ozone concentrations threaten health & crops

Exposure levels of European agricultural areas to ozone (O_3) in 2010:



Ozone AOT40 for crops

Reference year: 2010

Combination with EMEP Model, Altitude and Solar Radiation

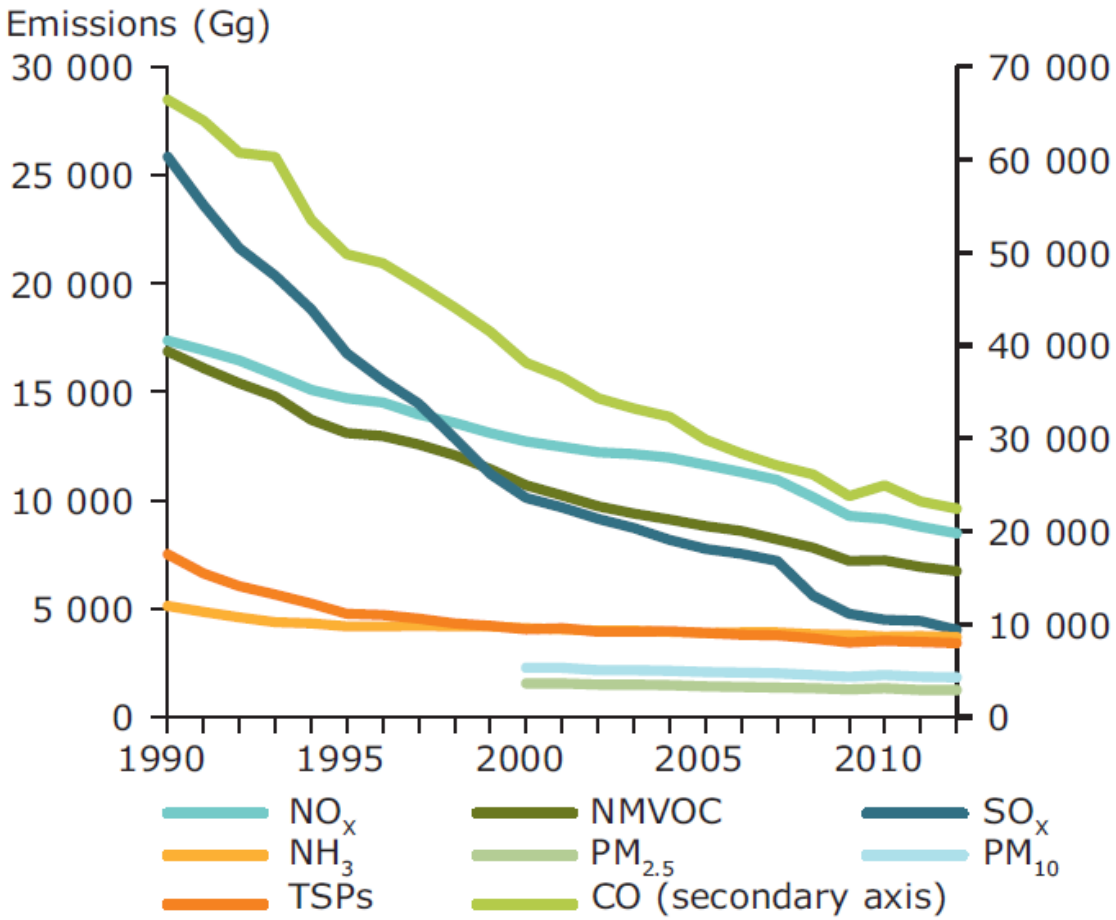
Resolution 2 x 2 km

$\mu g.m^{-3}.h$

- < 6 000
- 6 000–12 000
- 12 000–18 000
- 18 000–27 000
- > 27 000
- Non-mapped countries
- Poor data coverage
- △ Rural background station

High levels of O_3 concentrations harm human health and agricultural output. Losses of crop yields also have consequences for the European economy. EU emissions of the precursor gases that form O_3 have fallen by up to 32 % since 2002, but there has been no discernible reduction in O_3 concentrations.

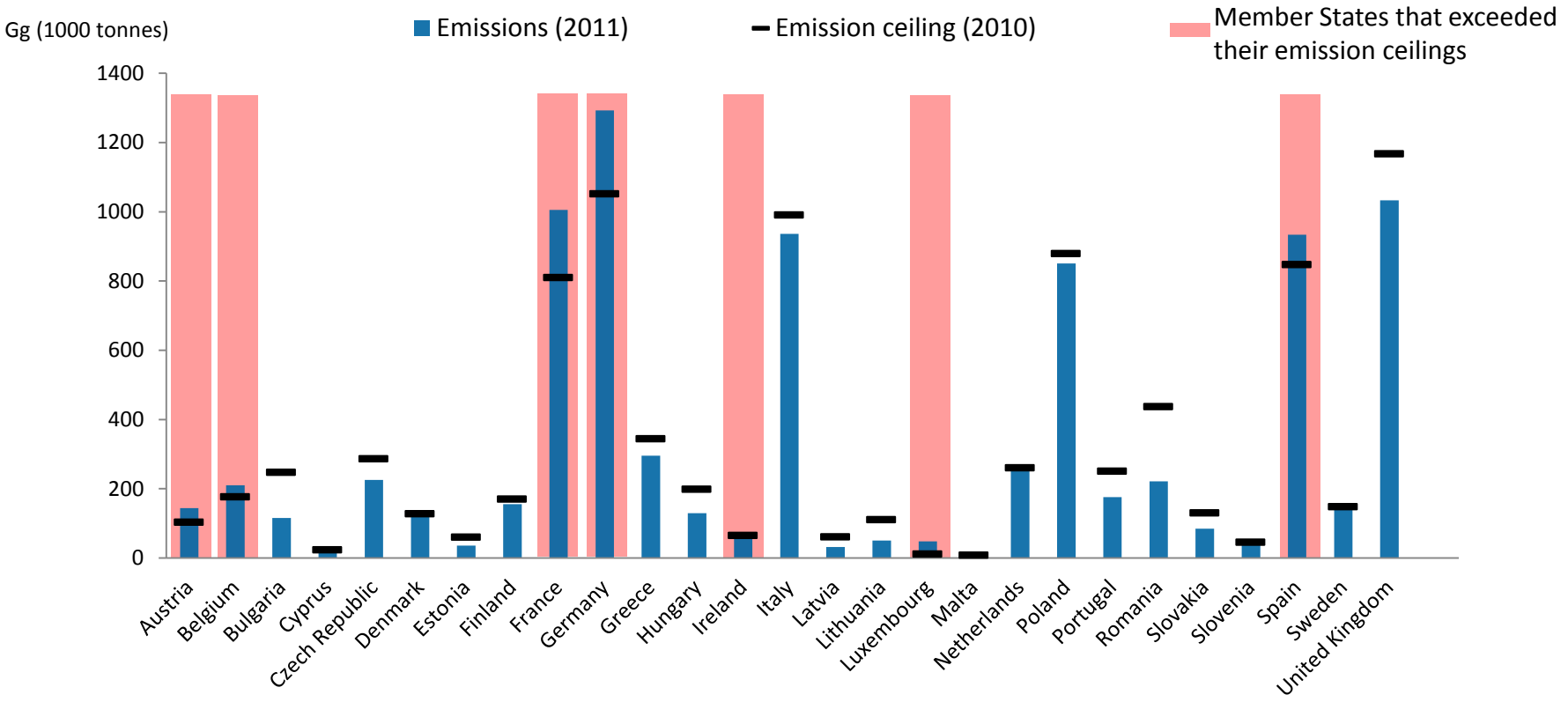
Emissions have been reduced...



EU Member States have made progress in cutting emissions of several air pollutants.

But Member States still exceed emission targets

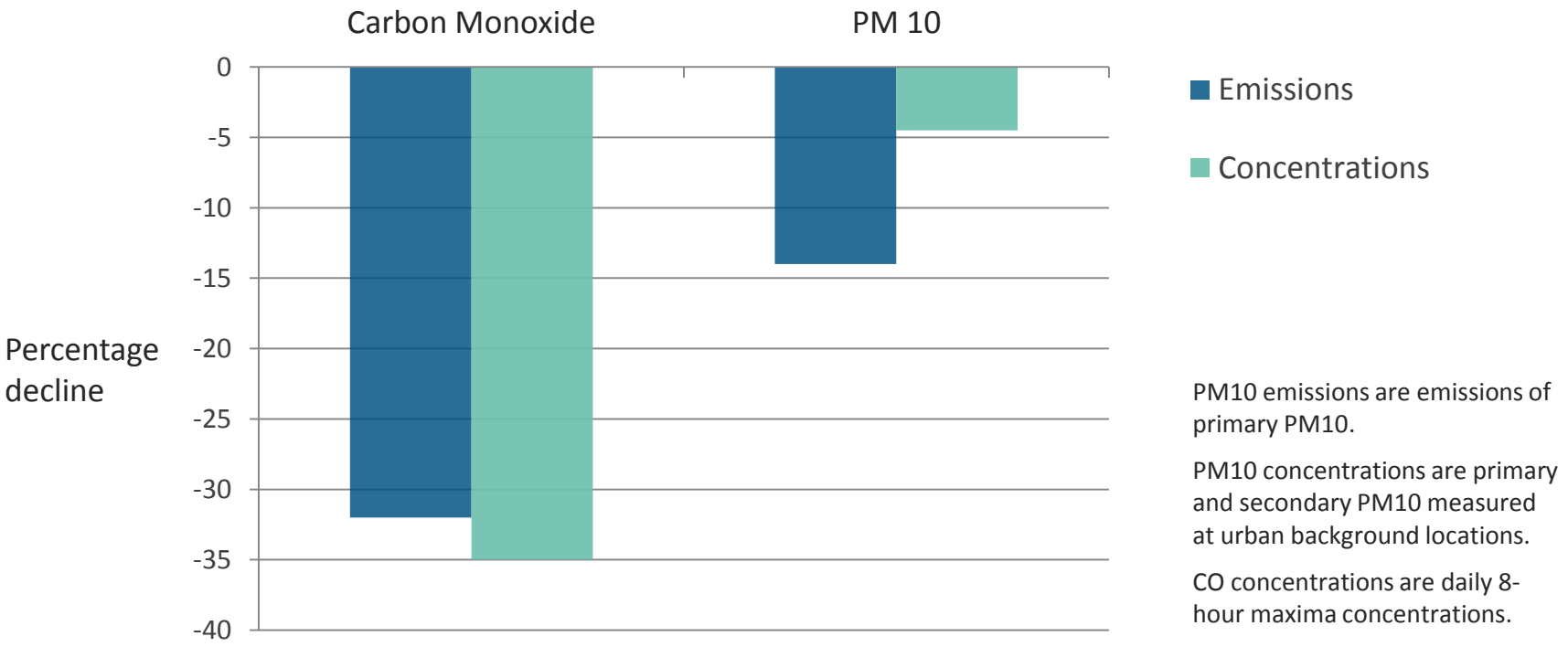
2011 nitrogen oxides (NO_x) emissions compared to NEC emission ceilings:



In 2011, seven EU Member States exceeded their National Emissions Ceilings (NEC) Directive emissions ceiling limit for NO_x. In total, eight EU Member States were not in compliance with one or more NEC emission ceilings in 2011. These ceilings should have been reached in all Member States by 2010.

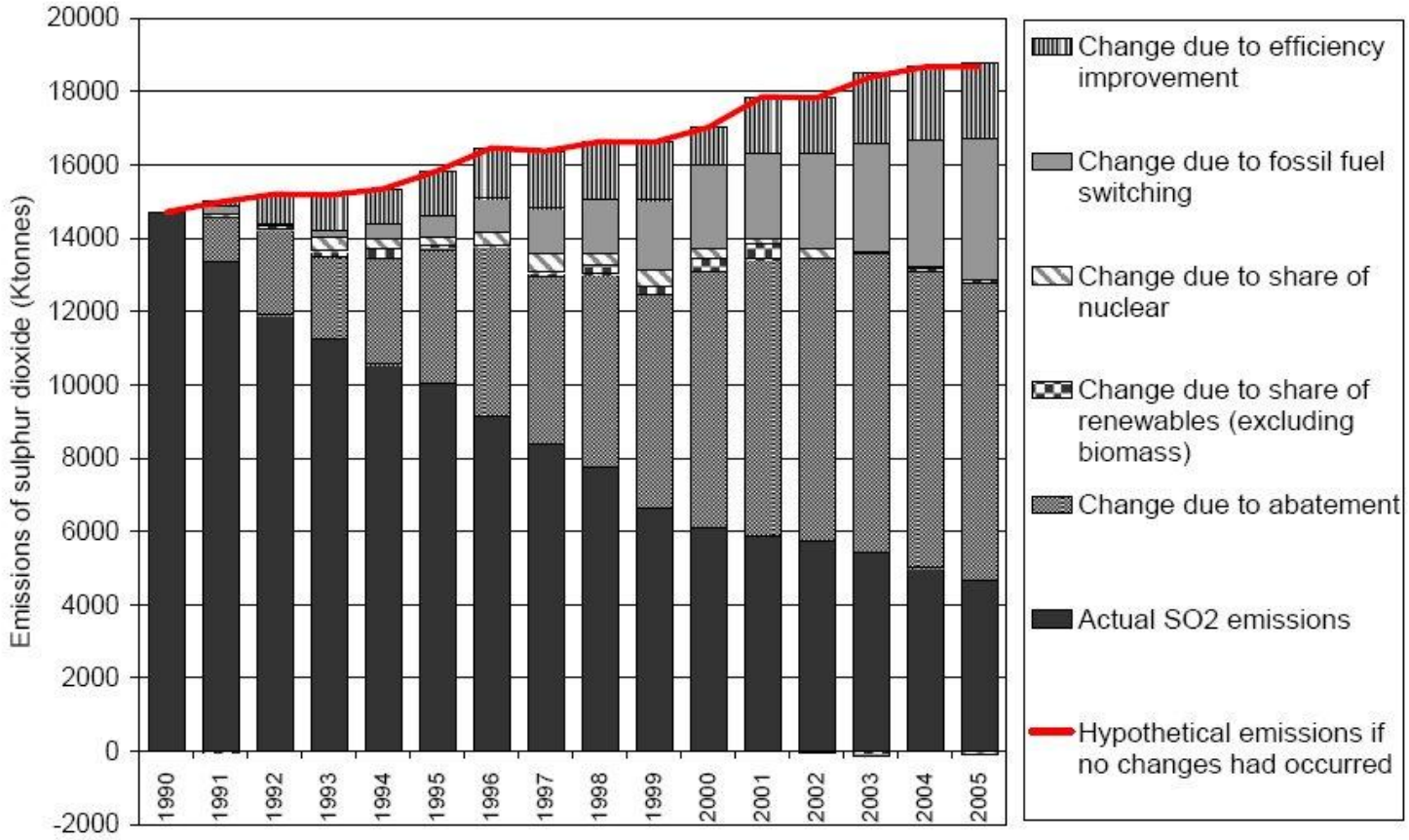
Lower emissions do not always lead to lower concentrations

Percentage decline in EU carbon monoxide (CO) and particulate matter (PM_{10}) emissions and concentrations between 2002-2011:



Between 2002 and 2011, there was a significant decline in both the emission levels and the concentration levels for some pollutants (e.g. CO). For some others, there was a noticeable decline in emissions, but not in atmospheric concentrations (e.g. PM_{10}).

Disentangling the explanatory factors behind emissions



Potential interest in updating to:

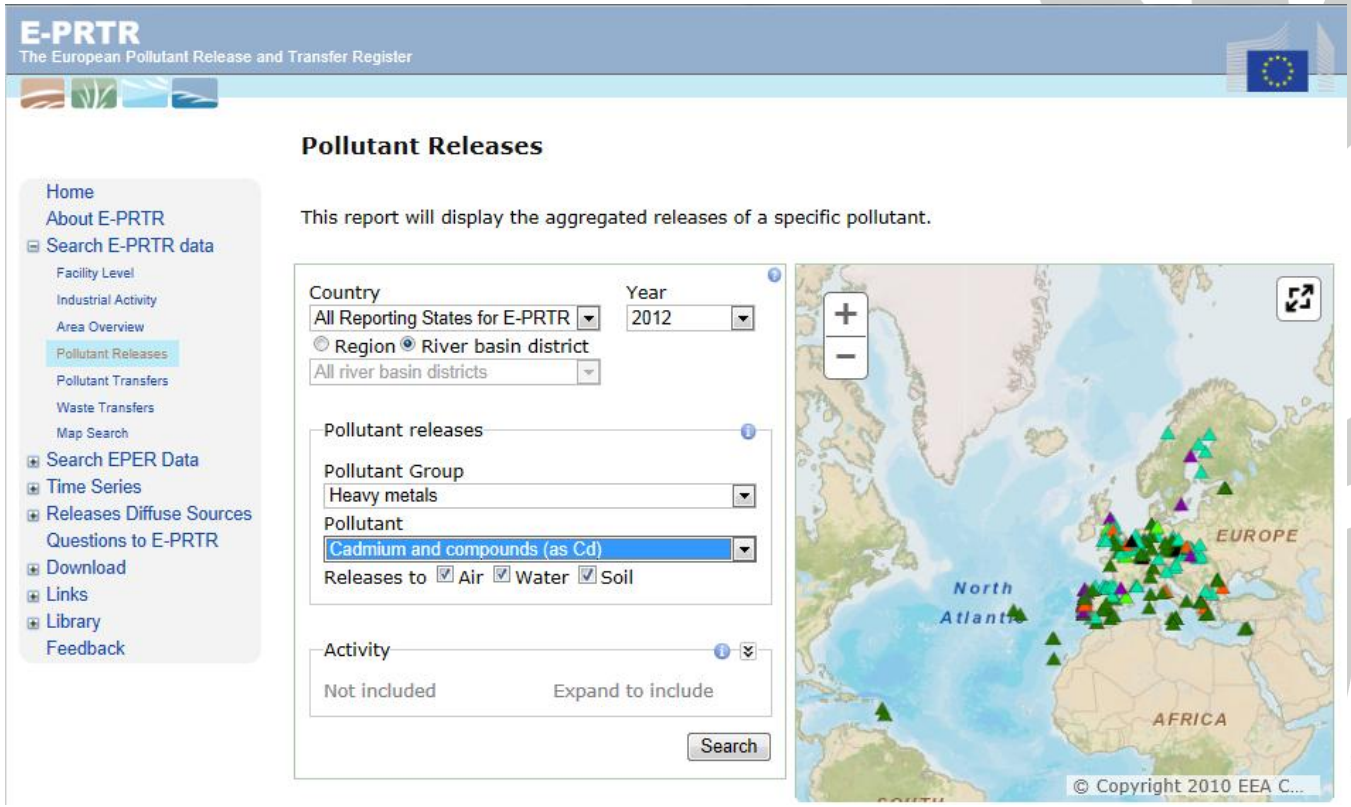
- include impacts of economic recession etc upon EU air pollutant trends
- assess impact of national/EU policy interventions. Is policy working? (which policies?)

Information on industrial emissions – E-PRTR

The European Pollutant Release and Transfer Register (E-PRTR) presents releases of pollutants to air, water and soil and waste transfers.

Releases from both ‘point sources’ (large industrial facilities) and ‘diffuse’ sources e.g. road transport are included for certain pollutants

http://prtr.ec.europa.eu



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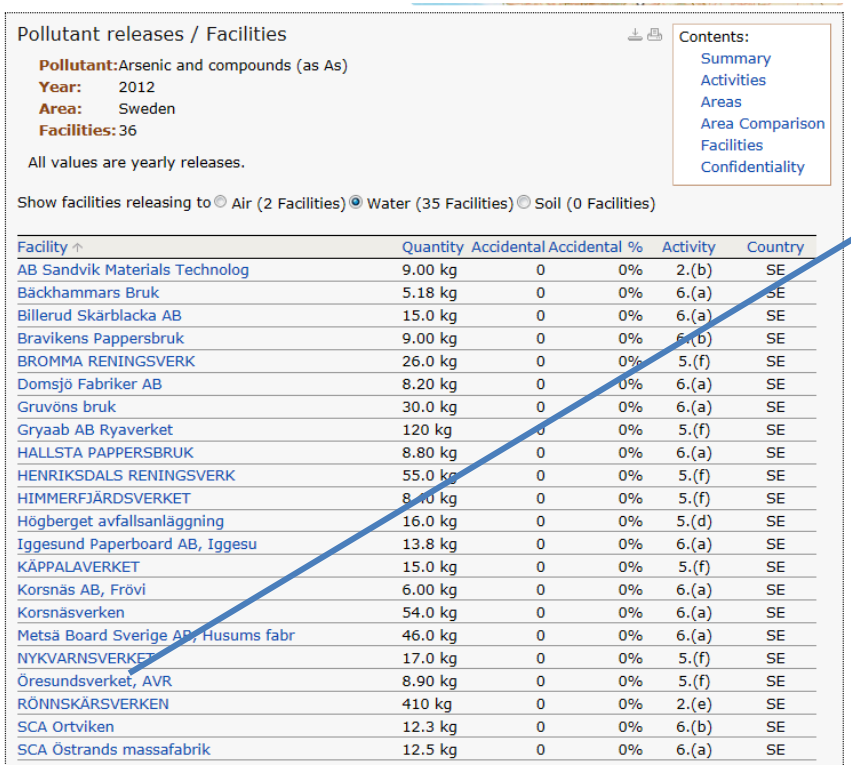
Information on heavy metal emissions – E-PRTR

E-PRTR makes publicly available data from individual facilities, consistent with the requirements of EU legislation and the UNECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (the 'Aarhus Convention').



Pollutant releases / Facilities

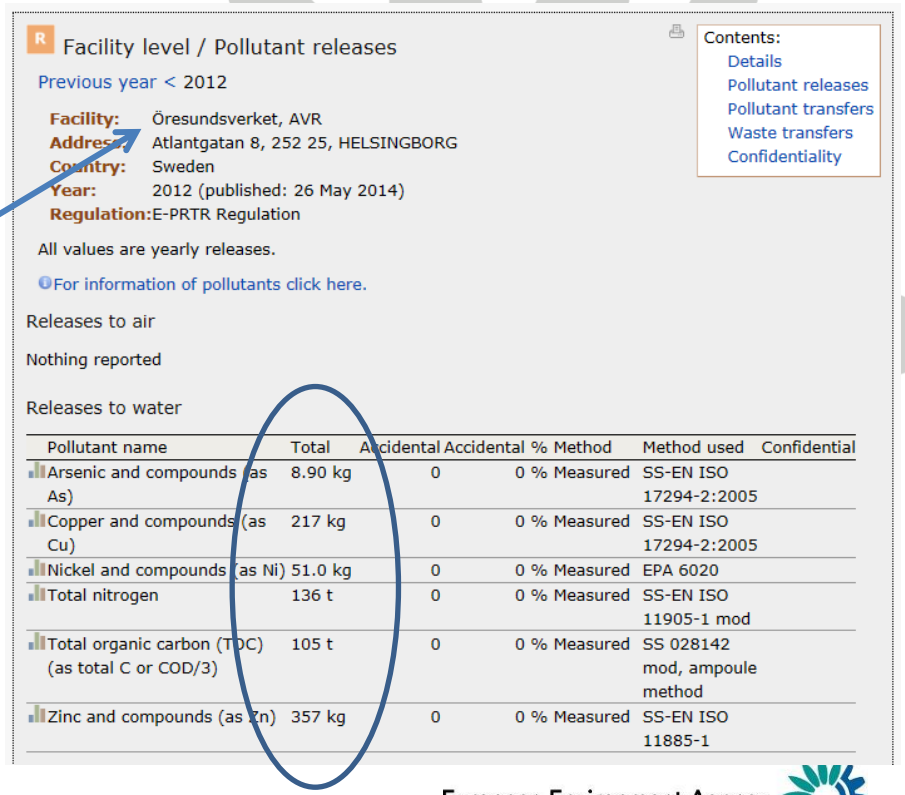
Pollutant: Arsenic and compounds (as As)
Year: 2012
Area: Sweden
Facilities: 36

All values are yearly releases.

Contents:
Summary
Activities
Areas
Area Comparison
Facilities
Confidentiality

Show facilities releasing to: Air (2 Facilities) Water (35 Facilities) Soil (0 Facilities)

Facility	Quantity	Accidental	Accidental %	Activity	Country
AB Sandvik Materials Technolog	9.00 kg	0	0%	2.(b)	SE
Bäckhammars Bruk	5.18 kg	0	0%	6.(a)	SE
Billerud Skärblacka AB	15.0 kg	0	0%	6.(a)	SE
Bravikens Pappersbruk	9.00 kg	0	0%	6.(b)	SE
BROMMA RENINGSVERK	26.0 kg	0	0%	5.(f)	SE
Domsjö Fabriker AB	8.20 kg	0	0%	6.(a)	SE
Gruvöns bruk	30.0 kg	0	0%	6.(a)	SE
Gryaab AB Ryaverket	120 kg	0	0%	5.(f)	SE
HALLSTA PAPPERSBRUK	8.80 kg	0	0%	6.(a)	SE
HENRIKSDALS RENINGSVERK	55.0 kg	0	0%	5.(f)	SE
HIMMERFJÄRDSVERKET	8.10 kg	0	0%	5.(f)	SE
Högberget avfallsanläggning	16.0 kg	0	0%	5.(d)	SE
Iggesund Paperboard AB, Iggesu	13.8 kg	0	0%	6.(a)	SE
KÄPPALAVERKET	15.0 kg	0	0%	5.(f)	SE
Korsnäs AB, Frövi	6.00 kg	0	0%	6.(a)	SE
Korsnäsverken	54.0 kg	0	0%	6.(a)	SE
Metsä Board Sverige AB, Husums fabr	46.0 kg	0	0%	6.(a)	SE
NYKVARNSVERKET	17.0 kg	0	0%	5.(f)	SE
Öresundsverket, AVR	8.90 kg	0	0%	5.(f)	SE
RÖNNSKÄRSVERKEN	410 kg	0	0%	2.(e)	SE
SCA Ortviken	12.3 kg	0	0%	6.(b)	SE
SCA Östrands massafabrik	12.5 kg	0	0%	6.(a)	SE



Facility level / Pollutant releases

Previous year < 2012

Facility: Öresundsverket, AVR
Address: Atlantgatan 8, 252 25, HELSINGBORG
Country: Sweden
Year: 2012 (published: 26 May 2014)
Regulation: E-PRTR Regulation

All values are yearly releases.

For information of pollutants click here.

Contents:
Details
Pollutant releases
Pollutant transfers
Waste transfers
Confidentiality

Releases to air

Nothing reported

Releases to water

Pollutant name	Total	Accidental	Accidental %	Method	Method used	Confidential
Arsenic and compounds (as As)	8.90 kg	0	0 %	Measured	SS-EN ISO 17294-2:2005	
Copper and compounds (as Cu)	217 kg	0	0 %	Measured	SS-EN ISO 17294-2:2005	
Nickel and compounds (as Ni)	51.0 kg	0	0 %	Measured	EPA 6020	
Total nitrogen	136 t	0	0 %	Measured	SS-EN ISO 11905-1 mod	
Total organic carbon (TOC) (as total C or COD/3)	105 t	0	0 %	Measured	SS 028142 mod, ampoule method	
Zinc and compounds (as Zn)	357 kg	0	0 %	Measured	SS-EN ISO 11885-1	

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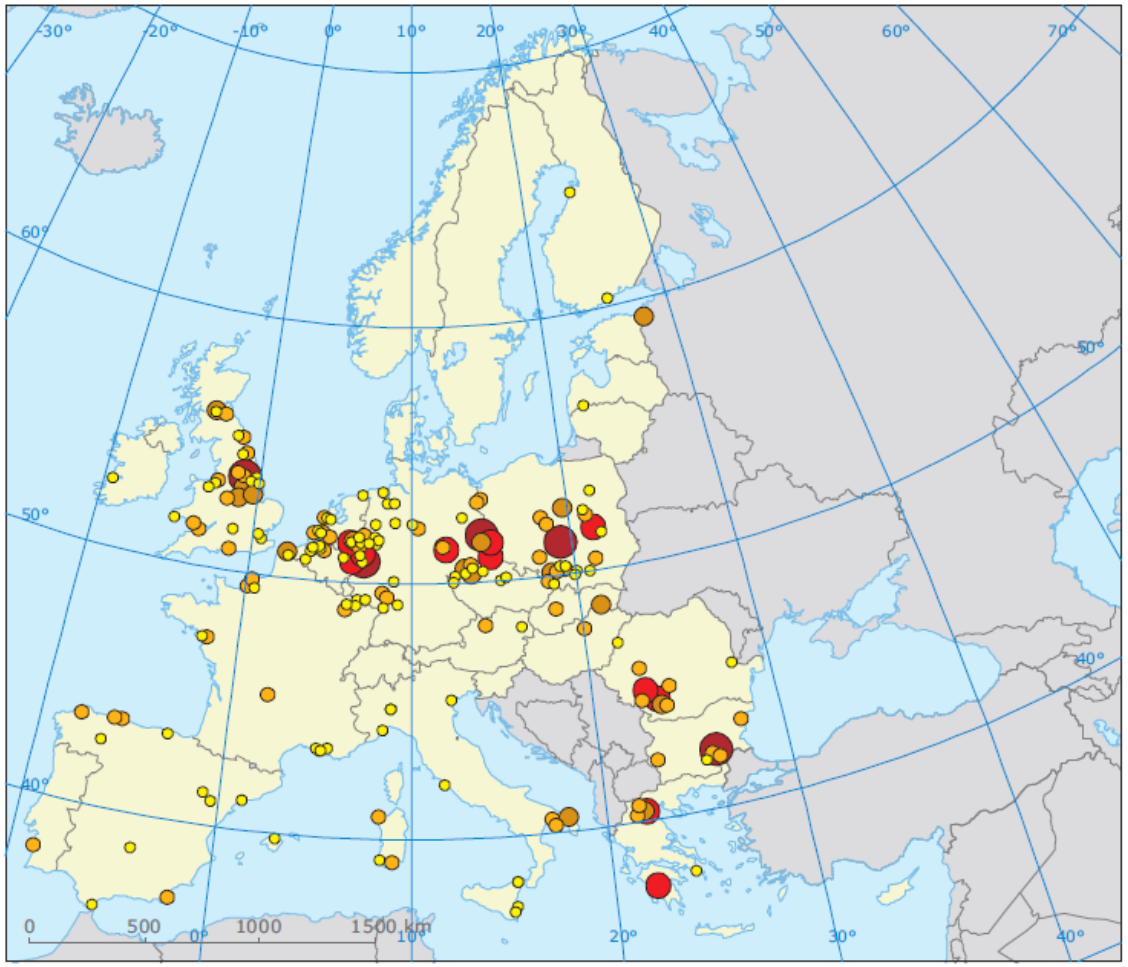
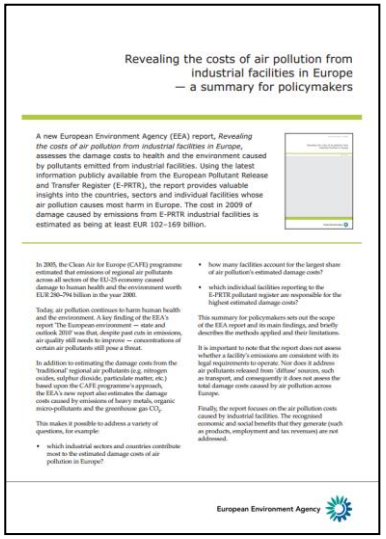
Location of the most polluting 191 E-PRTR facilities that damaged health & environment in 2009



Sum of damage costs

(Million EUR VOLY)

- < 200
- 200–350
- 350–600
- 600–900
- > 900



Revealing the costs of air pollution from industrial facilities in Europe
— a summary for policymakers

A new European Environment Agency (EEA) report, *Revealing the costs of air pollution from industrial facilities in Europe*, assesses the damage costs to health and the environment caused by pollutants emitted from industrial facilities. Using the latest information publicly available from the European Pollutant Release and Transfer Register (E-PRTR), the report provides valuable insights into the countries, sectors and individual facilities whose air pollution causes most harm in Europe. The cost in 2009 of damage caused by emissions from E-PRTR industrial facilities is estimated as being at least EUR 102–169 billion.

In 2005, the Clean Air for Europe (CAFE) programme estimated that emissions of regional air pollutants across all sectors of the EU-25 economy caused damage to human health and the environment worth EUR 280–794 billion in the year 2000.

Today, air pollution continues to harm human health and the environment. A key finding of the EEA's report 'The European environment — state and outlook 2010' was that, despite past cuts in emissions, air quality still needs to improve — concentrations of certain air pollutants still pose a threat.

In addition to estimating the damage costs from the 'traditional' regional air pollutants (e.g. nitrogen oxides, sulphur dioxide, particulate matter, etc.) based upon the CAFE programme's approach, the EEA's new report also estimates the damage costs caused by emissions of heavy metals, organic micro-pollutants and the greenhouse gas CO_2.

This makes it possible to address a variety of questions, for example:

- which industrial sectors and countries contribute most to the estimated damage costs of air pollution in Europe?
- how many facilities account for the largest share of air pollution's estimated damage costs?
- which individual facilities reporting to the E-PRTR pollutant register are responsible for the highest estimated damage costs?

This summary for policymakers sets out the scope of the EEA report and its main findings, and briefly describes the methods applied and their limitations.

It is important to note that the report does not assess whether a facility's emissions are consistent with its legal requirements to operate. Nor does it address air pollutants released from 'diffuse' sources, such as transport, and consequently it does not assess the total damage costs caused by air pollution across Europe.

Finally, the report focuses on the air pollution costs caused by industrial facilities. The recognised economic and social benefits that they generate (such as products, employment and tax revenues) are not addressed.

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Tools and guidance for countries – EMEP/EEA guidebook

EN:
http://eea.europa.eu/emep-eea-guidebook

RU:
http://www.eea.europa.eu/ru/publications/rukovodstvo-emep-eaos-po-inventarizacii

The Guidebook provides guidance (methods and emission factors) to estimate emissions of air pollutants.

It is designed to assist countries that report emission inventories to the UNECE Convention on Long-range Transboundary Air Pollution (LRTAP Convention)

A RU-language version is available. The translation was funded by EEA through the ENPI-SEIS project

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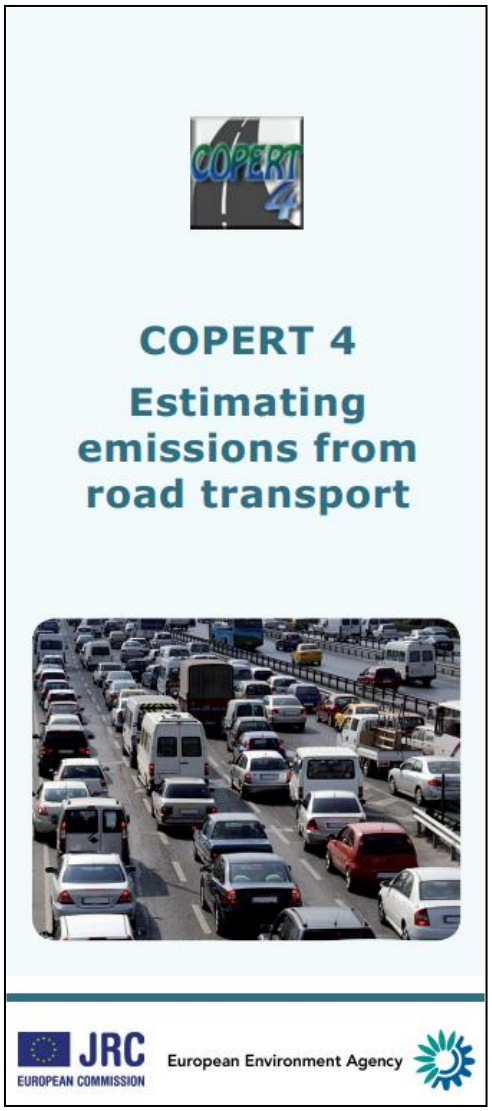
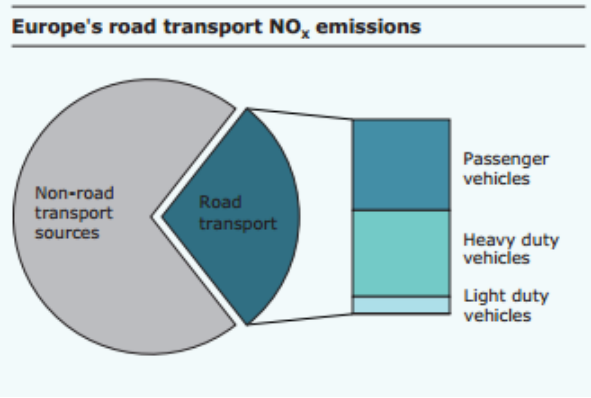
Tools and guidance for countries – COPERT software

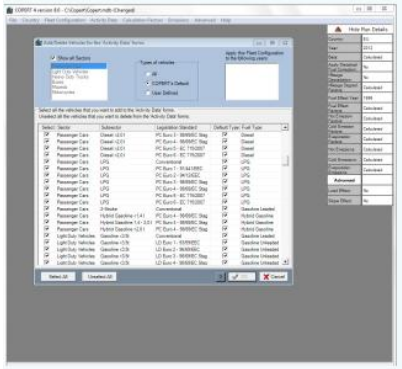


http://www.emisia.com/copert/

COPERT 4 is a software tool used world-wide to calculate air pollutant and greenhouse gas emissions from road transport.

The COPERT 4 methodology is part of the EMEP/EEA guidebook for the calculation of air pollutants and is consistent with the 2006 IPCC Guidelines for the calculation of greenhouse gas emissions





http://eea.europa.eu/air

martin.adams@eea.europa.eu

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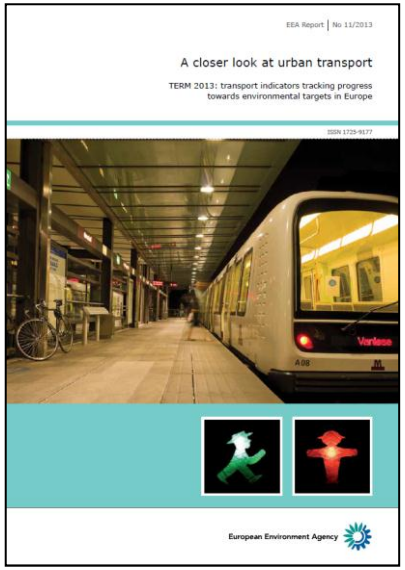
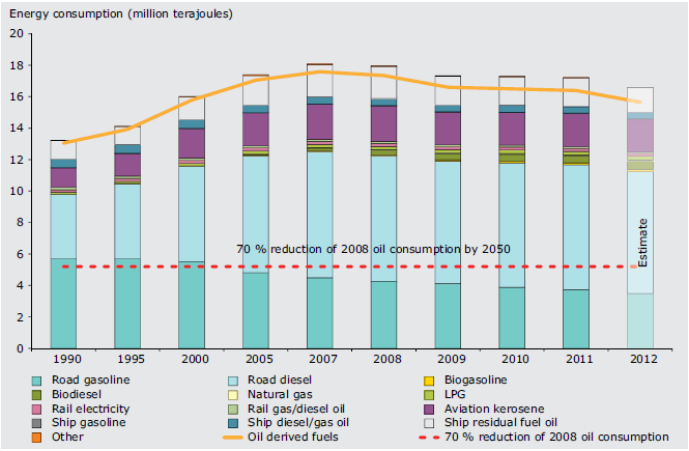
Transport indicators - TERM

Transport - 20 indicators	
Passenger transport demand	CSI 035
Freight transport demand	CSI 036
Use of cleaner and alternative fuels	CSI 037
Transport final energy consumption by mode	TERM 001
Transport emissions of greenhouse gases	TERM 002
Transport emissions of air pollutants	TERM 003
Exceedances of air quality objectives due to traffic	TERM 004
Traffic noise: exposure and annoyance	TERM 005
Fragmentation of land and ecosystems	TERM 006
Capacity of infrastructure network	TERM 018
Transport infrastructure investments	TERM 019
Real change in transport prices by mode	TERM 020
Fuel prices	TERM 021
Energy efficiency and specific CO_2 emissions	TERM 027
Specific air pollutant emissions	TERM 028
Occupancy rates of passenger vehicles	TERM 029
Load factors for freight transport	TERM 030
Size of the vehicle fleet	TERM 032
Average age of the vehicle fleet	TERM 033
Proportion of vehicle fleet meeting certain emission standards	TERM 034





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Vehicles and CO2 monitoring

New cars meet CO2 target two years ahead of the deadline

Change language

Topics: Climate change | Transport | Policy instruments

Cars sold in 2013 were 4 % more efficient than the year before, according to provisional data. Average carbon dioxide emissions per kilometre have continued to fall, so in 2013 the European Union fleet already collectively met its legal target for 2015.

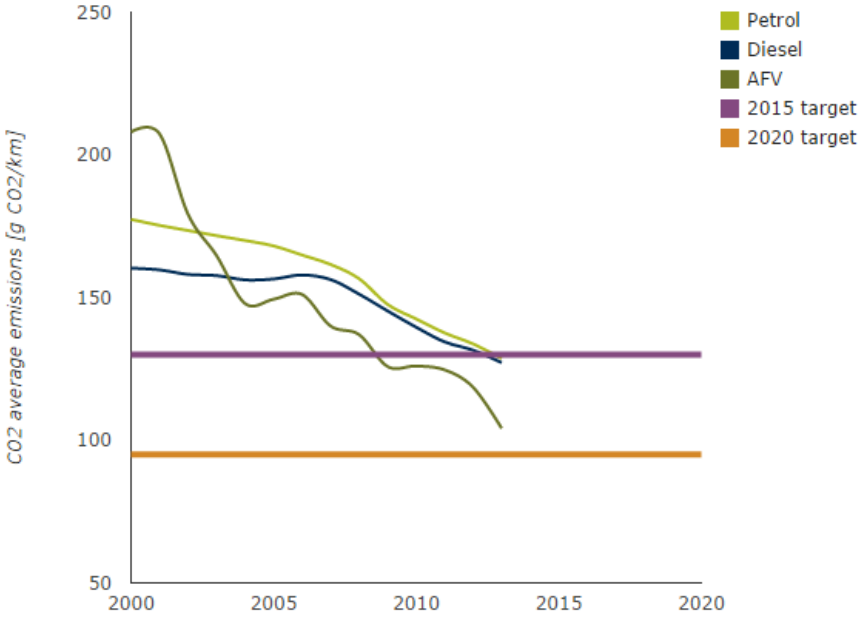
Image © Icarus47

> **The average car sold last year was almost 10 % more efficient than the average car sold in 2010, when monitoring started.**
>
> Hans Bruyninckx, EEA Executive Director

The average CO_2 emissions level of a new car sold in 2013 was 127 grams of carbon dioxide per kilometre, significantly below the 2015 target of 130g, according to provisional data from the European Environment Agency (EEA). However, manufacturers will have to keep reducing emissions levels to meet the target of 95g CO_2/km by 2021.

"The average car sold last year was almost 10 % more efficient than the average car sold in 2010, when monitoring started," EEA Executive Director Hans Bruyninckx said. "This is good news. But passenger transport still generates a significant

Chart — Evolution of CO2 emissions from new passenger cars by fuel



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