Refinery releases – an overview: Air, water and soil

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EU refinery releases – information sources

National air pollutant and GHG emissions reported by countries to:

- the Convention on Long-range Transboundary Air Pollution (LRTAP Convention) and the EU National Emission Ceilings (NEC) Directive

- The EU greenhouse gas Monitoring Mechanism Regulation

Countries report emission inventory data following defined methodologies and required standards

Refinery sector codes:

'1.A.1.b'   Petroleum refining (combustion)

'1.B.2.a.iv' Fugitive emissions from refining/storage for APs

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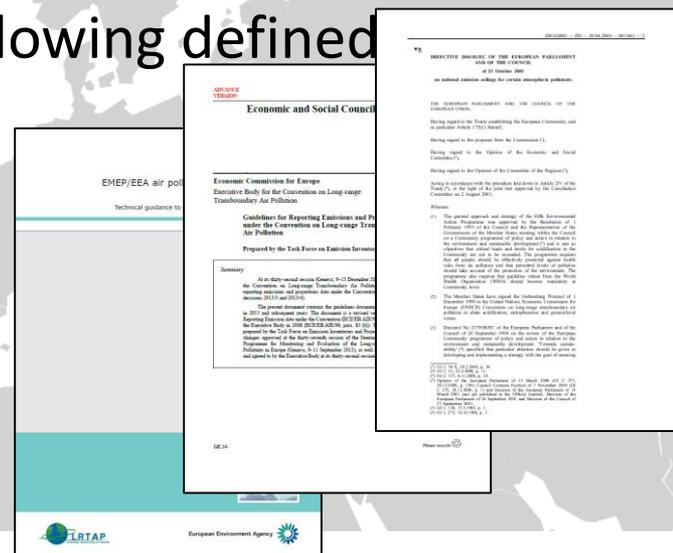
EU refinery releases – information sources

European Pollutant Release and Transport Register (E-PRTR)


http://prtr.ec.europa.eu/

- A European-wide register providing data from 30 000 individual industrial facilities covering 65 economic activities

- Data is officially reported by EU Member States and from Iceland, Liechtenstein, Norway, Serbia and Switzerland

- Responsibility for data quality lies with the reporting countries and facilities

- Refineries: All 'mineral oil and gas refineries' are obliged to report releases above pollutant-specific thresholds specified in the E-PRTR Regulation (No 166/2006)

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E-PRTR – 134 facilities reporting for 2012

Why should we care about air pollution?
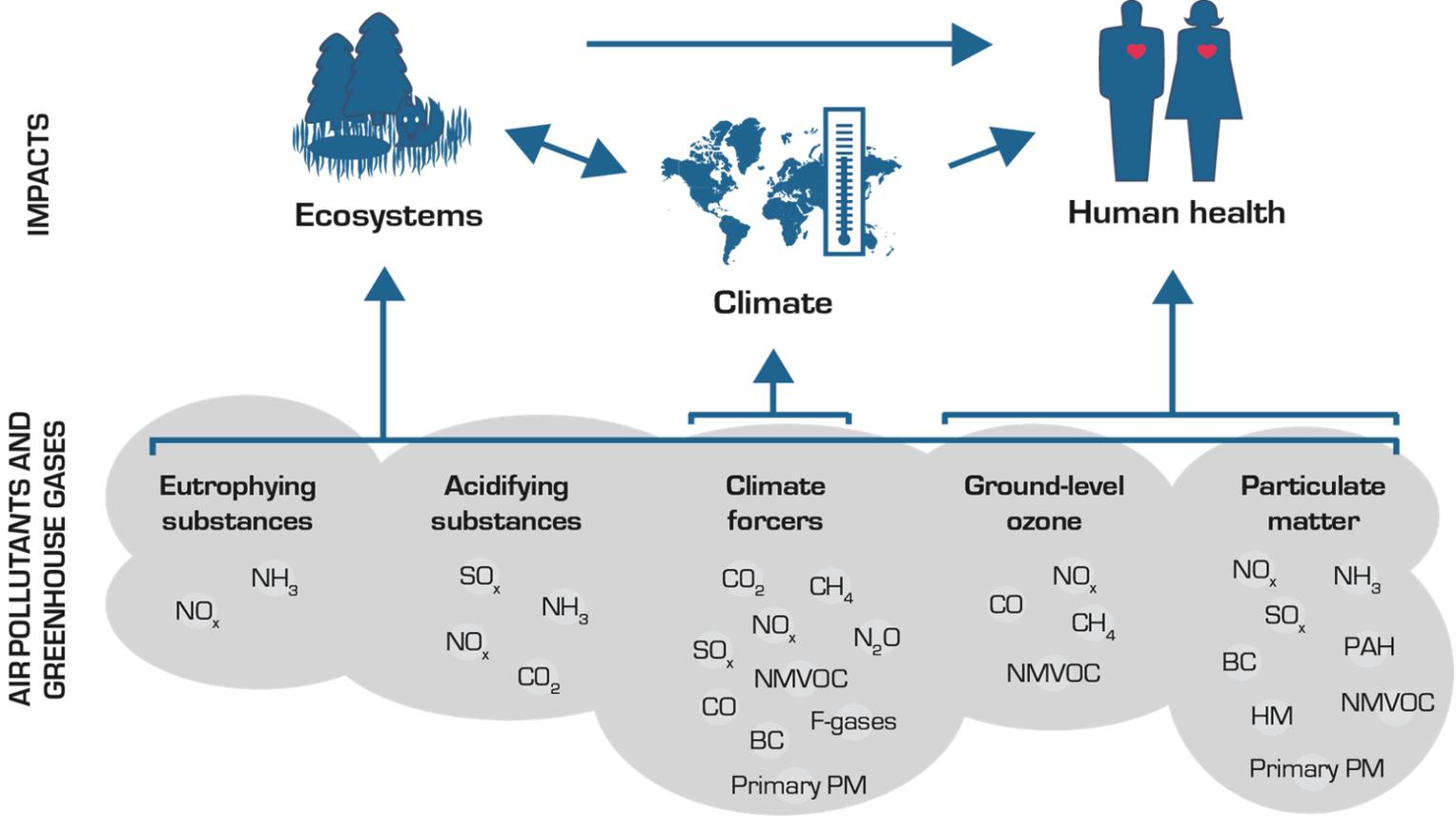
Air pollution impacts **human health**, contributes to **climate change** and damages **ecosystems**.

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What are the main concerns for Europe's air?

**Particulate matter** (PM) and its threat to human health.

Ozone (O_3) due to its health impacts and harm to vegetation.

Eutrophication from high emissions of nitrogen oxides (NO_x) and ammonia (NH_3). These pollutants can cause harmful atmospheric deposition of nutrient nitrogen to sensitive ecosystems, such as grasslands and nutrient-poor lakes.

Europe's air quality is slowly improving, but fine $PM_{2.5}$ and ground-level O_3 in particular continue to cause serious impacts on health.

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The EU has made progress in reducing emissions of most pollutants since 1990
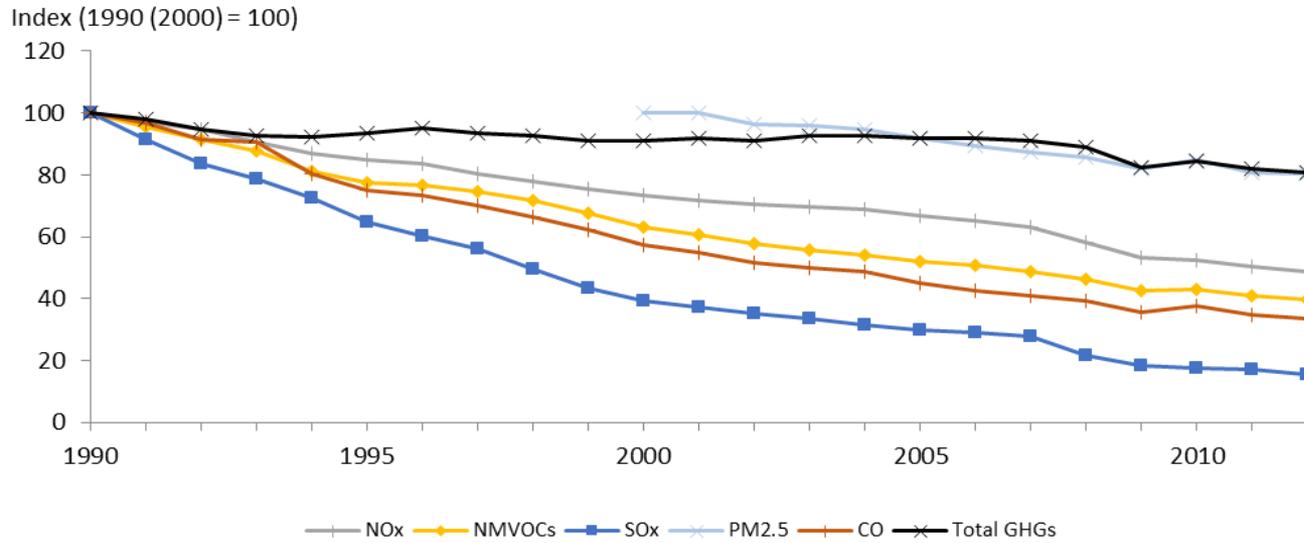
Main air pollutants & total GHGs

Heavy metals

Organic pollutants

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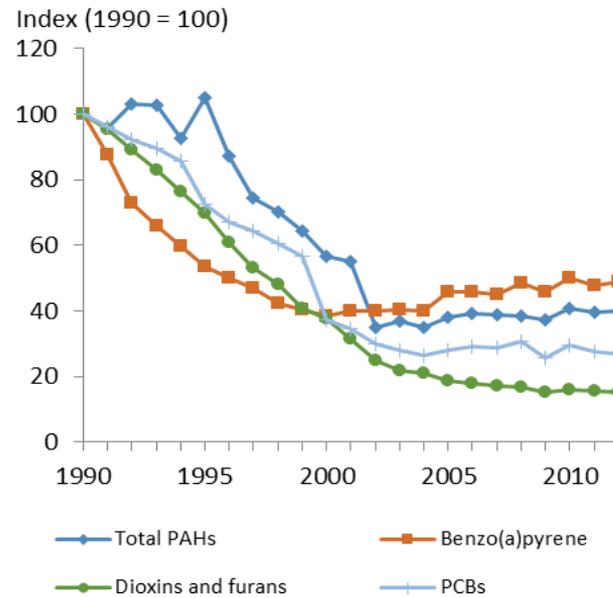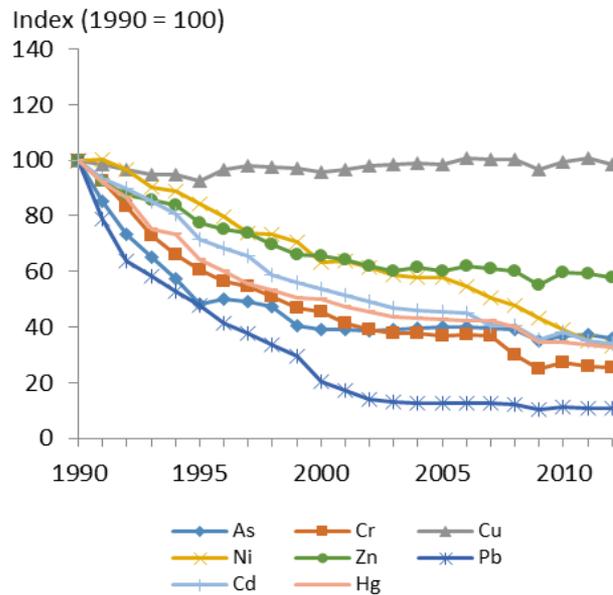
# Air and GHG emissions: EU-28 refinery emissions


Total emissions
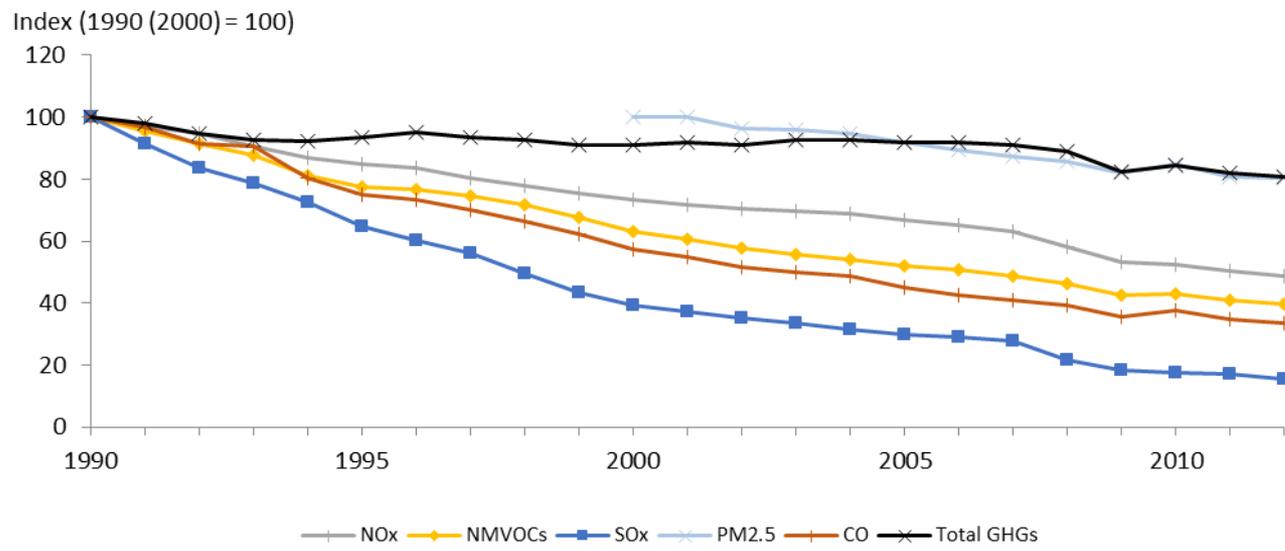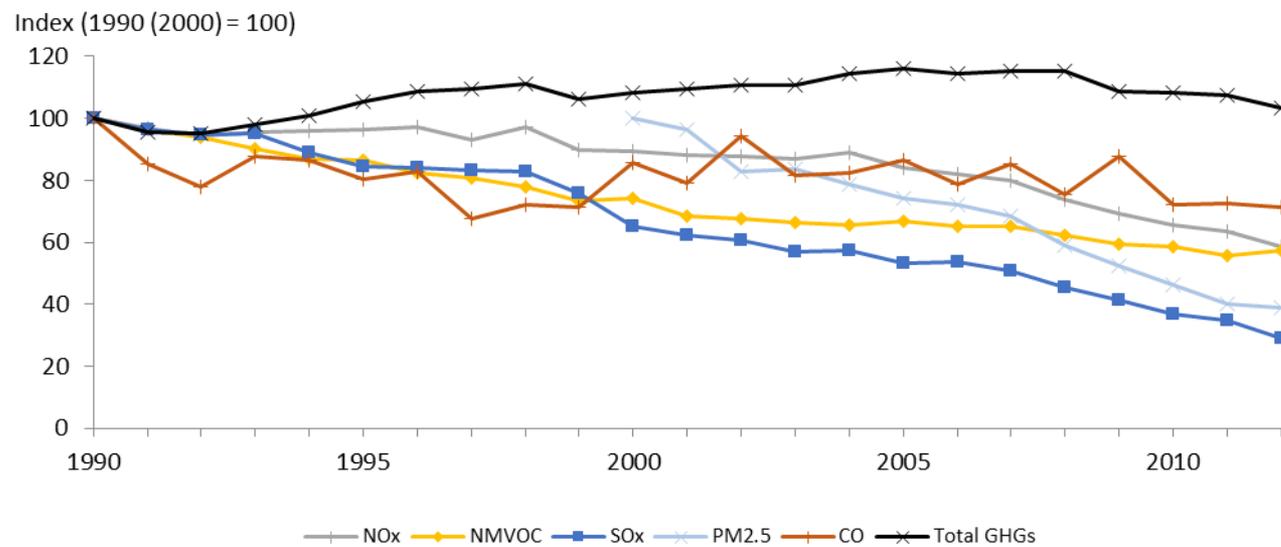
Refineries

EU-28 refinery emissions – metals

Total emissions
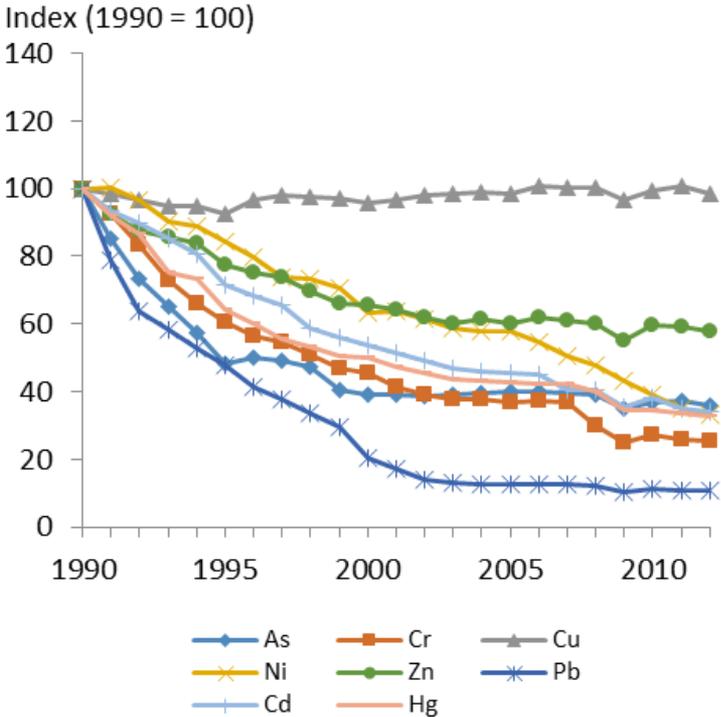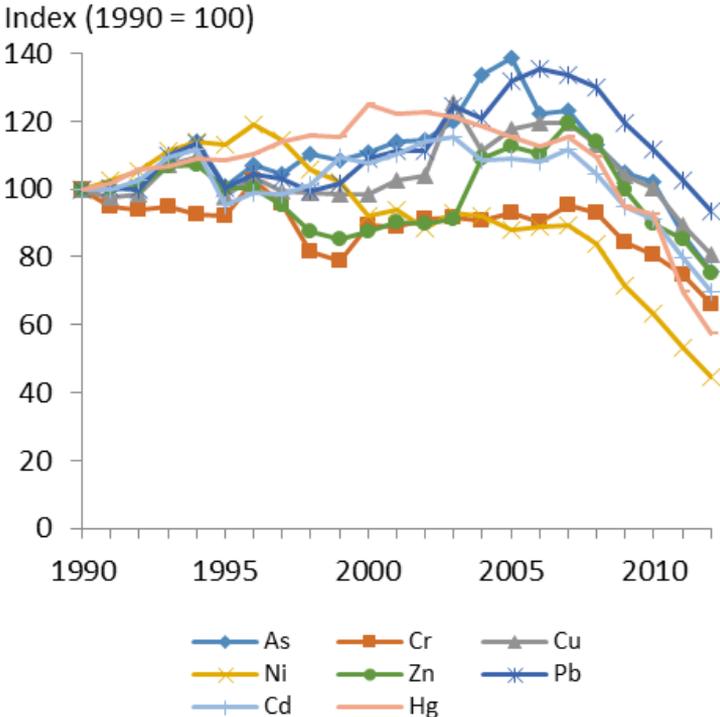
Refineries

EU-28 refinery emissions – organic pollutants

Total emissions
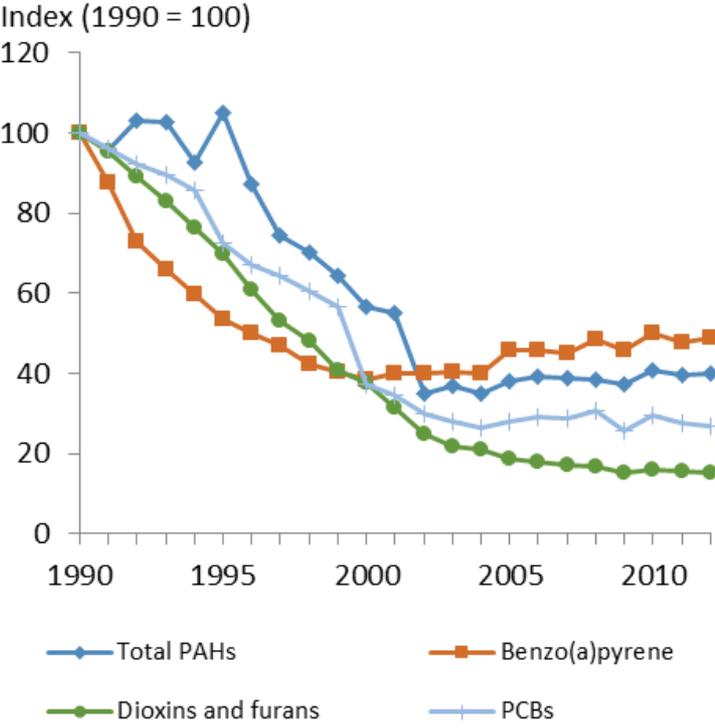
Refineries
(note change
in scale)

Bulgaria

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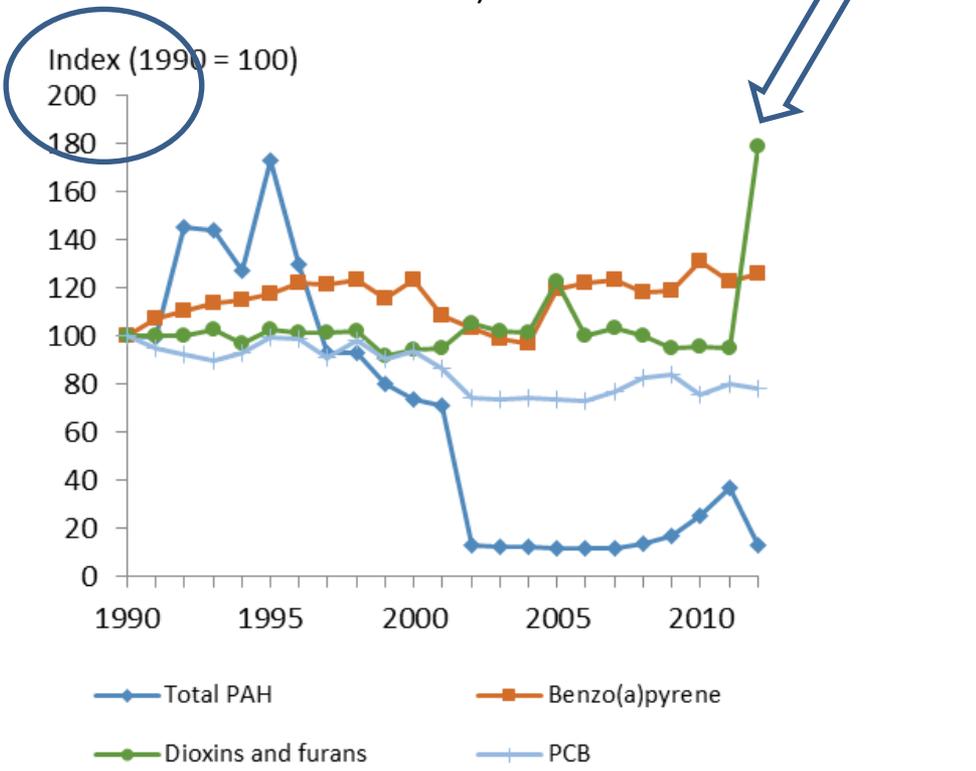
Air pollution exposure continues to exceed EU and WHO standards

Urban population exposed to concentrations above **EU limit/target values**
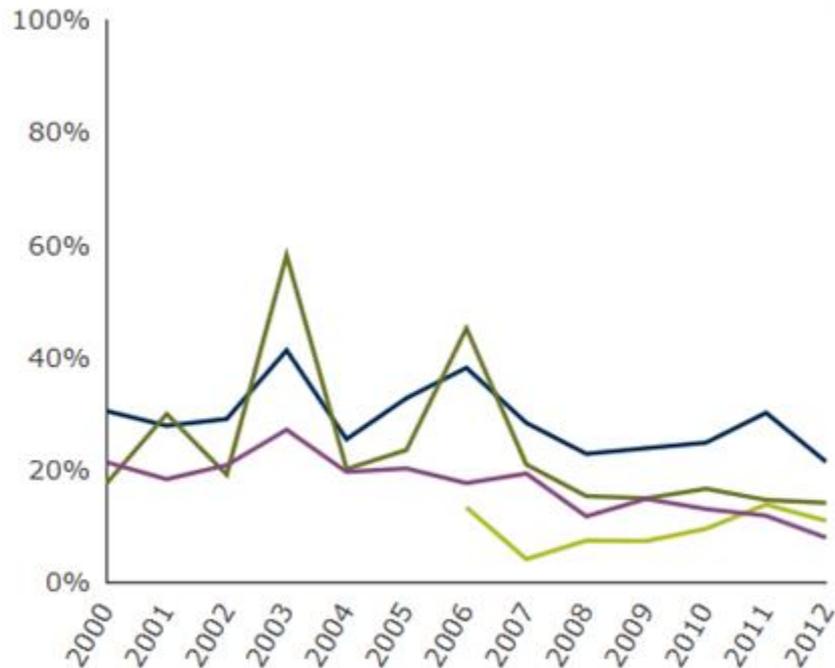
Urban population exposed to concentrations above **WHO air quality guidelines**

Source: EEA

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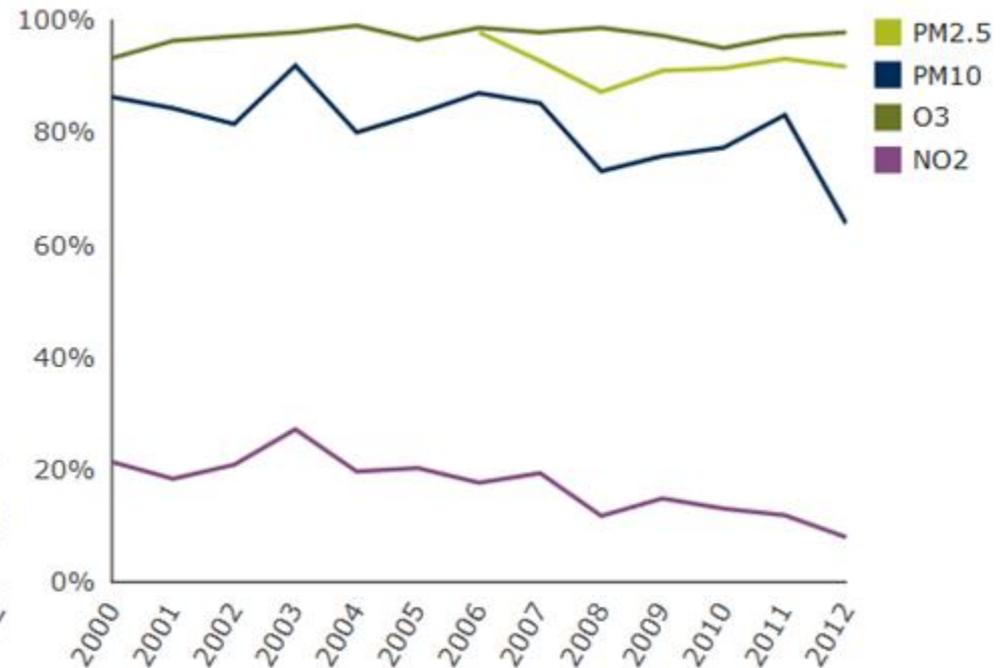
Exposure to harmful levels of air pollution

Share of urban population exposed to dangerous levels of particulate matter in Europe

3 out of 10
exposed to exceedances of the EU daily limit value
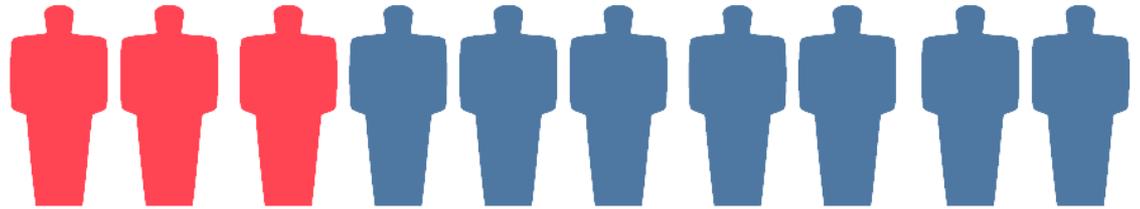
9 out of 10
exposed to exceedances of the WHO guideline value

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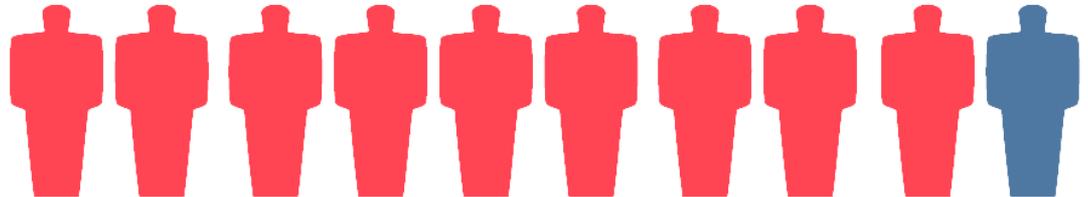
# Water releases: E-PRTR refinery data – top 8 most frequently reported pollutants

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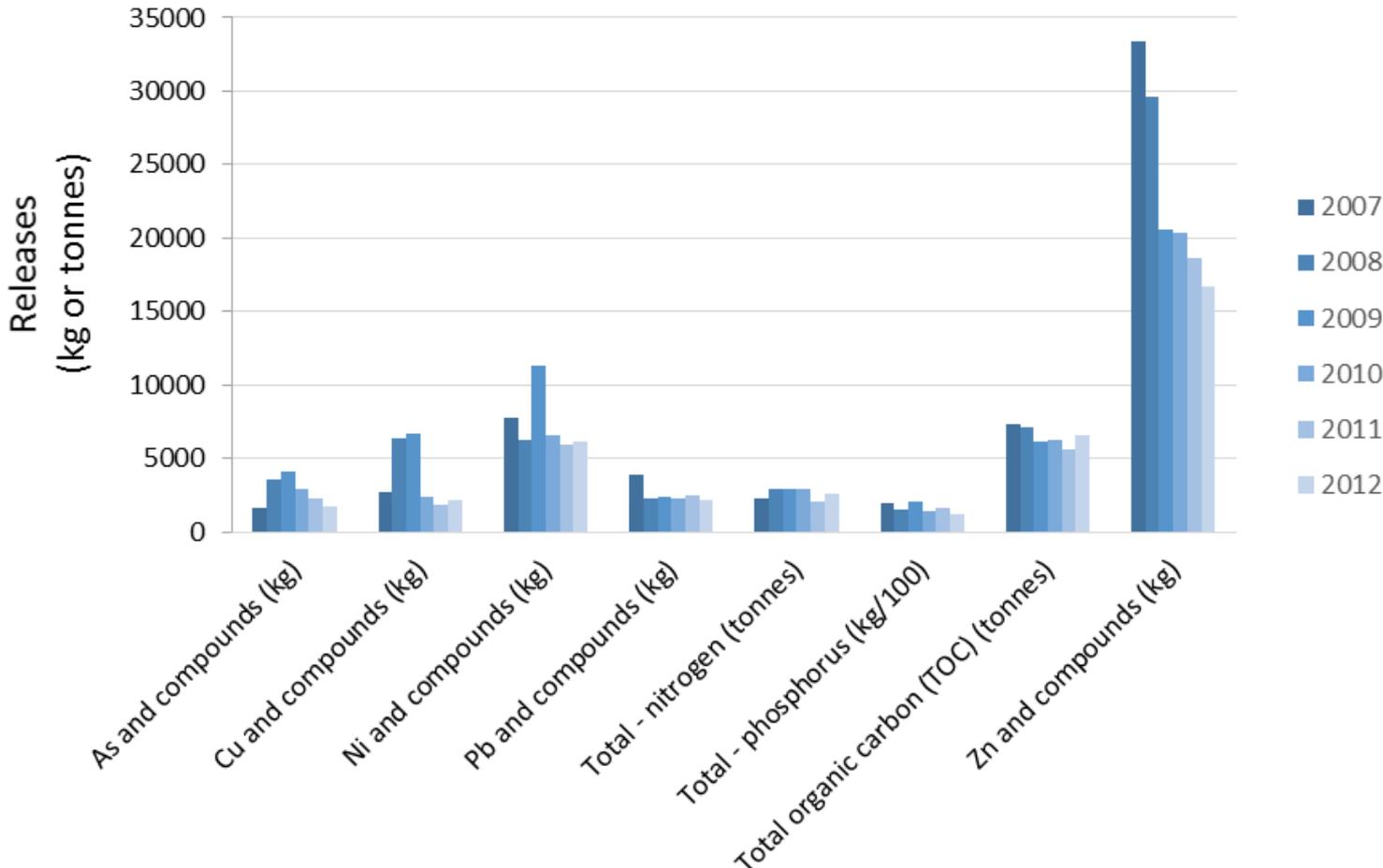
Water releases: E-PRTR refinery data – pollutants comprising >10 % of total releases
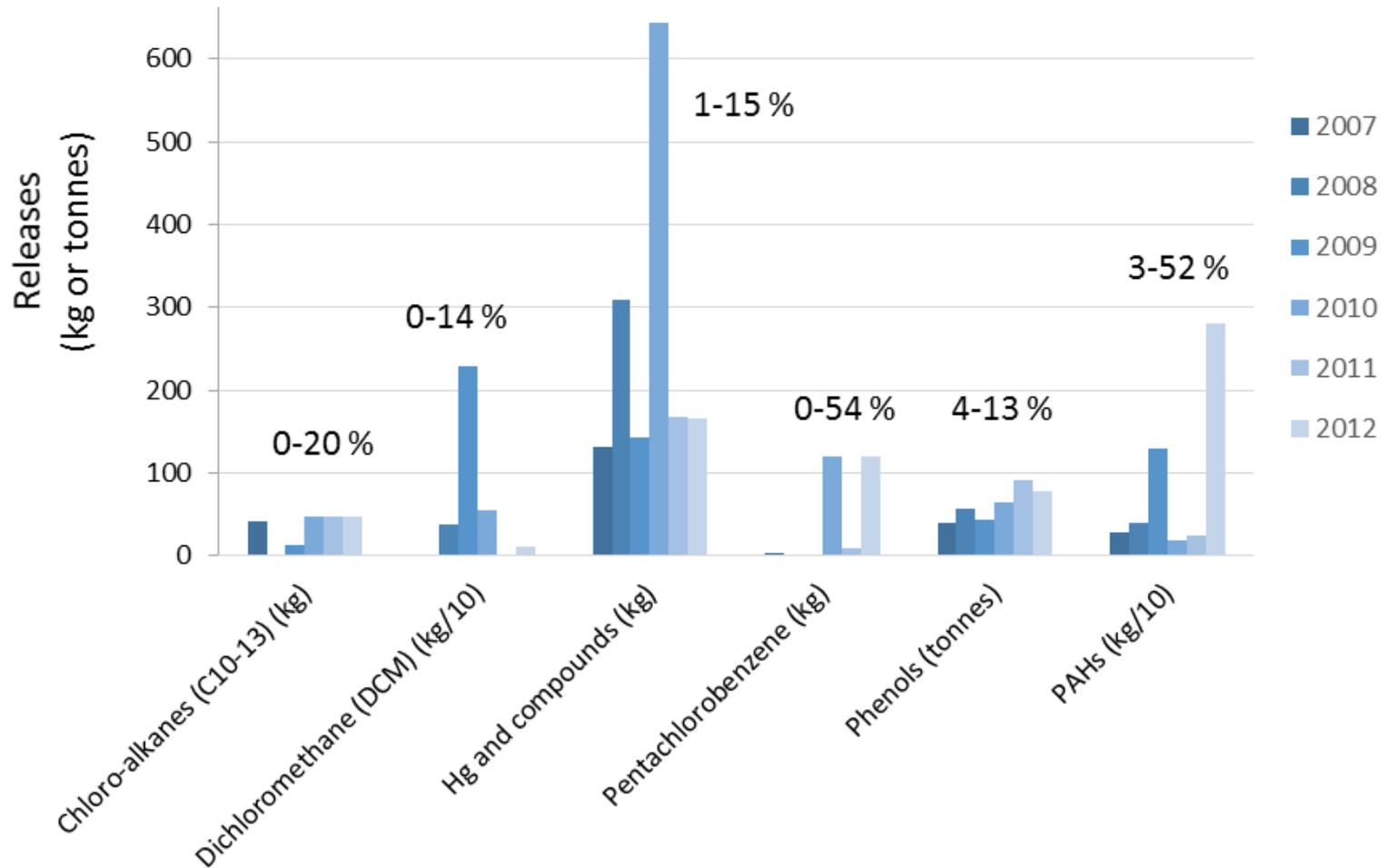
The % values show range of reported refinery releases to total E-PRTR releases for years 2007 to 2012

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Land: E-PRTR refinery data

There are no refineries that have reported releases of pollutants to land for the years 2007 to 2012

Is there a particular need to improve our knowledge base concerning releases to land?

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Conclusions

1. Refinery emissions of many (but not all) pollutants are either decreasing or are relatively stable. But poor air and water quality remain serious issues in Europe.

2. For a number of pollutants, releases reported by just a few facilities clearly skew trends at the European level. Difficult to know if these are real releases, errors, or whether more facilities should simply be reporting data for these same pollutants.

3. Independent verification and error checking to improve the quality of the officially reported E-PRTR data is difficult, as no production or fuel data is reported to the register.

4. Any initiatives that support facilities and competent authorities in Member States to improve the quality of official data are warmly welcomed.

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EEA's European Environment State and outlook report 2015: launch 3 March

Synthesis Report

Part 1
– Setting the scene

Part 2
– Assessing trends

Part 3
– Looking ahead

Global Megatrends

- Diverging global population trends
- Towards a more urban world
- Changing dsease burdens and risk of pandemics
- Accelerating technological change
- Continued economic growth?
- An increasingly multipolar world
- Intensified global competition for resources
- Growing pressures on ecosytems
- Increasingly severe consequences of climate change
- Increasing environmental po
- Diversifying appr to governance

Thematic Briefings

- Air pollution
- Biodiversity
- CC impacts & adapt. ..
- Mitigating Climate...
- Forests
- Freshwater
- Marine
- Noise
- Soil
- Waste
- Agriculture
- Consumption
- Energy
- Industry
- Maritime
- Tourism
- Transport
- Health
- Resource efficiency
- Air & climate system
- Land systems
- Hydrological systems
- Urban systems
- Natural capital
- Green economy

Cross-Country Comparisons

- Air pollution (focus on selected pollutants)
- Biodiversity (focus on protected areas)
- Climate Change (focus on greenhouse gases)
- Freshwater (focus on nutrients in rivers)
- Waste (focus on municipal solid waste)
- Agriculture (focus on organic farming)
- Energy (focus on energy consumption and renewables)
- Transport (focus on passenger transport)
- Resource efficiency (focus on material resources)

Country Briefings

A set of 39 four-page briefings which summarise the state and outlook of the environment in each of 39 European countries.

- 33 EEA Member Countries
- 6 Cooperating Countries in the Western Balkans.

In addition, 3 regional four-page briefings give an overview of the main environmental challenges in neighbouring areas:

- The Arctic region
- The Black Sea region
- The Mediterranean Sea region

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Thank you

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http://eea.europa.eu/industry