

Industrial pollution in Europe

A decade of industrial pollution data



The European Pollutant Release and Transfer Register (E-PRTR) ensures public access to information on pollutant releases to the environment and off-site transfers from Europe's largest industrial facilities. More than 34 000 facilities, across 33 European countries, report every year to this inventory. A decade after its launch, the E-PRTR harbours data on releases and transfers of 91 pollutants across 65 economic activities. It enables citizens and stakeholders to learn about pollution in all corners of Europe, who the top polluters are and whether pollutant emission trends are improving.

- The E-PRTR is a crucial tool for the public and key stakeholders to access emission data and to find out about pollution in their area.
- E-PRTR data show that industrial emissions, especially those to air, have decreased since the beginning of data collection in 2007.
- The data can be used to identify top remaining industrial polluters in Europe and where they operate in Europe.
- By combining data with other knowledge, impacts on the environment and health can be estimated.

Access to industrial pollution data

The European Pollutant Release and Transfer Register (E-PRTR) gives Europeans access to industrial pollution data. This year marks a full decade of data reported to the register and there are many ways in which these data can be used:

Pollution near you: the E-PRTR web service enables users to zoom in on the area in which they live or spend time, in order to discover what kind of pollution occurs there.

Top polluters: by downloading E-PRTR data, users can identify the top polluters in Europe, past and present. The EEA recently made the results of an assessment of pollutant releases available, the data from which are now being used by environmental groups to this end.

Impacts on health and the environment: pollution exerts pressure on the environment and health, which leads to various impacts. E-PRTR data can be combined with other

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knowledge to provide approximate impacts, as in for example, the EEA report on the cost of industrial air pollution. In 2012 alone, the damages from key air pollutant releases by industry amounted to at least EUR 59 billion — more than the gross domestic product of Luxembourg for the same year. The report helped to create an understanding that three quarters of the damages were associated with just under 600 individual facilities and that energy supply was responsible for the majority of them. A Swedish research team (Sörme et al, 2016 and Nordborg et al, 2017) also used E-PRTR data, combined with USEtox toxicity factors, to calculate the potential environmental impacts of chemicals released. The research shows that the Swedish pulp and paper industry has the largest potential impact on Sweden's environment, followed by metals manufacturing. A recent EEA briefing on pressures from emissions of industrial heavy metals and an EEA report on industrial waste water treatment have incorporated this toxicity-based approach.

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Box 1 The European Pollutant Release and Transfer Register

The E-PRTR was established in 2006 as a result of the Protocol on PRTRs — an international effort to establish pollutant emission registers around Europe and the world. The Protocol was agreed under the United Nations Economic Commission for Europe (UNECE) Convention on Access to Information, Public Participation in Decision-making and Access to Justice (also known as the Aarhus Convention). It is a binding international law that requires parties to develop PRTRs to enhance public access to information.

The E-PRTR covers approximately 34 000 facilities over 65 economic activities and is available for the 28 EU Member States, the European Free Trade Association countries (Iceland, Liechtenstein, Norway and Switzerland) and Serbia. E-PRTR data show, for each facility and year, information concerning the amounts of pollutants released to air, water and land, as well as off-site transfers of waste, and pollutants in waste water. E-PRTR is available on a dedicated, interactive E-PRTR website and in the form of an up-to-date EEA dataset.

Operators of industrial facilities report E-PRTR data to national authorities in EEA member and cooperating countries. These in turn report the data to the EEA. The E-PRTR only requires the reporting of substantial emissions from large industrial facilities, thus ensuring a good level of information at the European level while keeping the administrative burden low (see Annex I and II of the E-PRTR Regulation, where this is formally established).

The following video highlights some of the benefits and basic functioning of E-PRTR.



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Industrial pollutant emissions are going down

The EEA regularly assesses trends in industrial pollution in Europe based on E-PRTR and other data. These show that industrial pollution has decreased over the past decade for emissions to both air and water. Emission reductions can often be linked to requirements to operators set out in EU environmental legislation, such as the Industrial Emissions Directive. This directive aims for an ambitious level of protection and, in particular, to reduce emissions through the continuous uptake of the so-called best available techniques (BAT). Other EU legislation sets more concrete air emission reduction targets (e.g. the National Emission Ceilings Directive) or a standard for good environmental water quality that needs to be met (e.g. the Water Framework Directive).

The E-PRTR is a widely recognised tool, used to assess pollution trends and evaluate the impact of EU environmental legislation. A new OECD report on measuring BAT policy effectiveness around the world highlights the usefulness of PRTR data in this context. It includes a chapter on the EU that explains how the European Commission, for example, uses E-PRTR data to assess policy impacts.

The iron and steel sector lends itself as an example in this context. It is a major industrial contributor to greenhouse gas (GHG) emissions and alone accounts for 2.7 % (in CO₂ equivalent) of total GHG emissions from 33 EEA member countries (EEA-33; see the [EEA GHG data viewer](#)). The sector also contributes significantly to emissions of air pollutants, including heavy metals (around of 15-25 % in 2016 depending on the heavy metal) in the EEA-33 (see the [EEA air pollutant emissions data viewer](#)).

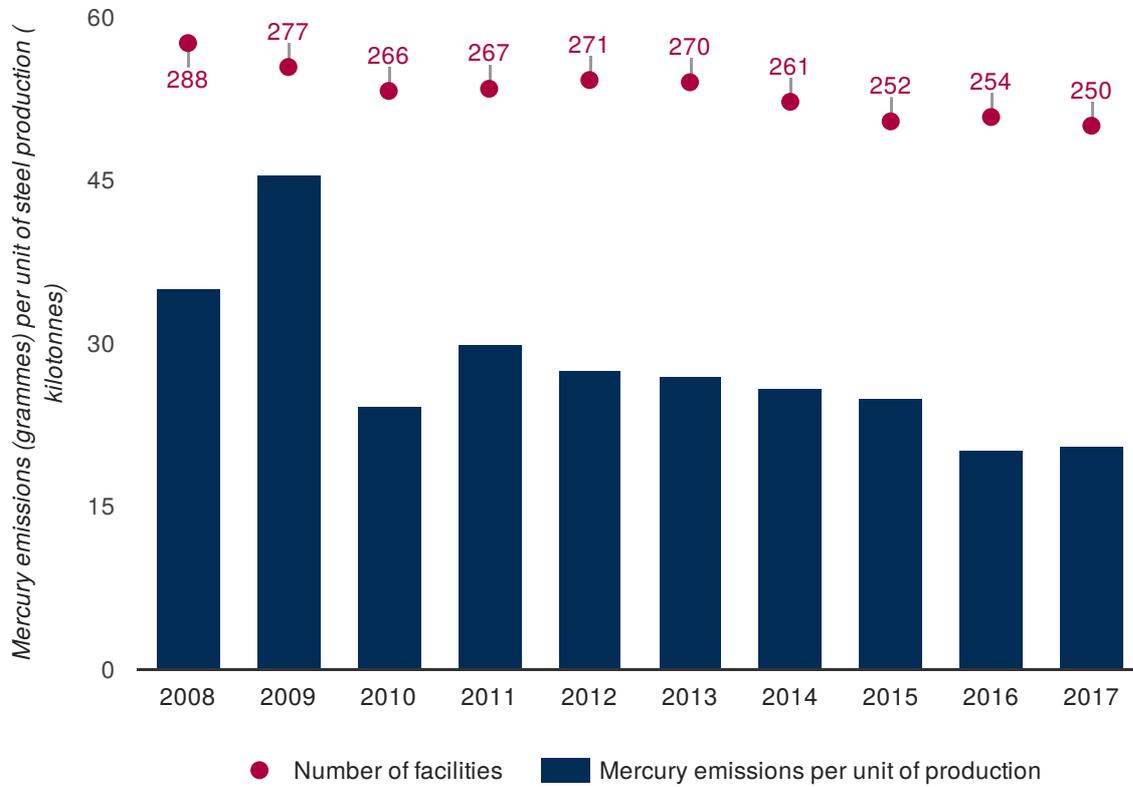
Mercury is of particular concern for environmental and human health. It accumulates in fish and thus finds its way into our food chain. Once inside our bodies it affects the brain (particularly the mental development of children) and contributes to cardiovascular diseases, among others. Mercury is now banned in Europe for most of its former uses and remaining emissions are associated with the burning of solid fuels or processing of metals. The majority of mercury still deposited in Europe is linked to emissions from outside Europe and the recent UN Minamata Convention addresses this global problem (see [EEA Mercury report](#)).

The E-PRTR can be used to track ongoing industrial releases of mercury including from the iron and steel manufacturing sector (11 % of total EEA-33 mercury emissions to air in 2016).

Mercury emissions per unit of steel produced in the EEA-33 were 36 % lower in 2017 than in 2008 (earliest available European Commission PRODCOM data on steel production; see [Figure 1](#)). New European emission levels and best practices for various iron and steel manufacturing processes were established in 2012 and aim to reduce mercury emissions (EIPPCB, 2012), among others. Emission levels — including for mercury — were required to be implemented by 2016, which likely had an impact on emission reductions (see [this recent ex-post cost-benefit assessment of the sector commissioned by the European Commission](#)).

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Figure 1. Mercury emissions per unit of steel production and number of facilities reporting to the E-PRTR in the EEA-33 countries



There are no data for Turkey in the E-PRTR. Data for Serbia are included. The figure is based on E-PRTR data for activity codes 1.(d), 2.(a) and 2.(b) as well as PRODCOM data for codes 2410T121-122; 2410T131-132; 2410T141-142. One data point was corrected for the reporting year 2009 after the United Kingdom confirmed it to be faulty.

Data sources: a. EEA. The European Pollutant Release and Transfer Register (E-PRTR), Member States reporting under Article 7 of Regulation (EC) No 166/2006
b. Eurostat. Total production by PRODCOM list (NACE Rev. 2) - annual data [DS-066342]

[Explore chart interactively](#)

The E-PRTR is about more than industrial pollution

The E-PRTR is also instrumental in creating new knowledge around pollution that is relevant to the environment. In combination with other datasets, E-PRTR data can provide a new perspective on a variety of issues and can help pose new questions that guide future research, and influence EU and national policy development.

A closer look at the waste management sector, for example, reveals interesting trends around its emissions of greenhouse gases. This sector is responsible for over a quarter of emissions of the potent greenhouse gas methane in the EEA-33 (see the [EEA GHG data viewer](#)).

In order to reduce the contribution to climate change from landfills, the EU Landfill Directive (1999/31/EC) requires both a reduction in landfilling of biodegradable municipal waste (see e.g. EEA, 2009), as well as the collection of any methane still forming in them as a result of biodegradation. E-PRTR data show that methane emissions have steadily decreased since data collection began in 2007.

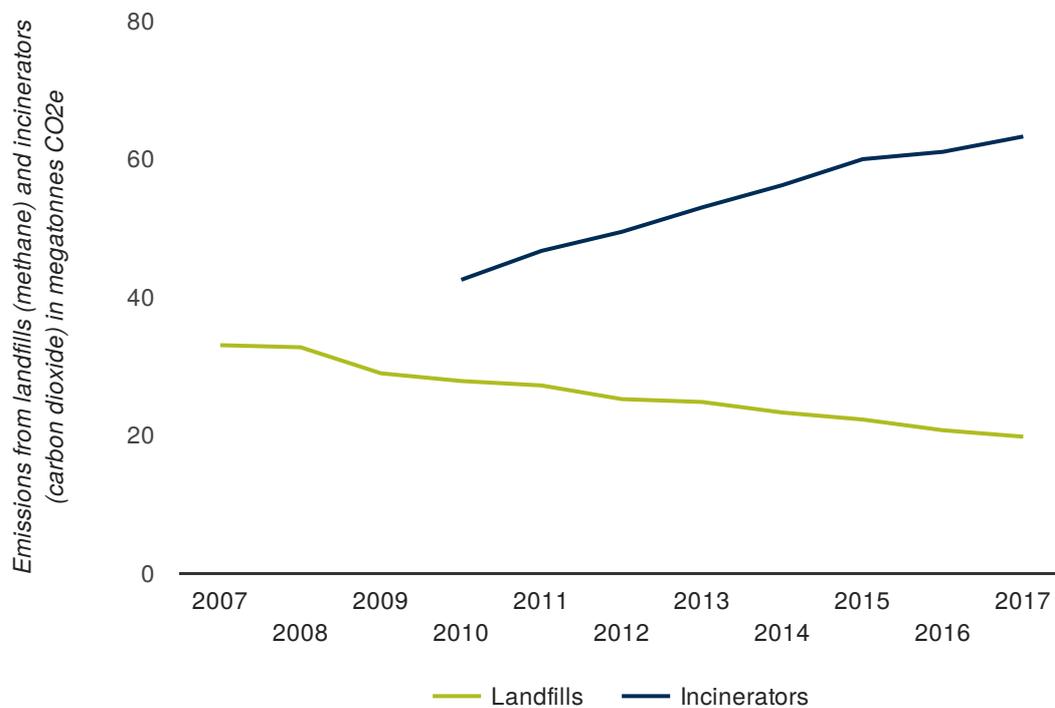
Incineration is increasingly important as an alternative to landfilling for the treatment of residual waste. In the 10 years up to 2016, the amount of waste incinerated increased by 30 % (Eurostat, 2019a), and the amount of heat and energy recovered from waste increased by more than three quarters (Eurostat 2019b). E-PRTR data, however, also reveal that CO₂ emissions from incinerators have increased by about half since 2010, which is disproportionately more than the 30 % increase in the amount of waste incinerated.

The CO₂ emitted per kilogramme of waste incinerated depends on the composition of the waste. Eurostat statistics indicate that the majority of the increase in waste incinerated consists of residual household waste and sorting residue (waste collected separately but unfit for recycling; Eurostat 2019a). Both of these waste types will produce significant amounts of CO₂ when burnt. More data on the composition of waste are needed to fully explain the disproportionate increase in CO₂ emissions from incineration.

The role of the manufacturing, energy supply and waste management industries with respect to waste in Europe is explored in detail in the new EEA industrial waste indicator.

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Figure 2. CH₄ emissions from landfills and CO₂ emissions from waste incinerators in the EEA-33 countries



The are no data for Turkey in the E-PRTR. Data for Serbia are included. Data for incinerators in Germany — which has the largest number of incinerators in the EEA-33 — are incomplete before 2010.

Data sources: EEA. The European Pollutant Release and Transfer Register (E-PRTR), Member States reporting under Article 7 of Regulation (EC) No 166/2006

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