Improving Europe s air quality measures reported by countries

Improving Europe's air quality — measures reported by countries

Under the European Union's (EU) Air Quality Directive, Member States have to implement and report on the measures they put in place in areas where air quality limit and target values are exceeded. This briefing provides an overview of the different types of abatement measures reported. It focuses mainly on measures designed to reduce people's exposure to the two air pollutants that most commonly exceed air quality standards: particulate matter (PM10) and nitrogen dioxide (NO2). In general, the road transport sector is the largest contributor to total nitrogen dioxide emissions in the EU, while fuel combustion in the commercial, institutional and households sector is the largest contributor to total primary particulate matter emissions, particularly in some eastern European countries. Most reported measures address the road transport sector.

- Most measures reported aim to reduce emissions and/or concentrations of PM_{10} and NO_2.
- The transport sector is the main reason given for exceeding the PM_{10} and NO_2 limit values set in the Air Quality Directive. Most measures reported address this sector.
- The second and third most frequent sources reported are commercial and residential combustion and industry for PM_{10} and industry and commercial and residential combustion for NO_2.
- Traffic-related measures include those encouraging a shift to less polluting types of transport, better urban planning to ensure more sustainable transport infrastructure, improving public transport, and targeted public procurement measures.
- Measures targeting commercial/residential combustion and industry sectors encourage the uptake of low-emission fuels, set eco-design standards and standards for fuels, and require emission control equipment in industrial premises.

Measures to improve air quality

The EU Air Quality Directive requires Member States to implement air quality management plans and measures in areas where air quality standards are exceeded. These plans aim to reduce concentrations of air pollutants to below the legislative limit and target values specified in the Directive in the shortest possible time. Member States also have to report these management plans and measures to the European Commission through the European Environment Agency (EEA).

A recent analysis commissioned by the EEA illustrates the different types of measures and plans to improve air quality that were officially reported by the EU Member States and Norway in 2014, 2015 and 2016. Most of these measures address particulate matter (especially PM_{10}) and NO_2, in line with the most commonly exceeded air quality standards.

Linking exceedances of air quality standards to sources

In their official reports, countries provided reasons for not achieving standards in just over half (56 %) of the cases where they reported exceedances of the PM_{10} limit value that resulted in implementing a management plan.

A general 'other reasons' explanation was the reason most frequently reported for exceedances (41 % of instances where a reason was given). This may indicate that a combination of sources contribute to poor air quality in such areas, including road traffic, domestic heating sources and contributions from regional background air pollution to (sub-)urban PM levels. 'Heavily trafficked urban centre' (24 %) and 'proximity to a major road' (21 %) were reported as the second and third most important causes.

Countries provided reasons for exceeding the annual NO_2 limit value in 90 % of cases. 'Proximity to a major road' (56 %) and 'heavily trafficked urban centre' (37 %) were the most common causes for not achieving standards. This also reflects the fact that most NO_2 exceedances are measured at traffic stations (Air quality in Europe — 2017 report). The exceedances occurred in urban and suburban areas.

There are also a number of exceedances of the air quality target value for ground-level ozone (O_3). Ozone forms over large areas of Europe through the reaction of nitrogen dioxides and volatile organic compounds in the presence of sunlight. This often happens far away from the emission sources. As a result, mitigation may need transboundary measures involving several municipalities, regions or even countries.

As is also the case for secondary PM, measures have to abate precursor pollutant emissions. In addition, under the Air Quality Directive the ozone standard is a target value that Member States should achieve where possibleand not a legally binding limit value. This is probably the main reason why fewer measures triggered by ozone exceedances are reported than those for PM_{10} and NO_2 pollution.

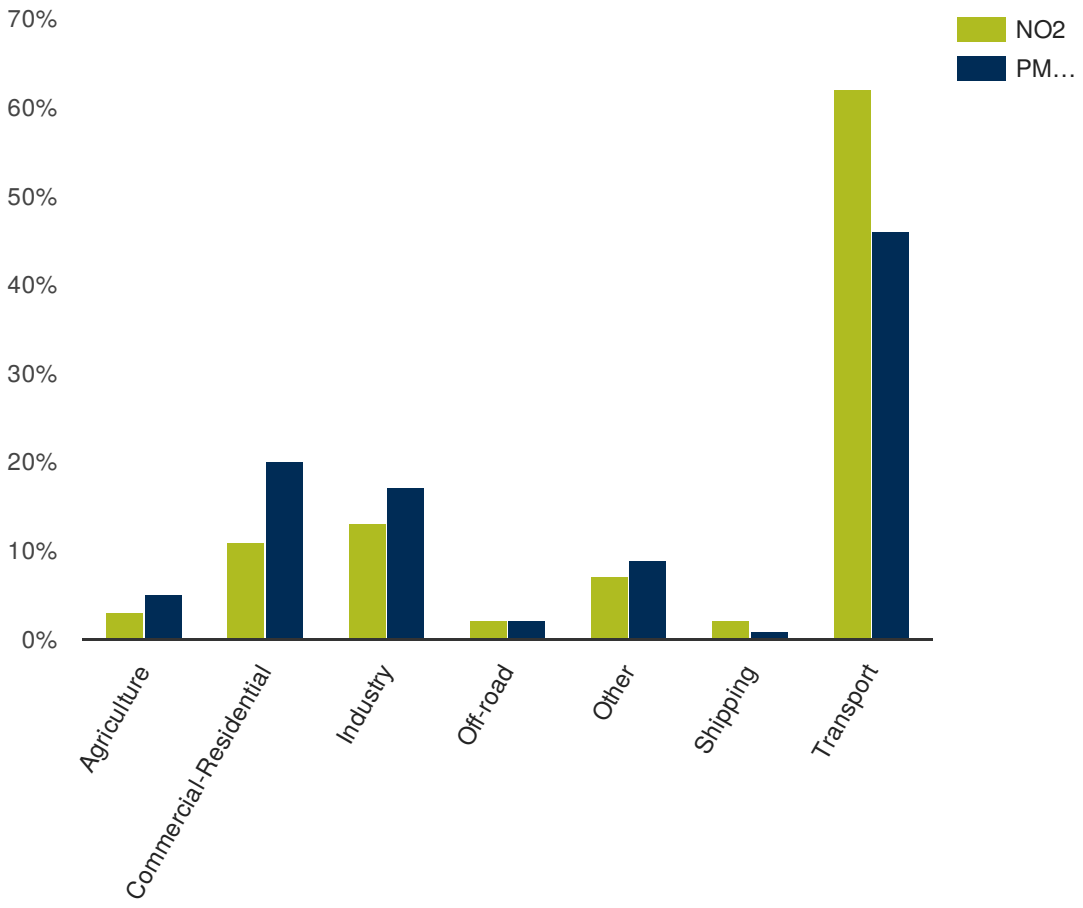
Sectors targeted by air quality measures

In line with the reasons for exceedances, 46 % of the total number of PM_{10} measures reported target road transport, followed by the commercial and residential combustion sector (20 %) and industry (17 %).

For NO_2, more than 60 % of the measures reported mainly target the road transport sector. Industry (13 %) and the commercial and residential combustion sector (11 %) are the second and third most targeted sectors (Figure 1).

Air pollution

Figure 1. Sectors addressed by the reported measures for PM_{10} and NO_2



Data sources: a. EEA. Air quality plans (data flow H) b. EEA. Air quality measures (data flow K)

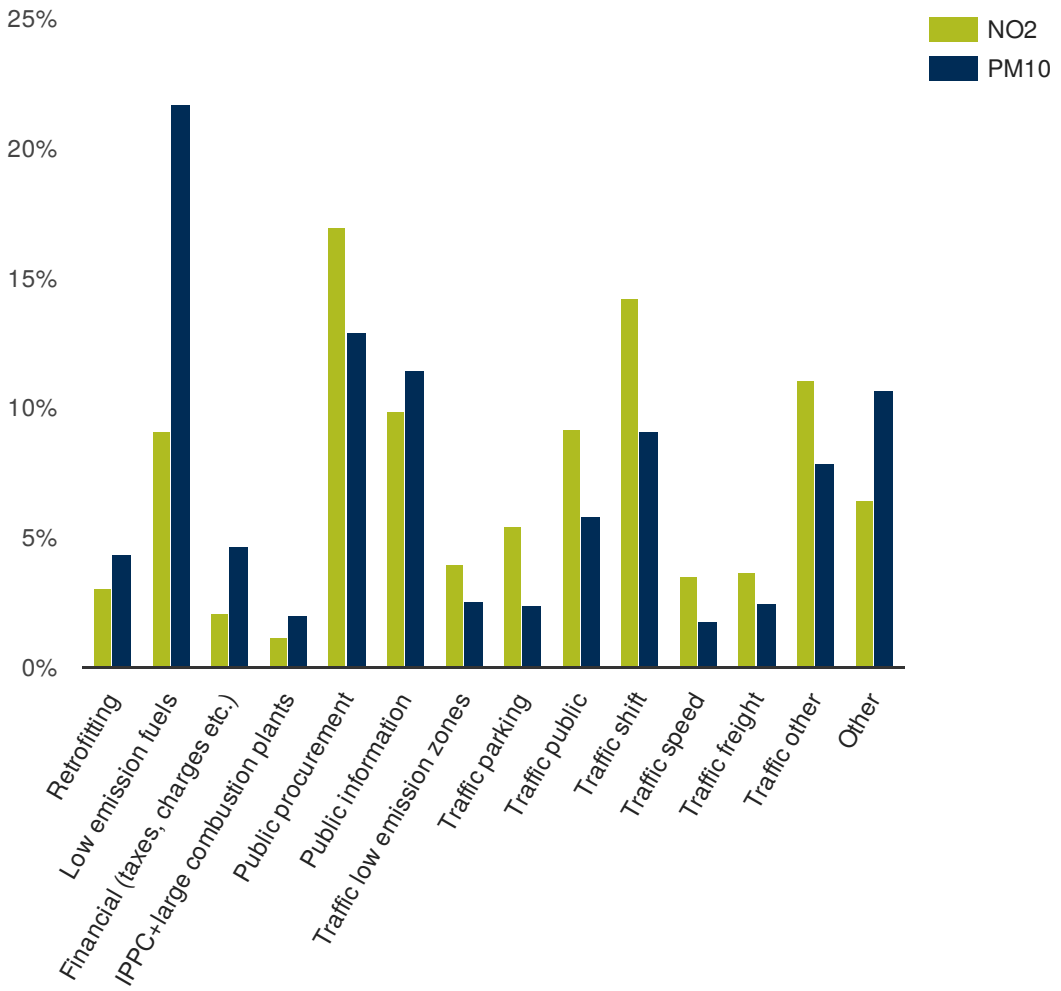
Explore chart interactively

European Environment Agency

A more detailed assessment of the classification of the implemented measures is shown in Figure 2.

Air pollution

Figure 2. Classification of measures designed to reduce PM_{10} and NO_2 emissions



Data sources: a. EEA. Air quality plans (data flow H) b. EEA. Air quality measures (data flow K)

European Environment Agency

Note: IPPC, Integrated Pollution Prevention and Control (industry) measures

Most measures implemented by Member States address traffic sources, especially for NO_2. The most commonly reported measures for this sector include:

- **shift in transport mode** (including the expansion of bicycle and pedestrian infrastructure);
- **land use planning** to ensure sustainable transport facilities;
- improving **public transport**.

Also in connection with traffic-related sources of air pollution, most of the measures reported on **public procurement** relate to the purchase of new low-emission vehicles by local and/or government authorities.

More than a quarter of all PM_{10} measures and around 10 % of the NO_2 measures target combustion-related sources. In the commercial and residential combustion sector, the main measures reported are the transition to **low-emission fuels** and **public information**. For industry, enabling transition to **low-emission fuels** is also one of the main measures, followed by **retrofitting** (emission control) pollution prevention equipment in industrial facilities and **public procurement**.

Measures focusing on public information also have an important share of the total (around 10 %) for both pollutants. These non-regulatory measures typically aim to give the public targeted information about individual actions that they can take to reduce air pollution.

Governance at different levels is important

Effective governance to improve air quality needs coordinated action across different scales of governance.

According to the reports from Member States, local government is responsible for implementing the majority of the abatement measures reported for both PM_{10} and NO_2. National government is more often responsible for PM_{10} measures than for NO_2 measures. Regional government is the next most responsible for implementing NO_2 mitigation measures.

Long-term measures account for most of the reported provisions for both NO_2 (65 %) and PM_{10} (73 %), followed by medium-term measures. Almost all of the measures reported to the EEA are still in the planning or implementation phases, but most will be implemented within a year or less.

Further information

- EEA online data viewers for information on:
  - air quality plans;
  - source apportionment;
  - air quality measures.
- EEA 2013 assessment report: Air Implementation Pilot — Lessons learnt from the implementation of air quality legislation at urban level. In 2018, the EEA will publish an updated assessment describing the extent to which there are still challenges in implementing measures to improve air quality.

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