

Special Report

## Air pollution: Our health still insufficiently protected

(pursuant to Article 287(4), second subparagraph, TFEU)



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## **GLOSSARY AND ABBREVIATIONS**

AAQ Directive	Ambient Air Quality Directive (Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe (OJ L 152, 11.6.2008, p. 1))
Ammonia (NH <sub>3</sub> )	Colourless, pungent gas.
AQP	Air Quality Plan
BATs	'Best available techniques' means the most effective and advanced stage in the development of activities and their methods of operation which indicates the practical suitability of particular techniques for providing the basis for emission limit values and other permit conditions designed to prevent and, where that is not practicable, to reduce emissions and the impact on the environment as a whole.
Benzo[a]pyrene (BaP)	BaP is a solid emitted as a result of the incomplete combustion of fossil fuels and biofuels. Its main sources are domestic heating (in particular, wood and coal burning), electricity generation in power plants, waste incineration, coke production and steel production.
Black carbon	Black carbon is a constituent of PM <sub>2.5</sub> , formed from incomplete fuel combustion, with the main sources being transport and domestic heating.
Carbon dioxide (CO <sub>2</sub> )	CO <sub>2</sub> is a colourless gas which is the most significant greenhouse gas in the earth's atmosphere. It is mostly released into the atmosphere from the burning of fossil fuels.
Compressed Natural Gas (CNG)	CNG is natural gas stored at a high pressure which can be used instead of gasoline, propane or diesel fuel.
DALYs	Disability Adjusted Life Years
Dispersion conditions	Dispersion conditions indicate the ability of the atmosphere to dilute airborne pollutants.
ECJ	European Court of Justice
EEA	European Environment Agency
Fitness check	Comprehensive policy evaluation aimed at assessing whether the regulatory framework for a particular policy sector is 'fit for purpose'.
IED	Industrial Emissions Directive (Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control) (OJ L 334, 17.12.2010, p. 17) (Recast))

Low Emission Zone (LEZ)	A LEZ is a defined area where access by some polluting vehicles is restricted or deterred with the aim of improving air quality.
NEC Directive	National Emission Ceilings Directive (Directive (EU) 2016/2284 of the European Parliament and of the Council of 14 December 2016 on the reduction of national emissions of certain atmospheric pollutants, amending Directive 2003/35/EC and repealing Directive 2001/81/EC (OJ L 344, 17.12.2016, p. 1)).
Nitrogen dioxide (NO <sub>2</sub> )	Toxic reddish-brown gas. A nitrogen oxide (NO <sub>x</sub> ).
Non Methane Volatile Organic Compounds (NMVOC)	NMVOC is a designation that includes many different chemical compounds, such as benzene, ethanol, formaldehyde, cyclohexane, or acetone.
Ozone (Ground-level ozone, O <sub>3</sub> )	Colourless gas with a sharp odour that is not directly emitted into the atmosphere, but is formed by the chemical reaction of pollutants in the presence of sunlight.
Premature deaths	Deaths that occur before a person reaches the standard life expectancy for a country and gender.
Particulate matter (PM)	Solid and liquid particles suspended in the air. Depending on its size, PM is classified as coarse particles (PM <sub>10</sub> ) and fine particles (PM <sub>2.5</sub> ).
Sulphur dioxide (SO <sub>2</sub> )	Toxic colourless gas. A sulphur oxide (SO <sub>x</sub> ).
Volatile Organic Compounds (VOCs)	VOCs are organic chemicals that easily evaporate.
WHO	World Health Organization
µg/m <sup>3</sup>	Micrograms per cubic meter (unit of measure of the concentration of a pollutant in the air).

## **EXECUTIVE SUMMARY**

### **Air pollution is the biggest environmental risk to health in the European Union**

I. According to the World Health Organization (WHO), air pollution is the biggest environmental risk to health in the European Union (EU). Each year in the EU, it causes about 400 000 premature deaths, and hundreds of billions of euro in health related external costs. People in urban areas are particularly exposed. Particulate matter, nitrogen dioxide and ground level ozone are the air pollutants responsible for most of these early deaths.

II. The 2008 Ambient Air Quality Directive is the cornerstone of the EU's clean air policy, as it sets air quality standards for the concentrations of pollutants in the air we breathe. In recent decades, EU policies have contributed to emission reductions, but air quality has not improved at the same rate and there are still considerable impacts on public health.

#### **What we audited:**

III. In this audit, we assessed whether EU actions to protect human health from air pollution have been effective. To do this, we examined whether (i) the AAQ Directive was well designed to tackle the health impact of air pollution; (ii) Member States' effectively implemented the Directive; (iii) the Commission monitored and enforced implementation of the Directive; (iv) air quality was adequately reflected in other EU policies and adequately supported by EU funds; and (v) the public has been well informed on air quality matters.

IV. We concluded that EU action to protect human health from air pollution had not delivered the expected impact. The significant human and economic costs have not yet been reflected in adequate action across the EU.

- (a) The EU's *air quality standards* were set almost twenty years ago and some of them are much weaker than WHO guidelines and the level suggested by the latest scientific evidence on human health impacts.
- (b) While air quality has been improving, most Member States still do not comply with the EU's air quality standards and were not taking enough *effective action* to sufficiently improve air quality. Air pollution can be underestimated as it might not

be monitored in the right places. Air Quality Plans – a key requirement of the Ambient Air Quality Directive – often did not deliver expected results.

- (c) The Commission faces limitations in *monitoring* Member States' performance. Subsequent *enforcement* by the Commission could not ensure that Member States complied with the air quality limits set by the Ambient Air Quality Directive. Despite the Commission taking legal action against many Member States and achieving favourable rulings, Member States continue to frequently breach air quality limits.
- (d) Many EU policies have an impact on air quality, but, given the significant human and economic costs, we consider that some EU policies do not yet sufficiently well reflect the importance of improving air quality. Climate and energy, transport, industry, and agriculture are EU policies with a direct impact on air quality, and choices made to implement them can be detrimental to clean air. We noted that direct *EU funding* for air quality can provide useful support, but funded projects were not always sufficiently well targeted. We also saw some good projects – particularly some projects supported by the LIFE programme.
- (e) Public *awareness and information* has a critical role in addressing air pollution, a pressing public health issue. Recently, citizens have been getting more involved in air quality issues and have gone to national Courts, which have ruled in favour of their right to clean air in several Member States. Yet, we found that the Ambient Air Quality Directive protects citizens' rights to access to justice less explicitly than some other environmental Directives. The information made available to citizens on air quality was sometimes unclear.

### **What we recommend:**

V. Our report makes recommendations to the Commission aimed at improving air quality. Our recommendations cover more effective actions which should be taken by the Commission; the update of the Ambient Air Quality Directive; the prioritisation and mainstreaming of air quality policy into other EU policies; and the improvement of public awareness and information.



## **INTRODUCTION**

### ***Why air pollution matters***

1. Air pollution occurs when gases, dust particles and smoke are released into the atmosphere, making it harmful to humans, infrastructure and the environment. The World Health Organization (WHO) classifies air pollution as the biggest environmental risk to health in Europe<sup>1</sup>. In the EU, air pollution causes more than 1 000 premature deaths on average each day, which is more than 10 times the number killed by road accidents<sup>2</sup>. **Figure 1** shows that lost years of healthy life in some EU Member States are similar to countries often associated with poor quality air, such as China and India. In 2013, the EU Commission estimated the total health related external costs of air pollution at between €330 and €940 billion per year<sup>3</sup>.

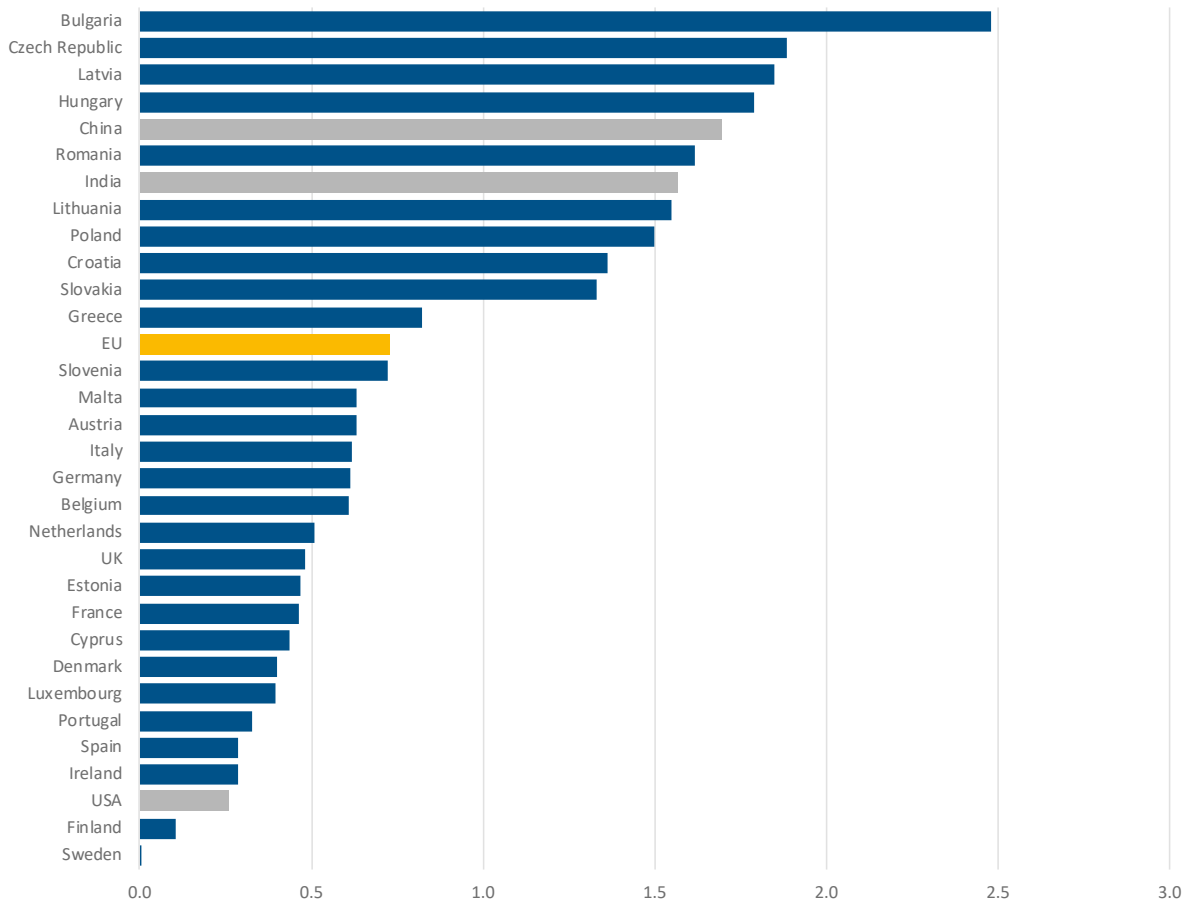
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<sup>1</sup> WHO, "[Ambient Air Pollution: A global assessment of exposure and burden of disease](#)", 2016, p. 15 and EEA, "[Air quality in Europe — 2017 report](#)", 2017, p. 12.

<sup>2</sup> [European Commission press release](#) of 16 November 2017.

<sup>3</sup> [SWD\(2013\) 532 final](#) of 18.12.2013 "Executive Summary of the Impact Assessment", p. 2.

**Figure 1 – Lost years of healthy life from ambient air pollution per hundred inhabitants**



Source: WHO, “Public Health and Environment (PHE): ambient air pollution DALYs attributable to ambient air pollution”, 2012.

### ***People in cities are the most affected***

2. According to the EEA, in 2015, around one-quarter of Europeans living in urban areas were exposed to air pollutant levels exceeding some EU air quality standards and up to 96 % of EU citizens living in urban areas were exposed to levels of air pollutants considered by the WHO as damaging to health<sup>4</sup>. Air pollution tends to affect city dwellers more than inhabitants of rural areas because the density of people living in cities means that air pollutants are released on a larger scale (for example, from road transport) and because dispersion is more difficult in cities than in the countryside.

<sup>4</sup> EEA, “[Outdoor air quality in urban areas](#)”, 2017.



### ***What shortens people's lives and how?***

3. The WHO identifies Particulate Matter (PM), nitrogen dioxide (NO<sub>2</sub>), sulphur dioxide (SO<sub>2</sub>) and ground-level ozone (O<sub>3</sub>) as the air pollutants that are most harmful to human health (see **Box 1**)<sup>5</sup>. The EEA reported that, in 2014, fine particles (PM<sub>2.5</sub>) caused about 400 000 premature deaths of EU citizens; NO<sub>2</sub> caused 75 000 and O<sub>3</sub> caused 13 600<sup>6</sup>. The EEA warns that air pollution affects people on a daily basis, and that while pollution peaks are its most visible effect, long-term exposure to lower doses poses a greater threat to human health<sup>7</sup>.

#### **Box 1 – Main air pollutants**

Particulate matter (PM) comprises solid and liquid particles suspended in the air. These include a wide range of substances, from sea salt and pollens to human carcinogens like Benzo[a]pyrene and Black Carbon. PM is classified as PM<sub>10</sub> (coarse particles) and PM<sub>2.5</sub> (fine particles)<sup>8</sup>, depending on its

<sup>5</sup> [WHO webpage](#) and WHO, "[Economic cost of the health impact of air pollution in Europe](#)", 2015, p. 3.

<sup>6</sup> The EEA explains that the impacts for each pollutant may not be added. See EEA, "[Air quality in Europe – 2017 report](#)", 2017, p. 56.

<sup>7</sup> EEA, "[Air quality in Europe – 2017 report](#)", 2017, p. 55 and Table 10.1., and EEA, "[Cleaner air benefits human health and climate change](#)", 2017.

<sup>8</sup> PM<sub>10</sub> are particulate matter with a diameter up to 10 µm and PM<sub>2.5</sub> are particulate matter with a diameter of 2.5 µm or less.

size. In those parts of Europe where household heating still often uses solid fuel, air pollutant emissions (in particular PM) tend to increase when winters are more severe.

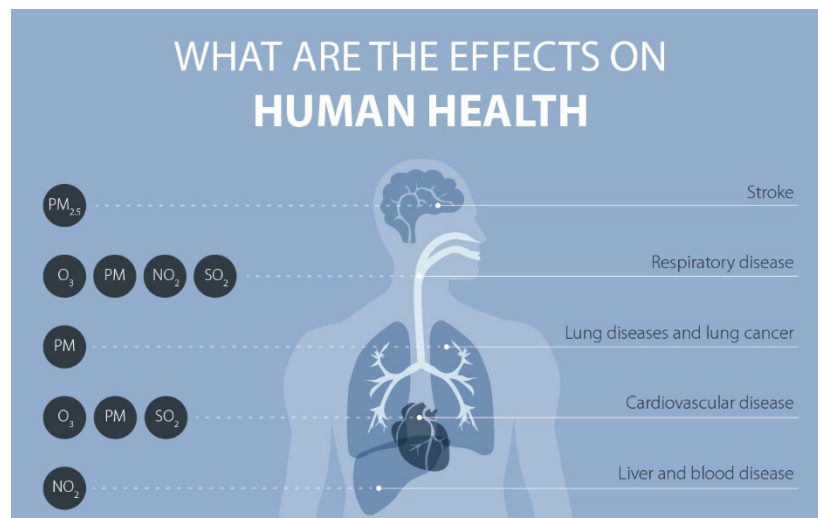
Nitrogen dioxide (NO<sub>2</sub>) is a toxic gas of reddish-brown colour. It is one of the nitrogen oxides (NO<sub>x</sub>).

Sulphur dioxide (SO<sub>2</sub>) is a toxic colourless gas with a sharp odour. It is one of the sulphur oxides (SO<sub>x</sub>).

Ground-level ozone (O<sub>3</sub>), or tropospheric ozone<sup>9</sup>, is a colourless gas that is formed in a layer close to the ground by the chemical reaction of pollutants (such as Volatile Organic Compounds (VOCs) and NO<sub>x</sub>) in the presence of sunlight.

4. According to the WHO, heart disease and stroke cause 80 % of premature deaths due to air pollution. Lung diseases including cancer, and other diseases follow<sup>10</sup>. **Figure 2** summarises the main health impacts of the four air pollutants mentioned above.

**Figure 2 – Main health impacts of PM, NO<sub>2</sub>, SO<sub>2</sub> and O<sub>3</sub>**



Sources: EEA and WHO.

<sup>9</sup> This ozone does not contribute to the ozone layer in the upper atmosphere (stratospheric ozone).

<sup>10</sup> EEA, “[Air quality in Europe — 2013 report](#)”, 2013, p. 17. See also IARC, “[Outdoor air pollution a leading environmental cause of cancer deaths](#)”, 2013. The International Agency for Research on Cancer (IARC) is an intergovernmental agency of the WHO.

5. **Box 2** explains what factors affect the levels of air pollution and **Figure 3** shows the percentages of the air pollutants emissions from each source in the EU.

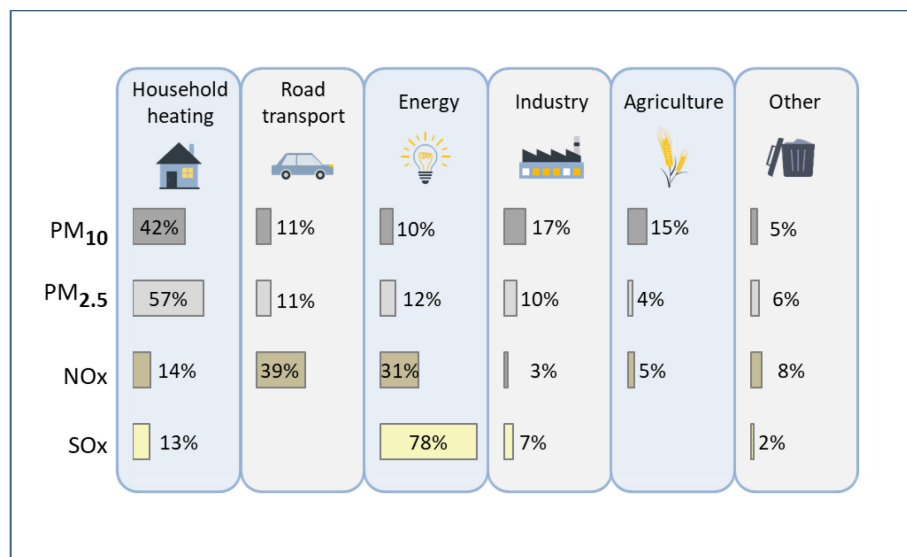
**Box 2 – Air quality does not only depend on pollution emissions**

It also depends on:

- proximity to the source and altitude at which pollutants are released;
- meteorological conditions, including wind and heat;
- chemical transformations (reactions to sunlight, pollutant interactions);
- geographical conditions (topography).

Air pollution emissions result mostly from human action (e.g. from transport, power stations or factories). They can also result from forest fires, volcanic eruptions and wind erosion.

**Figure 3 – Sources of air pollutants in the EU<sup>11</sup>**



Source for the data: EEA, "Air quality in Europe — 2017 report", 2017, p. 22.

<sup>11</sup> Emission of air pollutants are quantified in terms of NO<sub>x</sub> and SO<sub>x</sub> while air pollutants concentrations focus on NO<sub>2</sub> and SO<sub>2</sub>, the most harmful of these oxides.

### ***What has the EU been doing?***

6. The EU tackles air pollution by setting (a) concentration limit values of pollutants for the air that people breathe, and (b) standards on pollutants' emission sources.

7. In 1980, Directive 80/779/EC first established EU limits for SO<sub>2</sub> concentrations. Other Directives have followed, covering more air pollutants and updating their limit values<sup>12</sup>. The 2008 Ambient Air Quality Directive (AAQ Directive)<sup>13</sup> sets air quality standards (including limit values) for the concentrations of air pollutants with the biggest health impacts (see ***paragraph 18***). It focuses on improving citizens' health through better quality of the air that people breathe.

8. The AAQ Directive requires that Member States define air quality zones within their territory. Member States carry out preliminary air quality assessments in each zone and set networks of fixed measuring stations in polluted areas. The Directive contains criteria both for the location and for the minimum number of sampling points (see ***paragraph 32***)<sup>14</sup>.

9. Member States collect data from their networks and report this to the Commission and the EEA each year (see ***Box 3***). The Commission assesses these data against the EU standards<sup>15</sup> of the AAQ Directive. Where concentrations exceed the standards, Member States must produce Air Quality Plans (AQPs) that tackle the problem as soon as possible. The Commission assesses these plans and takes legal action where it considers that Member States fail to comply with the Directive. The Directive imposes public information obligations on the Member States, including alert and information thresholds.

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<sup>12</sup> E.g. Directives [82/884/EEC](#), [85/203/EEC](#), [92/72/EEC](#), [96/62/EC](#) (Framework Directive), [1999/30/EC](#), [2000/69/EC](#), [2002/3/EC](#) and [2004/107/EC](#).

<sup>13</sup> Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe (OJ L 152, 11.6.2008, p. 1).

<sup>14</sup> Sampling points are devices that collect and analyse the concentration of air pollutants in the air. Normally, one fixed measuring station (monitoring station) contains several sampling points.

<sup>15</sup> The designation "standard value" covers the binding limit values set for PM, NO<sub>2</sub> and SO<sub>2</sub> as well as the target value set for O<sub>3</sub>, which is to be attained where possible over a given period.

### Box 3 – Commission and EEA’s roles

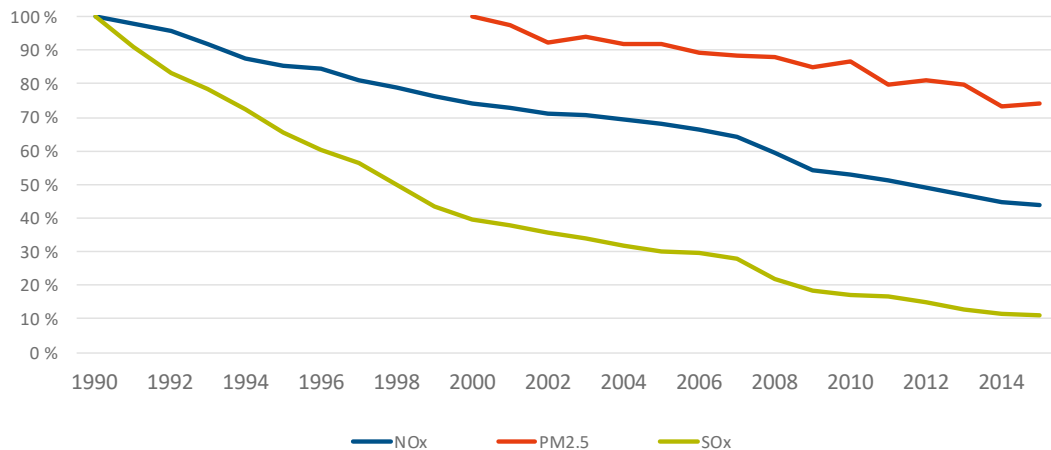
The Commission is responsible for assessing compliance and for overseeing the implementation of the Directive.

The EEA is an agency of the European Union that aims to provide sound, independent information on the environment. The EEA’s role is to provide timely, targeted, relevant and reliable information to policymaking agents and the public aiming to support sustainable development.

10. In addition to setting concentration limits, the EU has legislated to reduce air pollutant emissions from several sectors<sup>16</sup>.

11. The EEA points out that in recent decades European Directives (see [Annex I](#)) and Regulations (such as those leading to fuel switching or abatement of inefficient equipment) have contributed to reductions in air pollutant emissions. Between 1990 and 2015, SO<sub>x</sub> emissions in the EU decreased by 89 % and NO<sub>x</sub> emissions by 56 %. Since 2000, PM<sub>2.5</sub> emissions have decreased by 26 %<sup>17</sup> as shown in [Figure 4](#).

**Figure 4 – Air pollutant emission trends since 1990 (since 2000 for PM<sub>2.5</sub>)**



Source: EEA.

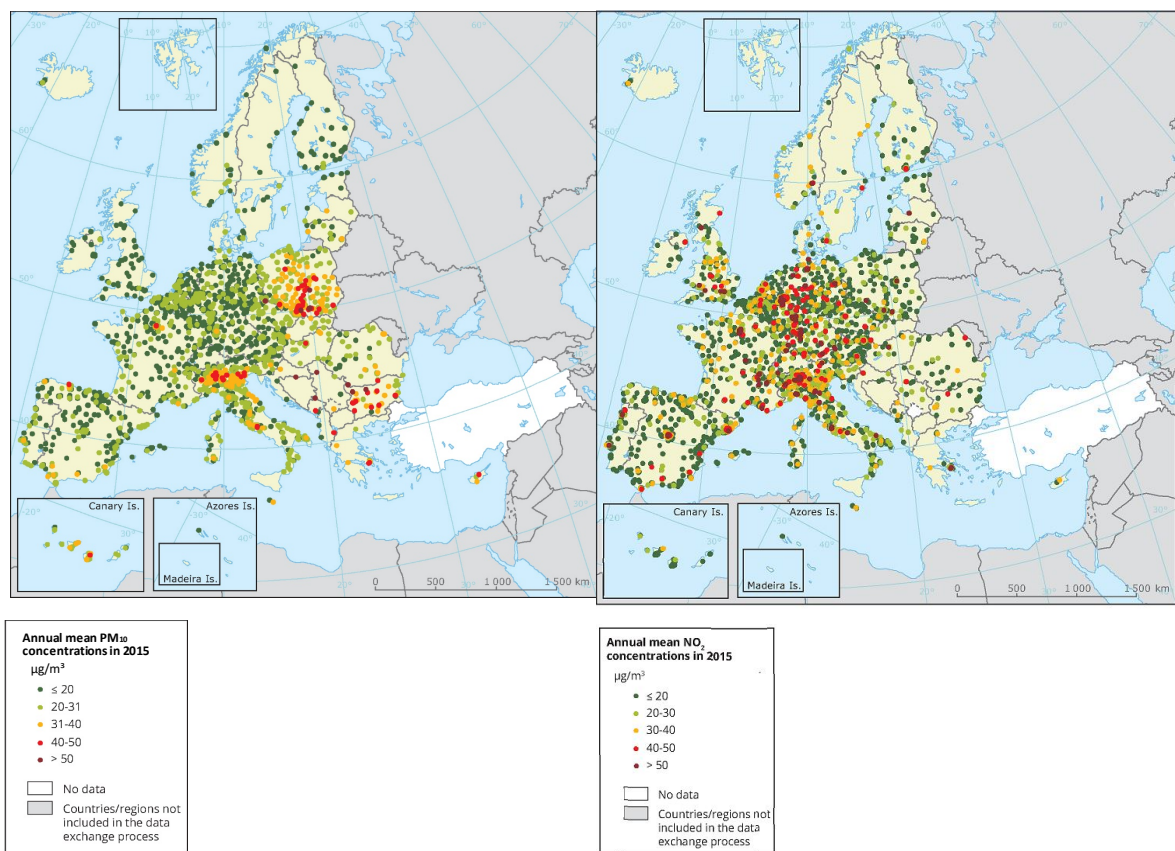
12. According to the WHO and the EEA, this decrease in the total emissions of air pollutants

<sup>16</sup> The relevant Union source-based air pollution control legislative acts can be found on [DG Environment's webpage](#).

<sup>17</sup> EEA, "[Emissions of the main air pollutants in Europe](#)", 2017.

does not automatically translate into similar reductions in air pollutant concentrations<sup>18</sup>. The EU source legislation does not focus on reducing emissions in places where people suffer most from air pollution or where concentrations are highest (see [Figure 5](#)). For example, if car engines emit less, due to stricter EU emission standards, air pollution can still increase if car use increases. Therefore, specific action in populated areas is necessary to reduce concentrations of air pollutants as human exposure, particularly to PM and NO<sub>2</sub>, remains high.

**Figure 5 – PM<sub>10</sub> and NO<sub>2</sub> concentrations in 2015**



Source: EEA data and maps.

13. Following earlier strategies, in December 2013, the European Commission published the

<sup>18</sup> This is due to complex factors such as the chemistry of the different pollutants in the atmosphere, or the long-distance transport of air pollutants in the atmosphere. See WHO, [“Economic cost of the health impact of air pollution in Europe”](#), 2015, p. 7. See also EEA, SOER 2015 [“European briefings: Air pollution”](#), 2015 and EEA, [“Air pollution: Air pollution harms human health and the environment”](#), 2008.



Clean Air Programme for Europe. This aims to tackle the widespread non-compliance with the EU's air quality standards and ensure full compliance with existing legislation by 2020. It also sets a pathway for the EU to meet by 2030 the long-term goal of reducing premature mortality due to PM and O<sub>3</sub> by 52 % relative to year 2005. The Commission recognised that significant compliance gaps for some pollutants remain, and launched a fitness check in 2017 to examine the performance of the Ambient Air Quality Directive.

### **AUDIT SCOPE AND APPROACH**

14. This report assesses whether EU actions to protect human health from air pollution have been effective. We examined whether (i) the AAQ Directive was well designed to tackle the health impact of air pollution; (ii) Member States' effectively implemented the Directive; (iii) the Commission monitored and enforced implementation of the Directive; (iv) air quality was adequately reflected in other EU policies and adequately supported by EU funds; and (v) the public has been well informed on air quality matters.

15. We focused on the provisions of the AAQ Directive related to human health and on the air pollutants with the greatest health impact: PM, NO<sub>2</sub>, SO<sub>2</sub> and O<sub>3</sub> (see ***paragraph 3***)<sup>19</sup>.

16. We concentrated on urban areas, as this is where air pollution most affects health (see ***paragraph 2***). We examined how six urban centres in the EU dealt with the problem and used funding from the EU's Cohesion policy and LIFE programmes (see ***Box 4***)<sup>20</sup>.

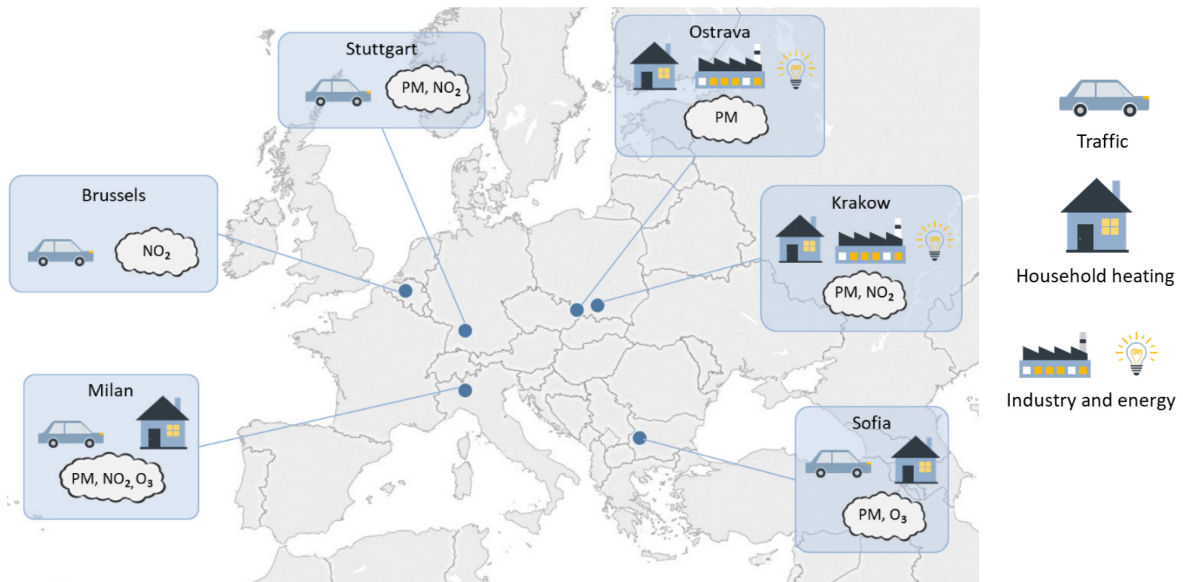
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<sup>19</sup> The AAQ Directive focuses only in ambient air quality; therefore indoor air quality is not part of our audit scope. The Directive also includes provisions and emission limits to protect vegetation, as well as regulating lead, benzene and carbon monoxide concentrations. These were not included in our audit, as their overall effect on levels of premature deaths is low. The audit scope also excluded natural sources of air pollution.

<sup>20</sup> The audit did not cover projects funded by EU research programmes, and rural development measures, due to their lack of impact on urban areas.

#### Box 4 – Selection of six case studies

In our selection, we aimed for a broad geographical distribution of high pollution hotspots. We also considered the amounts of EU air quality funding received by these Member States. The map shows the main pollutants and their sources in the selected cities as identified by the Member States.



Sources: ECA analysis and Air Quality Plans of the six cities visited.

17. We covered the period from the adoption of the AAQ Directive in 2008 to March 2018. We examined the policy design and Commission's monitoring of implementation of the AAQ Directive through reviewing documents, interviewing staff and checking databases at the Commission and the EEA. To examine Member States' implementation of the Directive and EU-funded air quality projects, we carried out on-the-spot visits, examined project documentation and interviewed local stakeholders (national and local authorities, project beneficiaries, and other civil society stakeholders) in the six selected cities and in the capitals of the respective Member States. For the audit work in Poland, we cooperated with the Supreme Audit Office (NIK)<sup>21</sup>. We took into account expert advice on the design, implementation and monitoring of the AAQ Directive. We also contributed to an international cooperative audit on air quality by EUROSAL.

<sup>21</sup> The objective of the cooperation was to share knowledge, expertise and ideas when preparing the audit programmes. It included the exchange of views and audit-related documents. A team composed of auditors representing both institutions participated in the ECA audit mission to Poland.

## OBSERVATIONS

### *The Directive's standards are weaker than the evidence on health impacts of air pollution suggests*

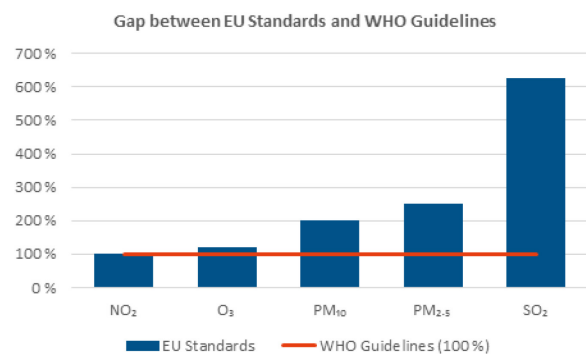
18. The EU standards for health protection set out in the AAQ Directive address both short and long-term health impacts<sup>22</sup>. They limit the number of times concentrations can exceed short-term (daily and hourly) values; they also require annual averages to be below defined values. The AAQ Directive states that "(...) appropriate objectives [should be] set for ambient air quality taking into account relevant World Health Organisation standards, guidelines and programmes"<sup>23</sup>.

19. However, EU ambient air quality limits are much weaker than the WHO guidelines for PM<sub>2.5</sub> and SO<sub>2</sub>, and weaker for PM<sub>10</sub> (annual average) and for ozone. For PM<sub>10</sub> (daily value) and NO<sub>2</sub>, EU standards are aligned with WHO guidelines, and permit some occasions when limits are exceeded. **Table 1** provides a comparison of WHO air quality guidelines and EU standards and **Box 5** explains the difference between guidelines and standards.

**Table 1 – EU air quality standards and WHO Guidelines**

Pollutant	Period	WHO Guidelines µg/m <sup>3</sup>	EU AAQ Directive limit values µg/m <sup>3</sup>	No. of times in a year that the EU standards can be exceeded
NO <sub>2</sub>	1 year	40	40	-
	1 hour	200	200	18
O <sub>3</sub>	8 hours	100	120	25
PM <sub>10</sub>	1 year	20	40	-
	24 hours	50 <sup>(a)</sup>	50	35
PM <sub>2.5</sub>	1 year	10	25	-
	24 hours	25	-	-
SO <sub>2</sub>	24 hours	20	125	3
	1 hour	-	350	24
	10 minutes	500	-	-

(a) The WHO recommends following this guideline as the 99<sup>th</sup> percentile (3 exceedances).



Sources: WHO Air quality guidelines (2005) and AAQ Directive 2008/50/EC.

<sup>22</sup> Exposure to air pollution for a few hours or days (short-term exposure) causes acute health symptoms, and exposure over months or years (long-term exposure) is linked to chronic health issues. See EEA, "[Air quality in Europe — 2017 report](#)", 2017, p. 50.

<sup>23</sup> See AAQ Directive preamble, paragraph 2.

### Box 5 – Guidelines vs standard values

Air quality guidelines are based on scientific evidence of the health effects of air pollution. Standards – which are in most cases legally binding – need to take account of technical feasibility, and the costs and benefits of compliance<sup>24</sup>. WHO guidance indicates that allowing limits to be exceeded on a certain number of occasions can reduce the cost of compliance<sup>25</sup>.

20. The AAQ Directive was the first Directive to set limit values for PM<sub>2.5</sub>, but not the first to regulate concentrations of PM<sub>10</sub>, NO<sub>2</sub>, SO<sub>2</sub>, and O<sub>3</sub>. As it did not introduce any changes to the values set by the Directives that it updated<sup>26</sup>, the limit values for PM<sub>10</sub>, NO<sub>2</sub> and SO<sub>2</sub> are now almost 20 years old<sup>27</sup>, and the target value of O<sub>3</sub> is over 15 years old<sup>28</sup>.

21. The EU legislators weakened the Commission's proposal of 1997 by setting higher limit values or number of times they might be exceeded<sup>29</sup>. The O<sub>3</sub> target value in the AAQ Directive is less strict than in the past<sup>30</sup>.

22. The WHO considers PM<sub>2.5</sub> to be the most harmful air pollutant<sup>31</sup>. WHO guidelines include a short-term value for PM<sub>2.5</sub> but the AAQ Directive does not. This means that the EU standard relies only on a yearly average and high and harmful PM<sub>2.5</sub> emissions from

<sup>24</sup> WHO, "[Air quality guidelines – Global update 2005](#)", p. 7.

<sup>25</sup> WHO, "[Guidance for setting air quality standards](#)", 1997, Annex 3.

<sup>26</sup> The AAQ Directive merged Directives [96/62/EC](#), [1999/30/EC](#) (1<sup>st</sup> daughter Directive), [2000/69/EC](#) (2<sup>nd</sup> daughter Directive) and [2002/3/EC](#) (3<sup>rd</sup> daughter Directive).

<sup>27</sup> They were set in 1999 by Council [Directive 1999/30/EC of 22 April 1999 relating to limit values for sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air \(OJ L 163, 29.6.1999, p. 41\)](#).

<sup>28</sup> They were set in 2002 by [Directive 2002/3/EC of the European Parliament and of the Council of 12 February 2002 relating to ozone in ambient air \(OJ L 67, 9.3.2002, p. 14\)](#).

<sup>29</sup> For example, for the PM<sub>10</sub> annual limit value, the Commission proposed 30µg/m<sup>3</sup>, and the AAQ Directive value is 40µg/m<sup>3</sup>. For the NO<sub>2</sub> hourly limit value, the Commission proposed that it could be exceeded eight times per year, and the AAQ Directive allows 18 times.

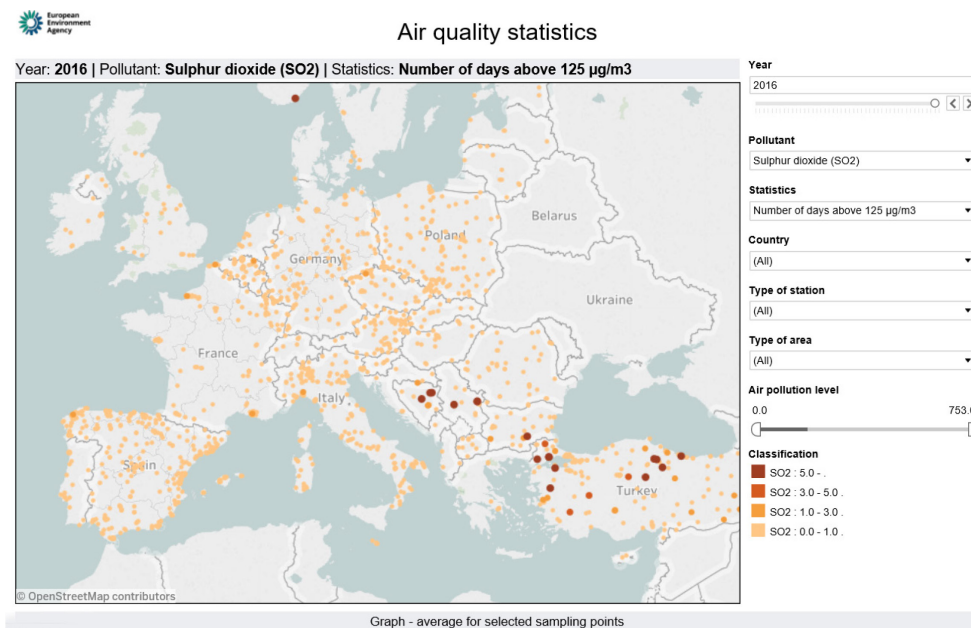
<sup>30</sup> [Directive 92/72/EEC](#) set a threshold of 110µg/m<sup>3</sup> but [Directive 2002/3/EC](#) sets the current target value at 120µg/m<sup>3</sup> over a daily eight-hour mean, with 25 exceedances allowed.

<sup>31</sup> WHO [webpage](#) and [factsheet](#).

household heating during the winter are offset by the lower summer levels (see [Box 1](#)). The annual limit value set in the AAQ Directive ( $25\mu\text{g}/\text{m}^3$ ) is more than the double of the WHO guideline value ( $10\mu\text{g}/\text{m}^3$ ). The AAQ Directive introduced the possibility of updating the limit value to  $20\mu\text{g}/\text{m}^3$ , but the Commission did not do so when it examined the issue in 2013.

23. The EU daily limit value for  $\text{SO}_2$  is over six times the WHO guideline value. Although almost all Member States comply with the EU daily limit (see [Figure 6](#)), the EEA points out that in 2015 20 % of the EU urban population was still exposed to concentrations above the WHO's guideline value<sup>32</sup>. The general compliance with the undemanding limit values for  $\text{SO}_2$  in the AAQ Directive means that the Commission is only taking enforcement action against one Member State (Bulgaria, see [Annex III](#)).

**Figure 6 – Compliance with  $\text{SO}_2$  daily limit value in 2016**



Source: European Air Quality Portal data viewer.

24. Setting very undemanding standards has serious implications for reporting and enforcement actions, notably for  $\text{SO}_2$  and  $\text{PM}_{2.5}$  (see [paragraphs 22 to 23](#)). For example, places with  $\text{SO}_2$  concentrations significantly higher than WHO guideline values remain compliant with the AAQ Directive and, consequently, they are obliged to set up fewer

<sup>32</sup> EEA, "[Air quality in Europe – 2017 report](#)", 2017, p. 9.

measuring stations, to report data from fewer places and they often give no consideration on tackling SO<sub>2</sub> concentrations in their AQPs.

25. The Commission assessed the direct costs of complying with their proposal for the AAQ Directive at between €5 and €8 billion, and the monetised health benefits at between €37 to €119 billion per annum in 2020. The Commission concluded that benefits of the air quality policy greatly exceeded implementation costs<sup>33</sup>.

26. In 2013, the WHO carried out a “Review of evidence on health aspects of air pollution”. This recommended the Commission to ensure that the evidence on health effects of air pollutants and the implications for air quality were reviewed regularly. The WHO review found that scientific evidence supported stricter EU limit values for PM<sub>10</sub> and PM<sub>2.5</sub>, and regulating short-term averages (e.g. 24 hours) for PM<sub>2.5</sub>. This exercise aimed to support the Commission’s 2013 review of EU air quality policies, but did not lead to any change in the original AAQ Directive limit values.

27. More recently, several professional medical organisations have called for the EU to take account of the latest scientific evidence in support of stricter standards and a new short-term standard for PM<sub>2.5</sub><sup>34</sup>.

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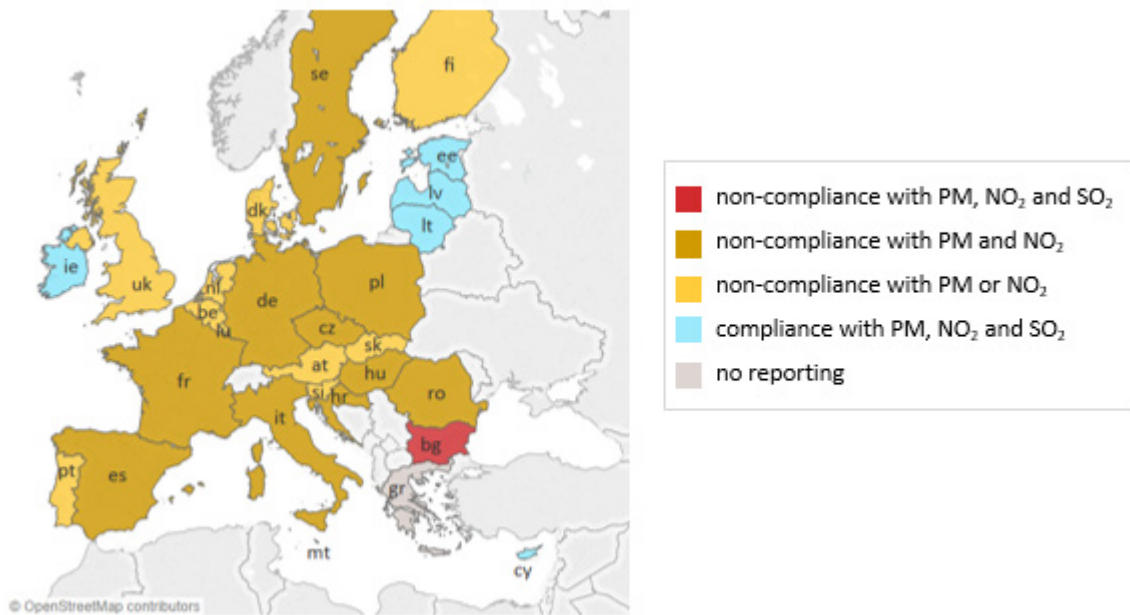
<sup>33</sup> [SEC\(2005\) 1133](#) of 29 September 2005 “Impact Assessment annex to the Communication on Thematic Strategy on Air Pollution and the Directive on “Ambient Air Quality and Cleaner Air for Europe”, p. 21.

<sup>34</sup> See for example, the [contribution by the European Respiratory Society](#) to the Commission’s Fitness Check of the EU Ambient Air Quality Directives, or a [recommendation from the Agence nationale de sécurité sanitaire de l’alimentation, de l’environnement et du travail](#).

**Most Member States did not effectively implement the AAQ Directive**

28. In 2016, 13 Member States breached PM limit values<sup>35</sup>, 19 NO<sub>2</sub> limit values<sup>36</sup> and one SO<sub>2</sub> limit values<sup>37</sup>. All 28 EU Member States except Estonia, Ireland, Cyprus, Latvia, Lithuania and Malta were in breach of one or more of these limit values (see **Figure 7**).

**Figure 7 – Member States compliance with limit values in 2016**



Source: European Commission.

29. **Figure 8** compares the PM and NO<sub>2</sub> concentrations in each of the cities we visited, to EU limit values<sup>38</sup>. Overall, measured air pollutant concentrations have decreased – most significantly for PM<sub>10</sub> – but they still exceed at least one of the AAQ Directive limit values in

<sup>35</sup> Bulgaria, Czech Republic, Germany, Spain, France, Croatia, Italy, Hungary, Poland, Romania, Slovakia, Slovenia and Sweden. Greece did not report all data required for 2016.

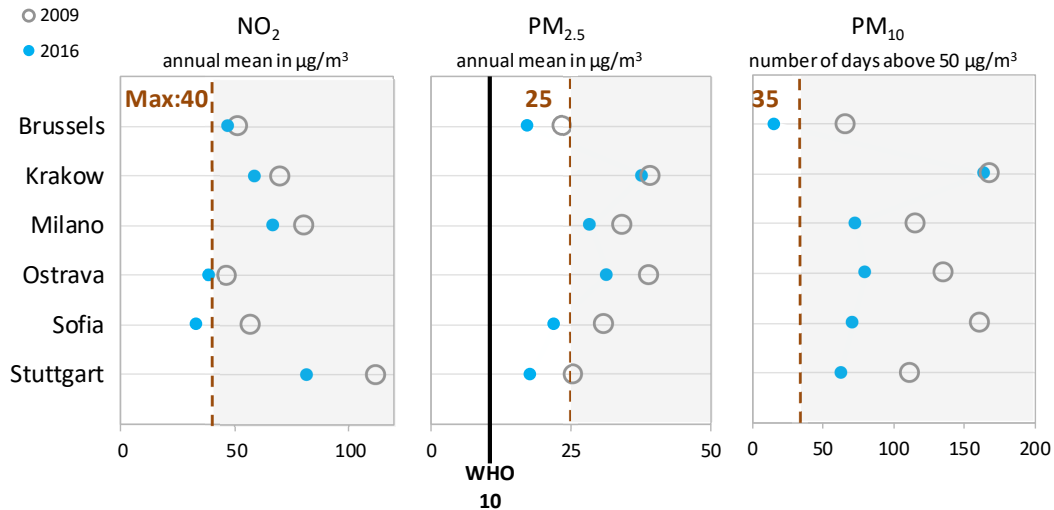
<sup>36</sup> Belgium, Bulgaria, Czech Republic, Denmark, Germany, Spain, France, Croatia, Italy, Luxembourg, Hungary, Netherlands, Austria, Poland, Portugal, Romania, Finland, Sweden and the United Kingdom. Greece did not report all data required for 2016.

<sup>37</sup> Bulgaria.

<sup>38</sup> Regarding SO<sub>2</sub>, all cities we visited complied with EU limit values; regarding Ozone, target values were mostly complied with.

all cities. In particular, there was almost no progress in Krakow (PM) and Sofia (PM<sub>2.5</sub>) since 2009. In Brussels and Milan, NO<sub>2</sub> concentrations changed little between 2012 and 2016 (see [Annex II](#)). However, part of the improvements in the measurements may not have resulted from better air quality, as explained in [paragraphs 32 and 33](#).

**Figure 8 – PM and NO<sub>2</sub> maximum concentrations (2009 to 2016)<sup>39</sup>**



Source: European Air Quality Portal data viewer.

**and the provisions for measuring air quality offer a degree of flexibility that makes verification difficult**

30. Getting good measurements on air pollution levels is important because this serves as the trigger for actions by Member States to reduce pollution. Furthermore, accurate and comparable data on pollution are important for the Commission to consider enforcement actions (see [paragraph 49](#)).

31. For the purposes of the AAQ Directive, Member States measure air quality through a network of monitoring stations containing devices (sampling points) that analyse and

<sup>39</sup> The values are the highest measurements registered in each year. For Sofia, the data series covers the period 2010 to 2016 for PM<sub>2.5</sub>. SO<sub>2</sub> and O<sub>3</sub> are not presented here as concentrations mostly respected the EU standards in the six visited cities.



measure the levels of several air pollutants<sup>40</sup>. Many Member States display air quality levels in websites for public information. Member States need to send validated data to the Commission once a year. The Commission then assesses compliance with the Directive. Member States are required to produce Air Quality Plans when the validated data shows that pollution exceeded AAQ Directive limits.



**Air quality monitoring station and sampling points (blue devices in the picture on the right)**  
*Source: ECA.*

32. The AAQ Directive sets criteria for the minimum number of the sampling points and for their site locations. However, the site location provisions involve multiple criteria and offer a degree of flexibility which can make verification more difficult. They require Member States to locate sampling points both “where the highest concentrations occur” (with traffic or industrial type stations) and in other areas which are “representative of the general population’s exposure”<sup>41</sup> (with background type stations). As a result, Member States do not necessarily measure air quality near major industries or main urban traffic routes. Complying with the Directive may be easier when the number of traffic or industrial stations is low.

**Box 6** shows that practices vary in the six cities that we visited<sup>42</sup>.

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<sup>40</sup> Including the pollutants covered by our audit (PM, NO<sub>2</sub>, SO<sub>2</sub> and O<sub>3</sub>).

<sup>41</sup> Section B.1. of Annex III of the AAQ Directive.

<sup>42</sup> Information based on the 2015 official data reporting to the EEA.

**Box 6 – Different practices when siting monitoring stations**

Brussels has only two traffic stations, while Stuttgart had eight and Milan had 11 (only six within the city limits, two of which were inside the Low Emission Zone).

The Ostrava air quality zone has significant industrial facilities on its territory, but only one of its 16 monitoring stations is “Industrial”. A similar situation occurs in Krakow, where only one of the city’s six monitoring stations is “Industrial”. Sofia has no “Industrial” monitoring stations, even though power plants and other industrial facilities are located there.

33. The minimum number of sampling points depends on the population living in each air quality zone. All the cities we visited had more monitoring points than required by the Directive. These extra measurements do not have to be included in the official data reported by the Member States even when they identify high levels of pollution (see **Box 7**). The AAQ Directive requires that Member States maintain sampling points that have exceeded PM<sub>10</sub>, but this obligation does not apply to other pollutants (in particular, NO<sub>2</sub> and PM<sub>2.5</sub>)<sup>43</sup>.

**Box 7 – High levels of pollution not included in the official data**

In Ostrava, *Radvanice ZÚ* station does not report validated data to the Commission although it exceeded the PM daily limit value 98 times in 2015.

In Brussels, the *Arts-Loi* station recorded in 2008 a very high NO<sub>2</sub> annual average (101 µg/m<sup>3</sup>). In 2009, the station was closed due to works but when the works were finished (in 2016) the station still did not report official data to the Commission.

In Sofia, construction works caused the relocation of the *Orlov Most* station in 2014. This station previously recorded the highest number of days of PM<sub>10</sub> concentrations exceeding the limit. After its relocation, the frequency of such events measured in Sofia dropped sharply (See **Annex II**).

Source: ECA analysis.

34. The AAQ Directive does not require any specific monitoring in problematic border areas. Tackling effectively transboundary pollution requires coordinated action. For example, if Ostrava fuel quality laws are enforced, they may only be effective in improving air quality if

<sup>43</sup> See Annex V of the [AAQ Directive](#).

neighbouring regions of Poland take action. If not, people will still be able to use cheap, low quality fuel bought across the border. Under Article 25 of the Directive, Member States shall invite the Commission to assist in any cooperation regarding cross-border air pollution. The Member States most affected by transboundary pollution that we visited did not consider the relevant provisions of the Directive helpful and they did not undertake any coordinated actions in their AQPs. They did not request the Commission to intervene.

35. In 2017, Member States we visited mostly reported data on time. Timely air quality data is important, both for the Member States to take appropriate actions to reduce air pollution, and for the Commission to act earlier to take enforcement procedures against the Member State. The AAQ Directive requires that Member States provide annual validated data by 30 September of the following year<sup>44</sup>. However, earlier Directives required Member States to report to the Commission within six months of the measuring period<sup>45</sup>. Technological developments over recent years (such as e-Reporting) enable earlier reporting.

#### **while Air Quality Plans are not designed as effective monitoring tools**

36. Breaches of the Directive mean that Member States need to produce Air Quality Plans (AQPs) to deal with the problem (see [paragraph 9](#)). Real improvements in air quality depend on Member States implementing quick and effective actions to reduce emissions, using good Air Quality Plans.

#### AQP measures are frequently poorly targeted

37. The AAQ Directive requires that AQPs set out appropriate measures, so that the time air pollution exceeds limits is kept as short as possible. We reviewed the AQPs of the visited cities.

38. Based on our analysis of AQPs we identified three main reasons that compromise their effectiveness. These were that the measures in the AQPs:

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<sup>44</sup> Article 27 of the [AAQ Directive](#).

<sup>45</sup> Directives [80/779/EEC](#); [82/884/EEC](#) and [85/203/EEC](#).

- were not targeted and could not be implemented quickly for the areas where the highest concentrations were measured;
- could not deliver significant results in the short term because they went beyond the powers of the local authorities responsible for implementing them or because they were designed for the long-term;
- were not supported by cost estimates or were not funded.

39. **Box 8** provides examples of weaknesses in AQPs compromising the goal of reducing air pollution concentrations.

**Box 8 – Examples compromising AQP results**

Diesel vehicles are a significant source of air pollution, particularly NO<sub>2</sub> (see [paragraph 57](#)). However, measures to reduce the use of private transport near the sites where the highest concentrations are measured were largely absent from the six AQPs we analysed.

In Italy (Milan), the use of electronic systems for monitoring access to the Low Emission Zones requires the previous adoption of national legislation. In Belgium (Brussels), the AQP proposes restricting (pre Euro 5) vehicles in LEZs from 2025. Furthermore, the planned impact of traffic restrictions included in Member States' AQPs on reducing NO<sub>2</sub> concentrations is unreliable as it is not based on real driving conditions.

Replacing inefficient heating devices, often owned by low-income families, is a major challenge for citizens and some Member State authorities. In Poland (Małopolska), the anti-smog resolution restricts the use of solid fuels. The cost of replacing residential heating sources may exceed €1 billion. National funding was not secured.

40. While the AQPs identified the main pollution sources, they did not always contain specific measures to tackle their emissions. For example, Krakow's latest AQP contains only limited measures that reduce industrial emissions – which is a major source of NO<sub>2</sub> pollution, while Sofia's AQP does not include any measure that reduces emissions from households – which is a major source of PM pollution (see [Box 4](#)).

41. AQPs frequently proposed measures that do not have a direct impact on reducing air pollutant concentrations such as administrative simplification measures, evaluations or surveys. We also found that AQPs did not assess the cost effectiveness of the measures.

42. Achieving air quality targets sometimes requires difficult political decisions. For example, the use of personal vehicles is a major source of urban air pollution in Brussels, Stuttgart and Milan, and the most effective measures would be to limit their use.



**Am Neckartor monitoring station in Stuttgart**  
*Source: ECA.*

#### AQPs privilege quantity over the quality of information

43. All the six cities we visited have been producing AQPs for a long time. The plans typically cover four to five year periods. The Air Quality Directive does not require Member States to report on implementation of their AQPs to the Commission, or to update them when new measures are adopted or when progress is visibly insufficient. Member States only need to update their AQPs at the end of the plan's period, if air quality still does not meet the standards.

44. Because of widespread high levels of pollution, Member States prepare a high number of AQPs. The AQPs we examined were lengthy<sup>46</sup> and often did not contain all relevant air

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<sup>46</sup> The AQPs we analysed were on average well over 200 pages long.

quality measures planned or taken<sup>47</sup>. Member States also report more documents containing additional measures when requested by the Commission.

45. The production of AQPs is a lengthy process. When Member States send them to the Commission, they usually deal with a breach of an air pollution limit that occurred more than two years earlier<sup>48</sup>, but provide no information about subsequent progress.

46. The above factors combine to make monitoring of Member State actions by the Commission a difficult exercise. This slowed monitoring of the implementation of the Directive.

47. The continuing, although decreasing, high levels of pollution (see **Figure 4**), show that producing AQPs have not been sufficient to ensure compliance with the AAQ Directive and reduce pollution as soon as possible. The European Court of Justice (ECJ) confirmed this in recent rulings (see **paragraph 52**).

***The Commission faces limitations in checking compliance and the enforcement process is slow***

48. The AAQ Directive requires the Commission to monitor and enforce Member States' implementation of the Directive. However, Member States do not have to report on implementation of their AQPs, or to update them when they adopt new measures, or when progress is insufficient (see **paragraph 43**). Some provisions of the Directive are by their nature difficult to verify (such as ensuring that Member States comply with their public information duties; or checking the location of more than four thousand monitoring stations).

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<sup>47</sup> For example, in Brussels, several documents contain air quality-related measures: the *Plan Régional Air-Climat-Énergie*, the COBRACE, the *Plan Régional de la Mobilité (IRIS2)*, and the *Plan portant sur les dépassements observés pour les concentrations de NO<sub>2</sub>*. In Milan, regional agreements, such as the Po Valley agreement, complement the Lombardia Region's AQP.

<sup>48</sup> The AAQ Directive states that AQPs shall be communicated to the Commission "without delay, but no later than two years after the end of the year the first exceedance was observed" (see Article 23).

49. While air pollution limits are frequently exceeded, the Commission identifies the most serious breaches of compliance and starts dialogues with the Member States, until it decides to close the process or concludes that the Member State has failed to put forward sufficiently ambitious and convincing measures. At this stage, the Commission can launch infringement proceedings against the Member State.

50. As of January 2018, the Commission had 16 ongoing infringement proceedings due to PM pollution, 13 due to NO<sub>2</sub>, one due to SO<sub>2</sub> and two other infringement proceedings regarding air pollution monitoring (see [Annex III](#)).

51. We analysed the ongoing infringements processes involving the six cities we visited<sup>49</sup>. All six Member States applied for the postponement of attainment deadlines under Article 22<sup>50</sup>. Consequently, the infringement procedure could only start once the Commission decided on these applications for postponement.

52. The Commission has on four occasions<sup>51</sup> succeeded in obtaining favourable rulings against Member States for exceeding air pollution limits, but that did not require the Member State to take corrective action. As a result, the Commission has redefined its approach and recently won Court cases against Bulgaria (on 5 April 2017) and Poland (on 22 February 2018)<sup>52</sup>. In its rulings, the ECJ confirmed that merely adopting an AQP to comply with the Directive was not enough, and ruled that Bulgaria and Poland had not fulfilled their obligations to keep the period in which limits were exceeded as short as possible. [Figure 9](#) shows that it took between six and eight years until the Commission referred these cases

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<sup>49</sup> All the cities have ongoing infringement procedures for both PM<sub>10</sub> and NO<sub>2</sub>. The exception is Sofia, which has an open infringement only for PM<sub>10</sub>.

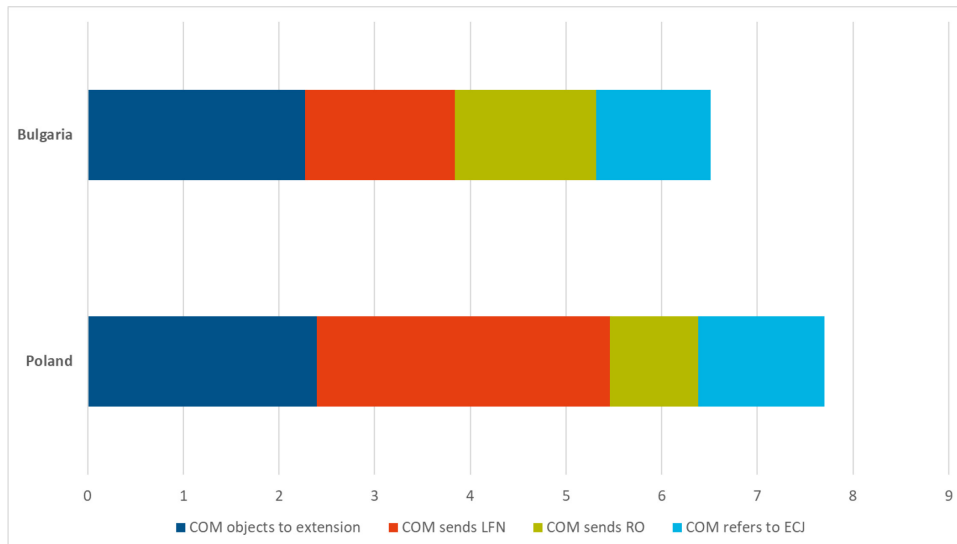
<sup>50</sup> According to this Article, and under certain conditions, Member States may seek exemption from the obligation to apply PM<sub>10</sub> limit values until 11 June 2011 and may request postponement of compliance with limit values for nitrogen dioxide until 1 January 2015 (for a maximum of five years beyond 1 January 2010, the deadline set in Annex XI).

<sup>51</sup> Slovenia ([C-365/10](#)), Sweden ([C-479/10](#)), Portugal ([C-34/11](#)) and Italy ([C-68/11](#)).

<sup>52</sup> See [Case C-488/15](#) for Bulgaria and [Case C-336/16](#) for Poland.

related to PM<sub>10</sub> infringements to the ECJ<sup>53</sup>. To apply financial penalties, the Commission has to go back to the ECJ and seek a new ruling<sup>54</sup>. The NO<sub>2</sub> infringements started much later and no case has yet been referred to the ECJ. There is no ongoing infringement procedure on ozone<sup>55</sup>.

**Figure 9 – Length of the PM<sub>10</sub> procedures (in years)**



Source: European Commission.

53. Member States have more than two years to submit their AQPs, after they detect breaches of air quality limits. As subsequent dialogues in the context of infringement procedures between the Member States and the Commission have lasted more than 5 years in some cases, it is very likely that during this period Member States update their AQPs. This requires the Commission to examine the updated AQP. Consequently, it has taken at least

<sup>53</sup> The infringement procedures started with the sending of Letters of Formal Notice (LFN) to Bulgaria (on 25 January 2013) and to Poland (on 26 April 2013). The Commission sent Reasoned Opinion (RO) letters to Bulgaria on 11 July 2014 and to Poland on 27 February 2015.

<sup>54</sup> In particular, it has to apply for action under Article 260 of the Treaty on the Functioning of the European Union, as explained [on the Commission's website](#).

<sup>55</sup> Ground level ozone is not emitted by any specific source but is formed by a chemical reaction between precursor gases and sunlight. The Directive requires target values for ozone to be attained where possible over a given period and it does not require that Member States produce any specific action or plan on ozone precursors. As a result, even though some Member States still exceed the ozone target value, there are no infringement proceedings related to ozone.



7 years from the moment of the original breach until the Commission refers the case to the ECJ.

54. Overall, we found that the lengthy enforcement procedure has not yet ensured compliance with the Directive.

***Some EU policies do not sufficiently reflect the importance of air pollution***

55. Many EU policies have an impact on air pollutants and thus on air quality, particularly climate change, energy, transport and mobility, industry and agriculture.

56. The targets in the EU's 2030 climate and energy framework to reduce greenhouse gas emissions by 40 %, to have at least 27 % energy from renewable sources, and to improve energy efficiency by at least 27 %, can all support the reduction of emissions. We reported in a Landscape Review of 2017 that one of the main challenges facing EU action on energy and climate change was the transition of the EU to low carbon energy sources, and that this transition can offer benefits to air quality<sup>56</sup>.

57. Diesel vehicles were a key element for car manufacturers in the EU to comply with their carbon dioxide (CO<sub>2</sub>) reduction obligations<sup>57</sup>, as they produce lower CO<sub>2</sub> emissions than petrol cars. Technological developments and EURO standards<sup>58</sup> have significantly reduced CO<sub>2</sub> and PM emissions – but were not as successful in reducing NO<sub>x</sub> emissions – from such vehicles. It has been known for years<sup>59</sup> that real NO<sub>x</sub> emissions were higher than those produced under test conditions. The “Dieselgate” scandal which came to notice when inspectors in the USA detected suspicious readings in vehicle inspections, highlighted the

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<sup>56</sup> [ECA Landscape Review, “EU action on energy and climate change”, 2017, pp. 65 and 81.](#)

<sup>57</sup> CO<sub>2</sub> emission requirements (130 g per km by 2015, and 95 g per km by 2020), as set by [Regulation \(EU\) 333/2014 of the European Parliament and of the Council of 11 March 2014 amending Regulation \(EC\) No 443/2009 to define the modalities for reaching the 2020 target to reduce CO<sub>2</sub> emissions from new passenger cars](#) (OJ L 103, 5.4.2014, p. 15) as a fleet average for each car manufacturer.

<sup>58</sup> CO<sub>2</sub> emissions are limited by specific regulations (such as Regulation (EC) No 443/2009).

<sup>59</sup> See conclusion 3 of the European Parliament [Report of inquiry into emission measurements in the automotive sector](#) which reported that these discrepancies were known since at least 2005.

scale and causes of these discrepancies<sup>60</sup>. Before Dieselgate, the European Commission had launched work on a more realistic EU test procedure. Yet conformity factors mean that in practice the EURO 6 emission target of 80 mg NO<sub>x</sub> emissions per km (decided by the EU legislators in 2007 for implementation in 2014) will not have to be met for the Real Driving Emissions test before 2023<sup>61</sup>.

58. Fuel taxation supports diesel sales in all Member States except Hungary and the UK<sup>62</sup>. While purchases of new diesel cars fell after Dieselgate, around 40 % of all cars on the road in the EU are diesel powered<sup>63</sup>. As road transport, and particularly diesel cars, are a major source of NO<sub>2</sub> emissions (see **Figure 3**), efforts to reduce them are complicated.

59. The EU's climate change policies support biomass as a renewable source of energy<sup>64</sup>. The Renewable Energy Directive<sup>65</sup> required in 2009 that the EU meets at least 20 % of its total energy needs with renewables by 2020. EU funding for biomass projects has since more than doubled<sup>66</sup>. In our Special Report No 5/2018 on renewable energy for sustainable rural

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<sup>60</sup> See investigative reports by the [European Parliament](#), [Germany](#), [France](#) and [the United Kingdom](#). Real-world driving emissions from diesel vehicles can, on average, be four or five times higher than test values (EEA, "[Emissions of the main air pollutants in Europe](#)", 2015).

<sup>61</sup> Commission Regulations (EU) Nos [2016/427](#), [2016/646](#), [2017/1151](#), and [2017/1154](#). Real Driving Emission tests apply to new car models since September 2017, and will apply to all new cars from September 2019. To allow car manufacturers to adapt, manufacturers can exceed the NO<sub>x</sub> emission limit (80 mg/km, applicable since 2014) by a factor of 2.1, i.e. to emit 168 mg/km until 2019. The factor is reduced to 1.5, i.e. 120 mg/km in 2021, and the aim is to finally apply the 80 mg/km limit by 2023.

<sup>62</sup> EEA, "[Transport fuel prices and taxes indicators](#)", 2017.

<sup>63</sup> International Council on Clean Transportation (ICCT), "[European Vehicle Market Statistics - Pocketbook 2017/18](#)", and Eurostat, "[Passenger cars in the EU](#)".

<sup>64</sup> Biomass is organic matter (wood and charcoal) that can produce energy from burning.

<sup>65</sup> Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC (OJ L 140, 5.6.2009, p. 16).

<sup>66</sup> It increased from €1.6 billion in 2007-2013 to €3.4 billion in 2014-2020. *Data source:* European Commission.

development, we reported that combustion of wood biomass can also lead to higher emissions of certain harmful air pollutants. The EEA has identified similar issues<sup>67</sup>.

60. The use of inefficient solid-fuel boilers or heaters exacerbates the problem of air pollution from local heating. The EU has set standards to improve the efficiency of such devices (the Ecodesign Directive<sup>68</sup> with its implementing regulations), but such standards will only come into force for new devices in 2022.

61. The Industrial Emissions Directive (IED) is the main EU instrument regulating air pollutant emissions from industrial installations (see *Annex I*). The Directive allows Member States to set less stringent emission limit values if applying best available techniques (BATs) would lead to “disproportionately higher costs” compared to the environmental benefits. The Directive also allows certain “flexibility instruments” by way of exemption from the limits set for large combustion plants. For example, 15 Member States<sup>69</sup> have adopted “Transitional National Plans” which allow higher emission ceilings until 2020; some district heating plants have been granted special derogation until 2023; and other plants do not need to apply BATs if they limit their operations and close by 2024.

62. Agriculture accounts for 94 % of ammonia (NH<sub>3</sub>) emissions in the EU<sup>70</sup>. Ammonia is a precursor of PM. The EEA indicates that NH<sub>3</sub> emissions from agriculture contribute to episodes of high PM concentrations experienced across certain regions of Europe that breach AAQ Directive PM<sub>10</sub> limit values<sup>71</sup>.

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<sup>67</sup> The EEA “[Air quality in Europe — 2016 report](#)”, noted that climate-oriented policies may not always work in line with air-quality-oriented policies; and that the use of biomass as residential fuel generates emissions of air pollutants that can contribute considerably to adverse effects on human health (p. 22).

<sup>68</sup> Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products (OJ L 285, 31.10.2009, p. 10).

<sup>69</sup> Bulgaria, the Czech Republic, Ireland, Greece, Spain, Croatia, Lithuania, Hungary, Poland, Portugal, Romania, Slovenia, Slovakia, Finland and the United Kingdom.

<sup>70</sup> See EEA, “[Air quality in Europe — 2017 report](#)”, 2017, p. 21.

<sup>71</sup> EEA, “[Air quality in Europe — 2017 report](#)”, 2017, p. 24.

63. Although EU policies regulate agricultural practices<sup>72</sup>, progress on reducing air pollutants from agriculture has been very slow<sup>73</sup> and since 2012, NH<sub>3</sub> emissions have even increased<sup>74</sup>. The EEA notes that despite the existence of technically and economically viable measures such as agronomic, livestock or energy measures, they have yet to be adopted at the scale and intensity necessary to deliver significant emission reductions<sup>75</sup>.

***and EU funding is useful but not always targeted***

64. We examined how the LIFE programme, the European Regional Development Fund (ERDF) and the Cohesion Fund (CF) supported actions to improve air quality in the six Member States that we visited.

LIFE Programme

65. The EU supports air quality through its LIFE Programme<sup>76</sup>. We reviewed six LIFE projects related to air quality in Germany, Italy and Poland<sup>77</sup>. These included the project “LIFE Legal Actions – Legal Actions on Clean Air” that supported civil society stakeholders, who could, for example, launch Court cases seeking improvements in air quality<sup>78</sup> (see ***paragraph 73***).

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<sup>72</sup> Notably the CAP, through [agri-environmental measures](#) and other rural development fund investments; and the [Nitrate Directive \(Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources \(OJ L 375, 31.12.1991, p. 1\)\)](#), which focuses on nitrogen’s impact on water quality rather than air.

<sup>73</sup> NH<sub>3</sub> emissions decreased by only 7 % between 2000 and 2015 in the EU. See EEA, “[Air quality in Europe — 2017 report](#)”, 2017, pp. 21 and 29.

<sup>74</sup> ECA, “[Briefing paper: Future of the CAP](#)”, 2018, p. 11.

<sup>75</sup> EEA, “[Air quality in Europe — 2017 report](#)”, 2017, pp. 24 to 29.

<sup>76</sup> Since 2014, the LIFE programme has financed 17 projects related to air quality, worth a total of €38 million.

<sup>77</sup> The total funding of these projects amounted to €41 million (€24 million funded by the EU).

<sup>78</sup> In particular using the guidance provided by the [Clean air handbook](#), aided by this project. Successful cases have been supported by this project, for example, in the Czech Republic and the United Kingdom.

The use of the LIFE budget to support civil action at Member State level is a novel, cost effective, rapid route to encourage Member States and cities to support air quality policy.

66. Since 2014, Integrated Projects of the LIFE Programme support the planning of air quality policy through the use of other available EU funds. For example, an integrated project supported implementation of the Malopolska AQP in Poland. It included an information campaign, addressed to the citizens of the region, raising awareness on the danger of smoke from solid fuel boilers (see poster in [Figure 10](#) that says: “fumes from your boiler kill”).

**Figure 10 – Example of a public information poster of Malopolska LIFE programme**



Source: Marshall Office of Malopolska Region, Poland.

### Cohesion policy funding

67. The ERDF and the CF provide most EU funding for air quality. While some actions explicitly aim to reduce air pollution, many that target other objectives (e.g. clean urban transport or energy efficiency) may also benefit air quality.

68. Dedicated funding<sup>79</sup> available increased from €880 million in the 2007 - 2013 programming period to €1.8 billion in the 2014-2020 period but this amounted to less than

<sup>79</sup> A specific intervention field code (083) exists for air quality measures (code 47 in the 2007-2013 period), but as each project has a single code, many projects that are also relevant to air quality can be classified under another code.

1 % of total cohesion policy funding. Three of the Member States we visited used these funds, but only in Poland did the respective amounts increase significantly between the previous and current programming periods. In the Czech Republic, funding remained stable, while in Bulgaria it fell significantly (see [Table 2](#)).

**Table 2 – Dedicated air quality funding in Bulgaria, Czech Republic and parts of Poland**

<i>(in million euro)</i>	2007/2013	2014/2020	Variation
<b>Bulgaria</b>	120	50	-58 %
<b>Czech Republic</b>	446	454	+2 %
<b>Poland<sup>(1)</sup></b>	140	368	+163 %

(1) Amounts from the Operational Programme Infrastructure and Environment and the Regional Operational Programme Malopolska.

Source: European Commission and Member States.

69. We found cases where Member States did not prioritise this funding on projects that target the main sources and pollutants identified in the air quality zones we visited (see [Box 4](#)). For example, no projects target emission reductions from domestic heating in Sofia (a major source of PM emissions)<sup>80</sup>.

70. We also found that EU funded projects were not sufficiently well supported by Member States' plans to improve air quality. For example, a boiler replacement scheme in Krakow is being implemented without the national authorities restricting the availability of inefficient boilers and low quality coal.

<sup>80</sup> In Sofia, domestic heating interventions are still being assessed and planned.

71. We also found good examples of EU-funded projects that were well targeted and contributed directly to reductions in local emissions, as identified in Member States' AQPs. This was the case, for example, of the replacement of old diesel buses by buses running on compressed natural gas (CNG); and the boiler replacement schemes in Ostrava. There were also projects to modernise inefficient household heating systems (in Krakow), and public transport (in Krakow and Sofia). Until 2013, there were projects to reduce industrial emissions in Krakow and Ostrava (a major source of PM and NO<sub>x</sub> emissions)<sup>81</sup>.



**Industrial plant financed in Ostrava**

Source: ECA.

### ***Citizen action has a growing role***

72. The EEA regards public information as an essential element to address air pollution and reduce its harmful impacts<sup>82</sup> and the WHO underlines that “improving transparency and sharing quality information widely in cities will further empower people to participate productively in decision-making processes”<sup>83</sup>. The AAQ Directive sets alert thresholds for SO<sub>2</sub>, NO<sub>2</sub> and O<sub>3</sub>, but not for PM<sup>84</sup>, and requires Member States to provide detailed

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<sup>81</sup> Until 2013, the EUs structural funds could support the reduction of emissions of harmful air pollutants from industrial installations (NO<sub>x</sub>, SO<sub>x</sub> and PM) included in the EU Emissions Trading System. The Czech Republic used this possibility. Under the current programming period, this is no longer possible if such projects can also reduce CO<sub>2</sub> emissions.

<sup>82</sup> EEA, “[Cleaner air benefits human health and climate change](#)”, 2017.

<sup>83</sup> WHO, “[Global Report on Urban Health](#)”, 2016, p. 206.

<sup>84</sup> Article 19 and Annex XII of the [AAQ Directive](#).

information to the public<sup>85</sup>. Citizens can thus play a key role in monitoring the Member States' implementation of the AAQ Directive, in particular when results imply difficult political choices. Local action is important, but requires public awareness: only if citizens are well informed can they be involved in the policy and take action, where appropriate, including changing their own behaviour.

73. The increasing importance of the citizens' actions is shown by the recent Court cases launched by citizens and NGOs against their national authorities. In the Czech Republic, Germany, France, Italy and the UK, national courts have ruled in favour of citizens' right to clean air and required the Member States concerned to take further action to tackle air pollution.

**but public rights to access to justice are not explicitly protected by the Directive**

74. The right to justice, to environmental information and to public participation in environmental decision-making, is established by the Aarhus Convention, to which the EU and its 28 Member States are parties<sup>86</sup>. We found that other environmental Directives contain explicit provisions that guarantee the rights of members of the public to justice, while the AAQ Directive does not<sup>87</sup>.

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<sup>85</sup> Article 26 of the [AAQ Directive](#).

<sup>86</sup> The EU approved the Aarhus Convention by [Council Decision 2005/370/EC of 17 February 2005 on the conclusion, on behalf of the European Community, of the Convention on access to information, public participation in decision-making and access to justice in environmental matters \(OJ L 124, 17.5.2005, p. 1\)](#), and transposed the provisions on access to environmental information by [Directive 2003/4/EC of the European Parliament and of the Council of 28 January 2003 on public access to environmental information and repealing Council Directive 90/313/EEC \(OJ L 41, 14.2.2003, p. 26\)](#) for EU Member States, and by [Regulation \(EC\) No 1367/2006](#) of the European Parliament and of the Council of 6 September 2006 (OJ L 264, 25.9.2006, p. 13) regarding access to information, public participation in decision-making and access to justice in environmental matters for EU institutions and bodies.

<sup>87</sup> For more explicit rights to access justice, see Article 25 of IED; or Article 11 of [Directive 2011/92/EU](#) of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment (OJ L 26, 28.1.2012, p. 1). We also found that the rights of members of the public to participation in environmental decision were not as visible in the AAQ Directive as in other Directives (see Article 31 of [Directive 2008/98/EC](#) of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives (OJ L 312, 22.11.2008, p. 3); or Article 19 of [Directive 2006/66/EC](#) of the European Parliament and of the Council of 6



75. National laws vary considerably and civil society organisations have identified obstacles to citizens when seeking access to justice in some Member States.

### and air quality information is sometimes unclear

76. We checked the information made available online by public authorities to the citizens of the six cities visited. To do this we examined air quality indices, information on the health impacts of air pollution, the availability of real time air quality data, and other tools.

77. Air quality indices are tools that can give understandable information to citizens. Five of the six cities we visited use such indices. We found that Member States, regions and cities define air quality indices differently, which results in different assessments for the same air quality (see, for example, [Table 3](#)). As the damage to human health is no different for the same air pollution, independent of the location, different classifications for the same quality of air compromise the credibility of the information provided.

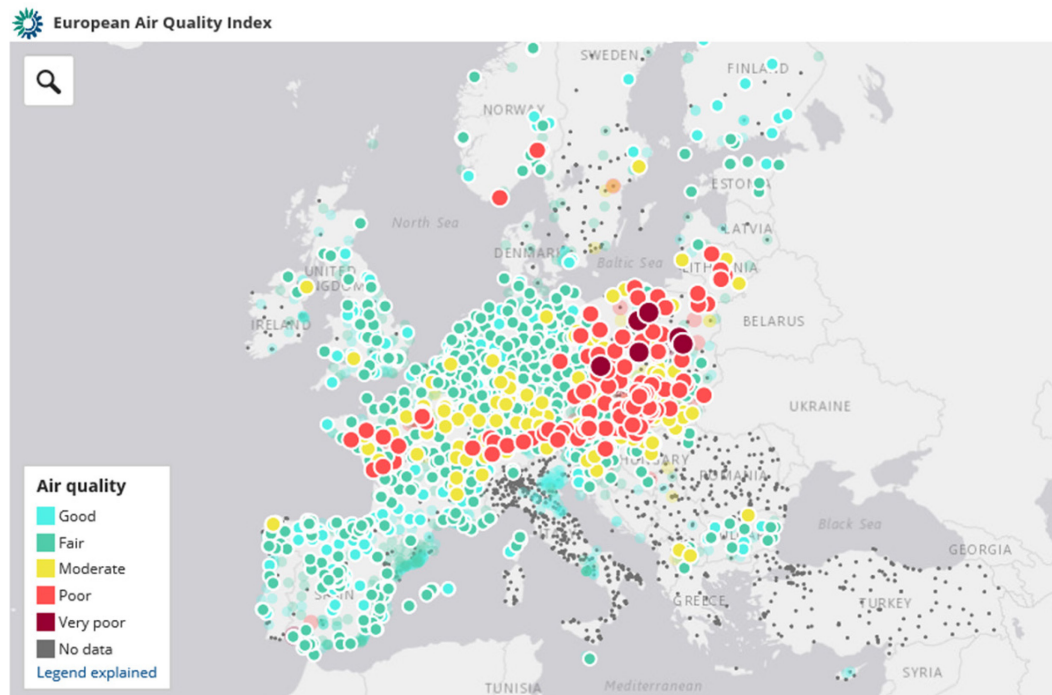
**Table 3 – PM<sub>10</sub> air quality indices (as of March 2018)**

Index based on PM hourly/daily value		0	10	20	30	40	50	60	70	80	90	100	140	180	200+
EEA		good			fair		moderate		poor			very poor			
Brussels	excellent	very good	good	fairly good		moderate	poor	very poor	bad	very bad		horrible			
Milan	good			fair			mediocre		bad		horrible				
Krakow	very good			good			moderate		sufficient		bad	very bad			
Ostrava	very good			good		fair		suitable		poor		very poor			
Stuttgart	very good	good	satisfactory		sufficient		bad		very bad		very bad				
Sofia	good			fair		sufficient		poor		very bad		very bad			

Source: EEA and cities websites.

78. As Member States had not agreed on a common index, the EEA in cooperation with the European Commission recently launched an index for the whole territory of the EU (see [Figure 11](#) below). By consulting the EEA index, citizens can compare air quality across Europe in real time. This is not the same as assessing compliance with the EU standards (which requires longer data series).

Figure 11 – EEA’s air quality index for 20.3.2018



Source: EEA.

79. The AAQ Directive requires that Member States inform the public on the possible health effects of air pollution. The online information provided by public authorities regarding the health impacts of air pollution and the measures citizens can take to mitigate risks was sometimes scarce and hard to find. This is all the more important if one considers that EU standards underestimate the risks posed by poor air quality (see [paragraphs 19 to 27](#)).

80. Member States are required to report real-time air quality data to the Commission<sup>88</sup>. At the time of our audit, twenty-five Member States did so<sup>89</sup>. Of the six cities we visited, four

<sup>88</sup> These are data technically designated as up-to-date (“UTD”) data. It is reported automatically to the EEA in very short time periods (normally, every hour). Article 5 of [Commission Implementing Decision 2011/850/EU](#) of 12 December 2011 laying down rules for Directives 2004/107/EC and 2008/50/EC of the European Parliament and of the Council as regards the reciprocal exchange of information and reporting on ambient air quality (OJ L 335, 17.12.2011, p. 86) requires Member States to provide UTD data.

<sup>89</sup> Romania, Greece and partly Italy did not report UTD data. The [European Air Quality Portal](#) did not display PM data for Denmark, Ireland, Cyprus, Latvia and Malta on 27 June 2018.

displayed real time data on their websites<sup>90</sup>. These cities used a variety of tools to keep the public informed. **Table 4** shows some of the good practices they used to inform citizens.

**Table 4 – Good practices to inform citizens**

Spatial maps using modelling	Brussels, Milan, Ostrava
Notification during pollution peaks (SMS or email etc.)	Brussels, Krakow, Ostrava
Smartphone apps	Ostrava, Krakow
Display panels in public spaces (streets, metro)	Krakow, Sofia
Downloadable data series for analysis	Brussels, Stuttgart, Milan, Krakow
Early PM alert system based on weather forecasts	Stuttgart

81. While most of the cities we visited produced air quality indices and real time air quality data, and some had adopted other good practices, we concluded that the quality of public information was not as clear or useful as the information made available by some other European cities<sup>91</sup>.

## **CONCLUSIONS AND RECOMMENDATIONS**

82. According to the World Health Organization, air pollution is the biggest environmental risk to health in the EU, and the EEA estimates that it causes about 400 000 premature deaths each year, with people in urban areas particularly exposed. Particulate matter, nitrogen dioxide, sulphur dioxide and ground level ozone are the most harmful of these air pollutants. The 2008 Ambient Air Quality (AAQ) Directive is the cornerstone of the EU's clean air policy, as this sets concentration limits for pollutants in the air we breathe.

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<sup>90</sup> At the time of our analysis, Sofia had no data and Milan displayed for each station averages of the day before.

<sup>91</sup> Such as Paris ([Airparif](#)) or London ([London Air](#)). For example, Airparif website provides centralised and user-friendly information on air quality: it shows real-time spatial maps, provides next day forecasts, offers access to automatic alerts and phone applications. It has developed an app allowing calculating individual exposure and optimising itineraries to avoid the most polluted areas. The website has also a dedicated health section, which uses graphics and visual aids, describes short and long-term health effects of air pollution, provides information on population at risk, statistics on number of premature deaths related to air pollution, and refers to WHO guidelines.

83. We concluded that EU action to protect human health from air pollution had not delivered the expected impact. The significant human and economic costs have not yet been reflected in adequate action across the EU.

84. Although air quality has benefited from **emission reductions**, citizens' health is still heavily affected by air pollution. Several of the EU's **air quality standards** are weaker than the evidence on health impacts of air pollution suggests. Member States often do not comply with these standards, and they have not taken enough **effective action** to improve air quality. The Commission's **monitoring** and subsequent **enforcement** did not lead to effective change. We found that some EU **policies do not yet sufficiently well reflect the importance of improving air quality**, while noting that **EU funding** provides useful support. Citizens can play a key role in monitoring the Member States implementation of the AAQ Directive, as seen in successful Court action in several Member States, and public **awareness and information** was growing. The following paragraphs detail our main conclusions and respective recommendations.

85. The AAQ Directive is based on **air quality standards** that are by now 15 to 20 years old. Some of these standards are much weaker than the World Health Organization guidelines. Furthermore, the standards allow limits to be exceeded frequently and do not include any short-term standard for PM<sub>2.5</sub>, a very harmful air pollutant (see **Table 1** and **paragraphs 18 to 26**). Health professionals support stricter standards in the EU (see **paragraph 27**). Setting weak standards does not provide the right framework for protecting human health. It means that some locations with poor air quality are compliant with EU law.

86. While the situation is improving, most Member States still do not comply with the EU's air quality standards (**paragraphs 28 to 29**).

87. Concerning the measurement of air quality, we found that there were insufficient guarantees that air quality was being measured by the Member States in the right locations. Due to imprecise criteria in the Directive, the Member States did not necessarily measure concentrations near main urban roads or big industrial sites (see **paragraphs 32 to 34**), which were still major sources of pollution. We note that the deadline for Member States to

report data to the Commission as set by the AAQ Directive is less strict than in earlier Directives (**paragraph 35**).

88. We found that Member States were not taking enough **effective action** to improve air quality as quickly as possible. Overall, the quality of Member States' Air Quality Plans was insufficient and included poorly targeted measures. They often suffered from weak governance (for example, a lack of coordination between national and local authorities); were not costed or funded; and did not provide information about the real impact of measures taken on air quality. The AAQ Directive does not oblige Member States to inform the Commission on the performance of their Plans. The insufficient progress in improvement of air quality illustrates a need for more effective action (see **paragraphs 36 to 47**).

89. The Commission faces limitations in its **monitoring** of Member States' performance. Member States are not required to report on implementation of their Air Quality Plans. Some provisions of the Directive are difficult to verify, and the Commission receives hundreds of Air Quality Plans and extensive data sets to review. We found that the Commission has pursued Member States at the European Court of Justice when it considered that they were in serious breach of the Directive (see **paragraphs 48 to 50**). However, these **enforcement** measures are lengthy, and to date, despite obtaining several favourable judgements (**paragraphs 51 to 54**), air quality limits continue to be frequently breached.

**Recommendation 1 – More effective action by the Commission**

To take more effective action to improve air quality, the Commission should:

- (a) Share best practice from Member States who have successfully reflected the requirements of the AAQ Directive in their Air Quality Plans, including on issues such as information relevant for monitoring purposes; targeted, budgeted and short-term measures to improve air quality; and planned reductions in concentration levels at specific locations.

(b) Actively manage each stage of the infringement procedure to shorten the period before cases are resolved or submitted to the European Court of Justice.

(c) Assist the Member States most affected by intra EU transboundary air pollution in their cooperation and joint activities, including introducing relevant measures in their Air Quality Plans.

**Target implementation date: 2020.**

90. Our conclusions relating to **air quality standards, actions** by Member States to improve air quality, and subsequent **monitoring and enforcement**, and **public awareness and information** (see below) lead us to recommend to the Commission to consider an ambitious update of the Ambient Air Quality Directive, which remains a significant instrument to make our air cleaner.

#### **Recommendation 2 – Ambitious update of the AAQ Directive**

The Commission should address the following issues when preparing its proposal to the legislator:

(a) Considering updating the EU limit and target values (for PM, SO<sub>2</sub> and O<sub>3</sub>), in line with the latest WHO guidance; reducing the number of times that concentrations can exceed standards (for PM, NO<sub>2</sub>, SO<sub>2</sub> and O<sub>3</sub>); and setting a short-term limit value for PM<sub>2.5</sub> and alert thresholds for PM.

(b) Improvements to the Air Quality Plans, notably by making them result oriented; and by requiring yearly reporting of their implementation; and their update whenever necessary. The number of Air Quality Plans by air quality zone should be limited.

(c) The precision of the requirements for locating industrial and traffic measuring stations, to better measure the highest exposure of the population to air pollution; and to set a minimum number of measurement stations per type (traffic, industrial or background).

(d) The possibility for the Commission to require additional monitoring points where it considers this is necessary to better measure air pollution.

(e) Advancing the date (currently 30 September of year n+1) to at least 30 June n+1, to report validated data, and explicitly requiring Member States to provide up-to-date (real time) data.

(f) Explicit provisions that ensure citizens' rights to access justice.

**Target implementation date: 2022.**

91. Many EU policies have an impact on air quality. Given the significant human and economic costs of air pollution, we consider that the importance of this problem is not yet sufficiently well reflected in some EU policies. For example, climate and energy, transport, industry, and agriculture policies contain elements that can be detrimental to clean air (see [paragraphs 55 to 63](#)).

92. Less than 1 % of EU cohesion policy **funding** is directly allocated to air quality measures. However other cohesion policy actions can indirectly benefit air quality. We found that EU funded projects were not sufficiently well targeted and supported by Member States' plans to improve air quality, but we also identified several good examples. We saw that LIFE projects helped citizens take action seeking to improve air quality in their Member States and better target EU funded actions ([paragraphs 64 to 71](#)).

### **Recommendation 3 – Prioritising and mainstreaming air quality into EU policies**

To further mainstream air quality into EU policies, the Commission should produce assessments of:

- (a) other EU policies that contain elements that can be detrimental to clean air, and take action to better align these policies with the air quality objective.
- (b) the actual use of relevant funding available in support of EU air quality objectives to tackle air pollution emissions, notably PM, NO<sub>x</sub> and SO<sub>x</sub>.

**Target implementation date: 2022.**

93. Public **awareness and information** has a critical role in addressing air pollution. Recently, citizens have been getting more involved in air quality issues and national Courts have ruled in favour of citizens' right to clean air in several Member States ([paragraphs 72 and 73](#)). Yet, we found that, compared to other environmental Directives the AAQ Directive contains no specific provisions to guarantee the rights of citizens to access to justice (see [paragraph 74](#)).

We also saw that the quality of information made available to citizens on air quality was sometimes unclear (see ***paragraphs 76 to 81***).

**Recommendation 4 – Improving public awareness and information**

To improve the quality of information for citizens, the Commission should:

- (a) Identify and compile, with the help of health professionals, the most critical information that the Commission and Member States authorities should make available to citizens (including health impacts and behavioural recommendations).
- (b) Support the Member States to adopt best practices to communicate with and involve citizens in air quality matters.
- (c) Publish rankings of air quality zones with the best and worst progress achieved each year and share the best practices applied by the most successful locations.
- (d) Develop an online tool that allows citizens to report on air quality violations and provide feedback to the Commission on issues related to Member States' actions on air quality.
- (e) Support the Member States to develop user-friendly tools for the access of general public to air quality information and monitoring (for example, smartphone apps and/or social media dedicated pages).
- (f) Together with the Member States, seek an agreement on harmonising air quality indices.

**Target implementation date: 2022.**

This Report was adopted by Chamber I, headed by Mr Nikolaos A. Milionis, Member of the Court of Auditors, in Luxembourg at its meeting of 11 July 2018.

For the Court of Auditors

Klaus-Heiner LEHNE  
*President*



## **Main Directives setting limits on sources of emissions**

The EU source specific legislation most relevant to air pollutants emissions include the National Emission Ceilings (NEC) Directive that targets overall emission reductions, the Industrial Emissions Directive (IED) and the Directive for medium-sized combustion power plants, for industrial sources; the Regulation on Euro 5 and Euro 6 vehicle emissions and other Directives for transport<sup>92</sup>; and the Ecodesign Directive and its implementing regulations, for household heating and cooling.

### **The NEC Directive**

While the AAQ Directive sets common limits for pollution where it occurs, the NEC Directive deals with emissions at national level. It requires that each Member State commit on reducing its emissions of SO<sub>2</sub>, NO<sub>x</sub>, NMVOC, NH<sub>3</sub> and PM<sub>2.5</sub> (but not explicitly PM<sub>10</sub> emissions) as of 2020, and for 2030 and beyond.

The Directive, which was adopted in 2001 and revised in 2016, reflects the international air pollution reduction commitments assumed by the EU and its Member States to the United Nations Economic Commission for Europe (UNECE)<sup>93</sup>. The EU and its 28 Member States report their emission inventories to this UN Commission.

In 2010, a target date set by the 2001 NEC Directive, 12 Member States had failed to meet at least one of their ceiling targets.

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<sup>92</sup> In particular, Regulations [\(EC\) No 715/2007](#) of 20 June 2007, [\(EC\) No 692/2008](#) of 18 July 2008 and [\(EU\) 2016/427](#) of 10 March 2016; and [Directive 2007/46/EC](#) of 5 September 2007. Also Regulations [\(EC\) No 595/2009](#) of 18 June 2009 and [\(EU\) No 582/2011](#) of 25 May 2011 on heavy-duty vehicles.

<sup>93</sup> These commitments are assumed under the [Gothenburg Protocol](#) that is part of the [Convention on Long-range Transboundary Air Pollution](#) (LRTAP).

## The IED<sup>94</sup> and the Directive for medium-sized combustion plants<sup>95</sup>

These Directives aim to achieve a high level of protection for human health and the environment in the EU by reducing harmful industrial emissions. They set binding limits for NO<sub>x</sub>, SO<sub>2</sub> and dust (which includes PM)<sup>96</sup>.

Under the Industrial Emissions Directives, around 50 000 industrial installations need to get an operating permit granted by the EU's Member States national authorities and to apply Best Available Techniques (BATs).

The IED applies to large industries in different sectors: energy industries, production and processing of metals, mineral industry, chemical industry, waste management, and other. It contains specific provisions on combustion of fuels in installations with a total rated thermal input of 50 megawatts (MW) or more that apply to around 3 500 plants of which 370 are very large biomass and solid-fired plants with a thermal output of more than 300 MW operating in the EU.

In July 2017, the Commission adopted an Implementing Decision based on new reference document updating BATs for large combustion plants<sup>97</sup>. The permits for these plants must be updated in line with BAT conclusions and associated pollutant emission levels by 2021.

The Directive for medium-sized combustion plants applies, with a few exceptions, to combustion plants with a rated thermal input equal to or greater than 1 MW and less than 50 MW, irrespective of the type of fuel they use.

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<sup>94</sup> [Directive 2010/75/EU](#) of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control) (Recast) (OJ L 334, 17.12.2010, p. 17).

<sup>95</sup> [Directive \(EU\) 2015/2193](#).

<sup>96</sup> This is particularly important for coal-burning power plants, which are responsible for around 52 % of SO<sub>2</sub>, 40 % of NO<sub>2</sub> and 37 % of PM industrial emissions (*Source: AirClim, ClientEarth and EEB Report, "Clearing the Air", 2017, p. 31*).

<sup>97</sup> [Commission Implementing Decision \(EU\) 2017/1442](#) of 31 July 2017 establishing best available techniques (BAT) conclusions, under [Directive 2010/75/EU](#) for large combustion plants.

**ANNEX II****Maximum concentration values in the six air quality zones (Data as of 13 December 2017)<sup>98</sup>**

<b>NO<sub>2</sub></b> annual means (max. 40µg/m <sup>3</sup> )						
AQ zone:	Brussels	Krakow	Milan	Ostrava	Sofia	Stuttgart
2009	51.57	70.02	80.55	46.96	57.51	111.91
2010	53.75	70.36	73.36	50.90	48.52	99.92
2011	49.97	73.07	79.42	46.41	51.76	97.33
2012	48.13	71.45	67.34	43.10	45.33	91.27
2013	62.62	68.00	57.48	41.43	39.30	89.03
2014	47.38	61.50	59.34	39.18	31.92	88.60
2015	45.17	63.13	75.27	39.95	32.69	87.23
2016	47.72	59.28	67.00	39.07	33.15	81.60

<b>PM<sub>2.5</sub></b> annual means (max. 25µg/m <sup>3</sup> )						
AQ zone:	Brussels	Krakow	Milan	Ostrava	Sofia	Stuttgart
2009	23.64	39.24	34.40	38.84	23.84	25.62
2010	22.44	61.13	33.38	50.21	31.14	27.29
2011	25.05	54.98	39.01	41.45	44.64	23.94
2012	22.76	46.20	34.00	42.22	28.00	20.74
2013	20.38	43.48	30.99	35.76	30.46	20.77
2014	16.99	45.02	26.19	36.18	28.71	17.67
2015	16.28	43.85	31.90	33.04	24.57	17.50
2016	17.20	37.88	28.53	31.63	22.14	17.80

<b>PM<sub>10</sub></b> number of days above 50µg/m <sup>3</sup> (max. 35)						
AQ zone:	Brussels	Krakow	Milan	Ostrava	Sofia	Stuttgart
2009	66	168	116	135	161	112
2010	49	148	90	159	134	104
2011	88	204	132	123	134	89
2012	57	132	111	110	108	80
2013	58	158	100	102	109	91
2014	33	188	88	116	104	64
2015	19	200	102	84	72	72
2016	15	164	73	80	71	63

<b>PM<sub>10</sub></b> annual means (max. 40µg/m <sup>3</sup> )						
AQ zone:	Brussels	Krakow	Milan	Ostrava	Sofia	Stuttgart
2009	36.50	60.34	46.81	53.11	65.44	45.16
2010	32.90	65.95	40.72	66.00	53.84	44.07
2011	39.40	76.63	50.22	52.54	70.48	39.76
2012	34.30	65.85	46.11	56.27	53.89	37.56
2013	33.50	59.67	42.40	47.00	52.43	40.07
2014	31.99	63.90	37.06	48.04	52.96	37.52
2015	27.20	67.81	41.58	41.57	41.78	37.08
2016	24.69	56.67	38.12	39.71	40.00	37.56

<sup>98</sup> Source: [European Air Quality Portal](#).

**ANNEX III****Infringement procedures related to the Ambient Air Quality Directive in April 2018**

EU Member State	Infringement procedure status			
	PM <sub>10</sub>	NO <sub>2</sub>	SO <sub>2</sub>	Monitoring
Belgium	ECJ (on hold)	LFN	-	-
Bulgaria	RUL	-	RO	
Czech Republic	RO	LFN	-	-
Denmark	-	LFN	-	-
Germany	RO	RO	-	-
Estonia	-	-	-	-
Ireland	-	-	-	-
Greece	RO	-	-	-
Spain	RO	RO	-	-
France	RO	RO	-	-
Croatia	-	-	-	-
Italy	RO	RO	-	-
Cyprus	-	-	-	-
Latvia	RO	-	-	-
Lithuania	-	-	-	-
Luxembourg	-	LFN	-	-
Hungary	RO	LFN	-	-
Malta	-	-	-	-
Netherlands	-	-	-	-
Austria	-	LFN	-	-
Poland	RUL	LFN	-	-
Portugal	RO	LFN	-	-
Romania	RO	-	-	LFN
Slovenia	LFN	-	-	-
Slovakia	RO	-	-	LFN
Finland	-	-	-	-
Sweden	RO	-	-	-
United Kingdom	-	RO	-	-

**Legend:**

LFN = Letter of formal notice sent

RO = Reasoned opinion sent

ECJ = Case referred to the ECJ

RUL = ECJ ruled the case

Infringement procedures start with the Commission issuing to a Member State a letter of formal notice (LFN), which defines the scope of the case. If the Commission does not consider the Member State's arguments to be reasonable and convincing, it sends another letter (a Reasoned Opinion (RO)), which is the last step before the case is referred to the European Court of Justice.

## **REPLIES OF THE COMMISSION TO THE SPECIAL REPORT OF THE EUROPEAN COURT OF AUDITORS**

### **"AIR POLLUTION: OUR HEALTH STILL INSUFFICIENTLY PROTECTED"**

#### **EXECUTIVE SUMMARY**

I. The European Environment Agency (EEA) estimates that (for the year 2014) in the European Union 399.000 premature deaths were attributable to exposure to fine particulate matter (PM<sub>2.5</sub>), 75.000 to exposure to nitrogen dioxide (NO<sub>2</sub>) and 13.600 to exposure to ground level ozone (O<sub>3</sub>). While there is some overlap in these numbers (e.g. as NO<sub>2</sub> is a precursor to PM<sub>2.5</sub>) and they cannot simply be added together, they do indicate that air pollution causes more than 400.000 premature deaths in the EU each year.

II. Over the past decades both reductions in emission of air pollutants and in the concentration of air pollutants have been reported – the latter, however, not at a rate sufficient to ensure that EU air quality standards are met throughout the European Union.

IV. While indeed not all goals of the Ambient Air Quality Directive have been fully met, the Directive has led to significant improvements in air quality across the EU. This is not to deny that there are shortcomings in how this Directive is implemented, and significant exceedances continue to date. But there are examples where air quality has improved or air quality monitoring has improved significantly in line with the requirements of this Directive. The Directives have been a major driver of such improvements.

The Commission is currently itself performing a Fitness Check of the Ambient Air Quality Directives, as part of which it will assess the relevance, effectiveness, efficiency, coherence and EU value added of this legislation. Without prejudice to the outcome of this Fitness Check, the Commission considers that EU actions to protect human health from air pollution have been, at least partially, effective.

(b) In some instances, air pollution may be underestimated if not monitored well in specific instances, but the Commission sees no systemic failure in EU monitoring of air quality.

(c) COM(2018)330 provides a Commission perspective on the implementation and enforcement of the Ambient Air Quality Directive.

(d) The 2018 Communication ‘Clean Air for All’ (COM(2018)330) and the 2013 Clean Air Programme for Europe (COM 2013/0918) stress the importance of addressing air pollution including by means of connected EU policies.

Air quality can be improved by means of investments in other areas, with significant air quality co-benefits (e.g. replacement of old coal-fired power plants with gas-fired ones, investments in new metro lines, city-ring roads, etc.). These would not qualify as direct funding for air quality, but nevertheless make an important contribution to reducing polluting and improving air quality.

(e) See response to paragraphs 73 and 74 below.

V. The Commission considers that the recommendations of the Court are an important contribution for the ongoing Fitness Check of Ambient Air Quality Directives.

Specific comments on the individual recommendations are provided further down.

#### **INTRODUCTION**

##### **Box 1 – Main air pollutants**

As regards the contribution of solid fuels to air pollution, the extent of this contribution will also depend on the quality of fuels used and the boiler technology applied.

### ***Box 2 – Air quality does not only depend on pollution emissions***

Household heating and agriculture are further key human actions that contribute to air pollution.

7. Directive 2008/50/EC consolidated the previous Framework Directive 96/62/EC and three of its four Daughter Directives 1999/30/EC, 2000/69/EC, and 2002/3/EC. With few exceptions it did not set new air quality standards, but reconfirmed those agreed earlier.

The fourth Daughter Directive of 96/62/EC, i.e. Directive 2004/107/EC, continues to be in place (and sets important target values for several air pollutants). The Commission therefore prefers referring to Directives 2004/107/EC and 2008/50/EC jointly as ‘the Ambient Air Quality Directives’ – but understands that this audit focussed only on the latter of the two Directives.

8. Related requirements have been developed further via Commission Directive (EU) 2015/1480.

9. The Commission considers both limit values and target values to be binding. For full definition refer to Article 2 of the Directive.

### **Box 3 – Commission and EEA’s roles**

Implementing Decision 2011/850/EC explicitly mandates the EEA to assist the European Commission in establishing a data repository and make it accessible through the ambient air quality portal.

### **OBSERVATIONS**

22. An assessment carried out by the Commission to underpin the Clean Air Policy Package of 2013 –COM/2013/0918 – indicated that the legislative packages proposed in 2013 (most notably what later became Directive 2016/2284/EC) would put emission on a downward trajectory in a 2030 perspective and ‘*pave the way for EU ambient air quality standards to progress towards the WHO guideline concentrations*’.

Based on the assessment done to underpin COM/2013/0918/final, the Commission concluded that it was not appropriate to revise the Ambient Air Quality Directive at the time – and that policy should rather be focused on achieving compliance with existing air quality standards by 2020 at the latest.

24. The number of fixed measuring stations is not determined by whether concentrations are below EU air quality standards, but by upper assessment thresholds and lower assessment thresholds as defined in Directive 2008/50/EC Annex II.

25. Cost benefit assessments carried out to underpin the 2013 Clean Air Policy Package confirmed the order of magnitude in the ratio between implementation costs and societal benefits of action to reduce emissions and improve air quality.

26. The Commission is currently performing a Fitness Check of the Ambient Air Quality Directives, as part of which it will assess the relevance, effectiveness, efficiency, coherence and EU value added of this legislation – including an assessment of the relevance of existing EU air quality standards.

30. Credible, timely and comparable air quality data is not only important for the Commission in view of possible enforcement action – it is also important information for the public, as well as for local, regional and national authorities to trigger and inform appropriate action to keep exceedance periods as short as possible.

33. The AAQ Directive requires that Member States maintain sampling points that have exceeded PM<sub>10</sub>, but not for other pollutants. However, if sampling points that reported exceedances for other pollutants discontinue reporting, the Commission does follow up on a case by case basis to ensure the macro-siting provisions of Annex III (B) are respected.

35. The Commission agrees as regards the importance of timely data. Most Member States report in accordance with Implementing Decision 2011/850/EC.

'Earlier Directives' required Member States to inform the Commission earlier, but only of the instances of exceedances within six months after the measuring period. They did not, however, cover all the data now reported according to Implementing Decision 2011/850/EC.

38. Beyond the three reasons listed, the Commission sees further reasons that compromise effectiveness – these include examples linked to a lack of estimation of the effectiveness of measures, trends and incentives at national level that counteracted local efforts, a lack of integration with other measures taken at local level (e.g. as part of climate action or urban planning).

45. The production of air quality plans indeed tends to be a lengthy process, as they, depending on the respective provisions in the Member States, require substantial stakeholder involvement and consultation. This involvement and consultation, however, indeed need not prevent the update of factual information (such as monitoring data, when it becomes available).

48. The Commission does not perform reviews and does not check each and every monitoring station – but it does address shortcomings in the monitoring network on a case by case basis.

52. On 17 May 2018, the Commission has announced that it will indeed refer to the European Court of Justice (ECJ) three Member States for NO<sub>2</sub> exceedances (Germany, France and the United Kingdom), as well as a further three Member States for PM<sub>10</sub> exceedances (Italy, Hungary, Romania). See COM(2018)330.

53. According to article 23 of the Directive *'plans shall be communicated to the Commission without delay, but no later than two years after the end of the year the first exceedance was observed'*.

54. The Commission has acted promptly and could not do so quicker. It initiated enforcement action already in 2008, immediately after the adoption of the Directive, however the resulting rulings of 2011 and 2012 were not fully executable (the ECJ limited the condemnation of the Member States to the exceedances of the limit values on a specific period on the past only). In order to enforce further rulings to improve air quality, the Commission re-launched infringement proceedings to change the argumentation used.

Following the clarification of the case-law on the Bulgarian and Polish rulings (on 5 April 2017 and 22 February 2018, respectively), the ECJ considered that it is possible to add further years to the cases and that the measures put in place were not adequate to address the exceedances of the limit values. It has thus made it possible to move forward on more solid grounds and to accelerate the handling of the different files (as demonstrated by the referral decisions of May 2018 on further 3 PM<sub>10</sub> files and 3 NO<sub>2</sub> files)."

55. EU policies can also have objectives that contribute to better air quality. Other policies than those listed also impact on air pollutants (including, but not limited to: fiscal policy, trade policy, regional or urban policies).

57. European legislation on CO<sub>2</sub> standards for passenger cars is technology neutral. It was the choice of car manufacturers to rely extensively on diesel technology to reduce the average CO<sub>2</sub> value of their fleet.

EURO 5 and EURO 6 should be respected under all normal conditions of use. Until recently there was no available test to check this. The Commission developed the new Real Driving Emissions (RDE) test, which checks car emissions on the road. The RDE legislation ensures that emissions of vehicles are kept below the limit in real driving and not only in the lab.



The conformity factors (CFs) do not change the Euro 6 limits or authorise manufacturers to exceed them, but rather enforce those limits under "normal conditions of use". The RDE legislation does not set new emission limits but sets out an additional test procedure, the quantitative requirements of which must be calibrated to the Euro 6 limits. Furthermore, the RDE test is a new test, which must be applied in addition to the laboratory test, where the Euro 6 emission limit of 80 mg NO<sub>x</sub> must continue to be fully complied with. As of 1 September 2018, all new vehicles are subject to laboratory procedures (World Harmonized Light Vehicles Test Procedure - WLTP) which are much stricter than the previous laboratory procedures.

It is also important to clarify that dieselgate concerned the use of a defeat device not allowed by the legislation and not the issue of high emissions under real driving conditions.

59. The risks associated to bioenergy production and use have been assessed in the 2016 Impact Assessment on Bioenergy Sustainability (SWD(2016) 418), prepared for the recast of the Renewable Energy Directive.

Biomass is not specifically supported by the Renewable Energy Directive. It is up to the Member States to define how they want to meet their national RES targets, and whether or not to introduce support schemes.

Emission from mid-scale and large scale heat and power plants are addressed through EU legislation, including the Directive on Medium-size Combustion Plant and the Directive on Industrial Emissions. As regards the issues related to the use of biomass in space heaters, see Commission replies to paragraph 60.

60. The Commission believes that the Ecodesign and Energy labelling Regulations are a good compromise of what is necessary to reduce air pollution, while protecting consumers and European industry. Requirements for emissions are gradually being introduced for all heating appliances using fuel.

61. Only in specific and justified cases can Member States set emission limits values less strict than the emission levels associated with BAT. This flexibility is notably limited by the need to meet applicable environmental quality standards and the public has a say in the granting of derogations and the Commission is informed. The experience gathered so far since the publication of the first sets of BAT conclusions reveal that the number of derogations tabled by Member States are relatively low<sup>1</sup>.

63. Emissions, including NH<sub>3</sub> emissions, from intensive rearing of poultry or pigs (IRPP) in the EU (around 20 000 large farms) are regulated by the Industrial Emissions Directive (IED) through the application of the Best Available Techniques (BAT). The BAT conclusions for IRPP were published on 21/02/2017 in the OJEU. For the first time, these set binding limits for ammonia emissions to air from animal housing of pigs or poultry at the EU level that will have to be complied with in a maximum of four years from the date of publication.

See: <https://ec.europa.eu/jrc/en/news/new-eu-environmental-standards-large-poultry-and-pig-farms>

68. Further indirect contributions potentially beneficial to clean air are expected to come from substantial parts of the 2014-2020 European Structural and Investment Funds' investments in the low-carbon economy (EUR 45 billion), environmental protection and resource efficiency (totalling EUR 63 billion) and network infrastructure (totalling EUR 58 billion), notably supporting vulnerable regions and citizens. As of now, a third of all the investments under the

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<sup>1</sup> See: Amec Foster Wheeler: Application of IED Article 15(4) derogations;  
[https://circabc.europa.eu/sd/a/9b59019b-df6c-4e6c-a5c2-1fb25cfe049c/IED%20Article%2015\(4\)%20Report.pdf](https://circabc.europa.eu/sd/a/9b59019b-df6c-4e6c-a5c2-1fb25cfe049c/IED%20Article%2015(4)%20Report.pdf)



European Fund for Strategic Investments (around EUR 80 billion) supported energy, transport and environment projects. All this has an indirect positive effect on air quality (see COM(2018)330 final).

During the seven year programming period of structural funds reallocations can be done between measures dedicated to air quality (code 83) to other actions including those supporting indirectly air quality like codes 13, 14 and 16.

69. Bulgaria's OP "Environment" 2014/20 precisely describes the prevailing influence of domestic heating and transport as the two main sources of pollution in the country on which to concentrate OP's intervention efforts in the area (PA5 on air quality).

72. The Commission fully agrees on the importance of public information on air quality. It has been working closely with the EEA to improve the accessibility of air quality information. The tools developed include an Air Quality Index at <http://airindex.eea.europa.eu>

The Commission is also following with keen interest ongoing citizen science initiatives focussed on air quality monitoring – but notes that these tend to not live up to the data quality objectives required under the Ambient Air Quality Directive.

The Ambient Air Quality Directive indeed does not set alert thresholds for PM (however, several Member States have set up alert thresholds).

73. The Commission recognizes the importance of the role of national courts in upholding the requirements of the Ambient Air Quality Directive and supports this, as is demonstrated by the adoption of the Notice mentioned in the response to paragraph 74 below.

With regard to the suggestion that the Directive fails to explicitly protect public participation and access to justice, please see the response to paragraph 74.

74. The Commission agrees with the Court that the Aarhus Convention is relevant to the Ambient Air Quality Directive.

As regards the absence of explicit access-justice provisions in the Ambient Air Quality Directive, at the time of adoption of the Directive in 2008, the Council and Parliament had before them a separate Commission proposal aimed at ensuring broad access to justice in environmental matters; COM(2003)624. This would have obviated the need for specific access-to-justice provisions in the Directive itself. However, there was insufficient Council support for this separate proposal. Despite the lack of legislative provision in the Ambient Air Quality Directive, the ECJ has held that EU air quality legislation confers substantive health-related rights on individuals and NGOs which national courts should be ready to protect. See Case C-237/07, *Janecek*, EU:C:2008:447 and Case C-404/13, *Client Earth*, EU:C:2014:2382

The Commission has drawn attention to this case-law in a 2017 Notice on access to justice in environmental matters; see 2017/C 275/01.

## **CONCLUSIONS AND RECOMMENDATIONS**

82. The European Environment Agency (EEA) estimates that (for the year 2014) in the European Union 399.000 premature deaths were attributable to exposure to fine particulate matter (PM2.5), 75.000 to exposure to nitrogen dioxide (NO2) and 13.600 to exposure to ground level ozone (O3). While there is some overlap in these numbers (e.g. as NO2 is a precursor to PM2.5) and they cannot simply be added together, they do indicate that air pollution causes more than 400.000 premature deaths in the EU each year.

83. While indeed not all goals of the Ambient Air Quality Directive have been fully met, the Directive has led to significant improvements in air quality across the EU. This is not to deny that

there are shortcomings in how this Directive is implemented, and significant exceedances continue to date. But there are examples where air quality has improved or air quality monitoring has improved significantly in line with the requirements of this Directive. The Directives have been a major driver of such improvements. The Commission is currently itself performing a Fitness Check of the Ambient Air Quality Directives, as part of which it will assess the relevance, effectiveness, efficiency, coherence and EU value added of this legislation. Without prejudice to the outcome of this Fitness Check, the Commission considers that EU actions to protect human health from air pollution have been (at least: partially) effective.

84. COM(2018)330 provides a Commission perspective on the implementation and enforcement of the Ambient Air Quality Directive.

For some air quality standards for some pollutants (such as the annual limit value for nitrogen dioxide) the Directive is in line with the evidence on health impacts by the WHO.

85. The EU air quality standards are indeed less stringent than the Air Quality Guidelines of the WHO recommend for several pollutants. It should be noted, however, that limit values and guideline values differ as regards their legal and political implications.

The EU Clean Air Policy in general and the Ambient Air Quality Directive in particular, is based on setting appropriate objectives for ambient air quality *'taking into account relevant World Health Organisation standards, guidelines and programmes.'*

87. The Commission is currently performing a Fitness Check of the Ambient Air Quality Directives, as part of which it will assess the relevance, effectiveness, efficiency, coherence and EU value added of this legislation – including as regards monitoring requirements.

88. The Commission agrees that AQP measures are frequently poorly targeted, and has taken enforcement action accordingly.

### **Recommendation 1 – More effective action by the Commission**

(a) **The Commission accepts this recommendation.**

(b) **The Commission accepts this recommendation.**

The Commission has commented on enforcement action in COM(2018)330 and will continue to actively manage each stage of the infringement procedure.

(c) **The Commission partially accepts this recommendation.**

The Commission will continue to analyse the intra EU transboundary dimension, for example, via the regular Clean Air Outlook reports mandated by Directive 2016/2284.

The Commission can only assist Member States within the framework of possibilities afforded via Article 25 of the Directive which states:

*'(1) Where any alert threshold, limit value or target value plus any relevant margin of tolerance or long-term objective is exceeded due to significant transboundary transport of air pollutants or their precursors, the Member States concerned shall cooperate and, where appropriate, draw up joint activities, such as the preparation of joint or coordinated air quality plans [...].*

*(2) The Commission shall be invited to be present and to assist in any cooperation referred to in paragraph 1. [...]*

90. See previous comments on the conclusions above.

### **Recommendation 2 – Ambitious update of the AAQ Directive**

The Commission will pay particular attention to these recommendations in the Fitness Check of the Ambient Air Quality Directive in 2019 and beyond.

**(a) The Commission accepts this recommendation.**

**(b) The Commission partially accepts this recommendation.**

The Commission notes that according to the Directive AQPs are required to be result oriented (i.e. to keep exceedance periods as short as possible), in line with provisions in Annex XV of the Directive.

**(c) The Commission accepts this recommendation.**

**(d) The Commission accepts this recommendation.**

The Commission takes note of this recommendation and will pay particular attention to this point in the ongoing Fitness Check.

**(e) The Commission accepts this recommendation.**

The Commission agrees as regards the importance of timely data. Most Member States report in accordance with the provisions of Implementing Decision 2011/850/EC (including those on up-to-date data). With e-reporting procedures now well tested, the Commission sees scope to enable earlier reporting.

**(f) The Commission accepts this recommendation.**

91. The European Commission is making a significant effort to reduce emissions of air pollutants.

The objective to reach low-emission mobility is, for instance, embedded in the EU's core strategies in the area of Transport.

Three Mobility Packages were adopted in 2017-2018 building upon the 2016 Strategy for Low-Emission Mobility. These include initiatives to promote clean mobility and incorporate the shift towards "the user and polluter pays" principle.

As regards Energy policy, the Ecodesign and Energy labelling Regulations achieve a good compromise between the reduction of air pollution and the protection of consumers and of the European industry.

92. The Multiannual Financial Framework for 2021-2027, as proposed by the European Commission will continue to support measures to improve air quality, including through the target of 25% of EU expenditure contributing to climate objectives and a strengthening of the LIFE programme, which will also support measures promoting clean energy, energy efficiency and a reformed Common Agricultural Policy.

The Commission also refers to its replies to paragraph 68.

### **Recommendation 3 – Prioritising and mainstreaming air quality into EU policies**

**(a) The Commission accepts this recommendation.**

The Commission will pay particular attention to this point in the ongoing Fitness Check of the AAQ Directive.

**(b) The Commission accepts this recommendation.**

Based on the reporting provision (Article 11) in the National Emission Ceilings Directive (EU) 2016/2284, and supported by a completed study on a tracking methodology, the Commission services are preparing for this.

### **Recommendation 4 – Improving public awareness and information**

**The Commission accepts these recommendations.**

The Commission will need to follow-up on all of the below with Member States and with the European Environment Agency accordingly.

Over the past few years the quantity and quality of air quality information provided by the European Commission, the European Environment Agency, as well as by national, regional and local authorities has already improved markedly.

<b>Event</b>	<b>Date</b>
Adoption of Audit Planning Memorandum (APM) / Start of audit	26.4.2017
Official sending of draft report to Commission (or other auditee)	23.5.2018
Adoption of the final report after the adversarial procedure	11.7.2018
Commission's (or other auditee's) official replies received in all languages	8.8.2018

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Air pollution causes great harm to European citizens' health. Each year, about 400 000 people die prematurely due to excessive air pollutants such as dust particles, nitrogen dioxide and ozone. For about 30 years, the EU has had clean air legislation that sets limits to the concentrations of pollutants in the air. Nevertheless, bad air is still common today in most of the EU Member States and in numerous European cities. We found that European citizens still breathe harmful air mostly due to weak legislation and poor policy implementation. Our recommendations aim to strengthen the Ambient Air Quality Directive and to promote further effective action by the European Commission and the Member States, including better policy coordination and public information.



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