



Revision of EU Clean Air Rules

European Federation of Clean Air and Environmental Protection Associations (EFCA)

International Symposium

Ultrafine Particles – Air Quality and Climate

3 – 4 July 2024



*European Commission
Clean Air & Urban Policy Unit*

EU clean air policy



Ambient Air Quality (AAQ) Directives

Maximum concentrations of
air polluting substances

(PM_{2.5}, PM₁₀, NO₂, O₃, SO₂, CO, C₆H₆, BaP, As, Cd, Ni, Pb)

SETTING OBJECTIVES
FOR GOOD AIR QUALITY

REDUCING EMISSIONS
OF POLLUTANTS



National Emission reduction Commitments Directive

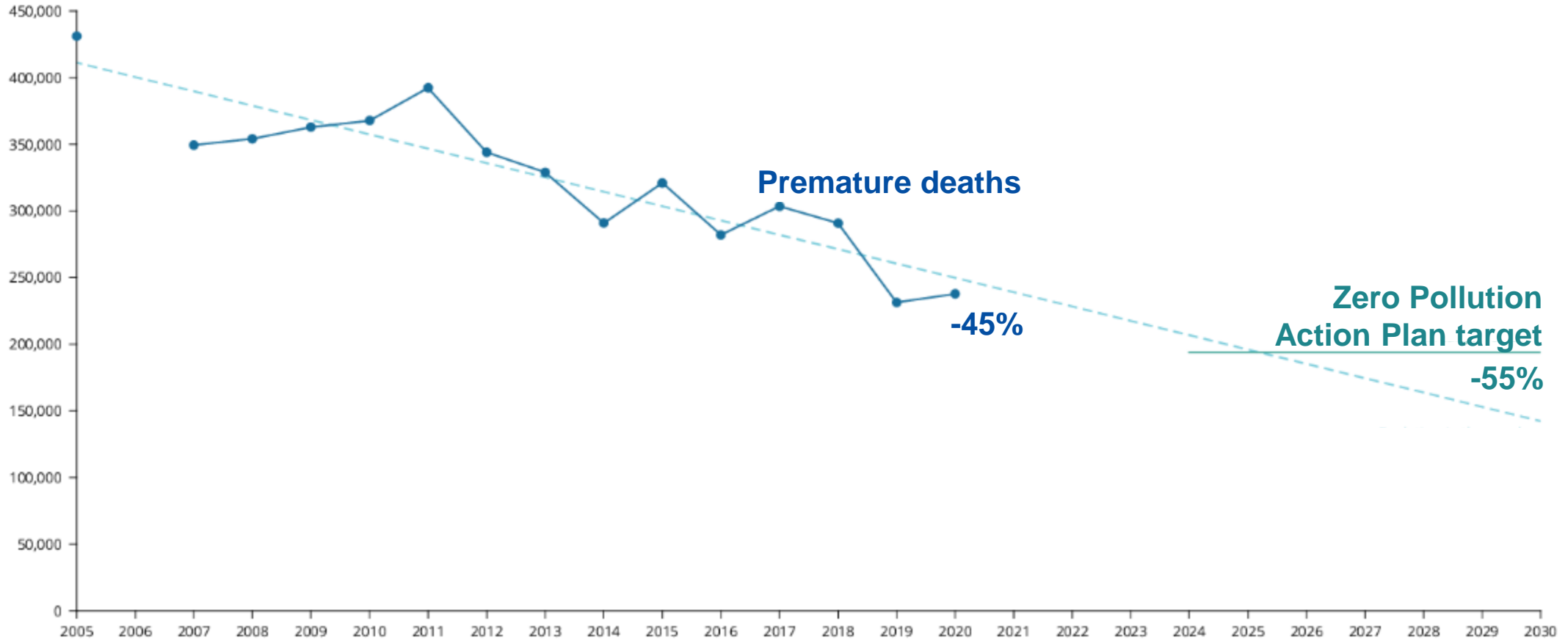
National emission totals
(SO₂, NO_x, NMVOC, PM_{2.5}, NH₃)

Source-specific emission standards

- IE Directive
- MCP Directive
- Eco-design Directive
- Energy efficiency
- Euro and fuel standards

Does EU clean air policy work? Yes ... but ...

Number of premature deaths attributed to fine particulate matter (PM_{2.5})



Why is air pollution (still) a problem in the EU?

- **Health impacts:** Air pollution is the number one environmental cause of health impacts in the EU, with significant morbidity effect and estimates of up to **300 000 premature deaths per year**.
- **Social impacts:** It disproportionately affects **vulnerable groups** - children, elderly, persons with pre-existing conditions, socioeconomically disadvantaged.
- **Environmental impacts:** It causes **eutrophication** (74%) and **acidification** (5%) of ecosystem area exceeding critical loads, + crop and forest damage.
- **Economic impacts:** It causes annual costs at **€231-853 billion (bn)** in health impacts, €8 bn in lost workdays, €4-12 bn in ecosystems damage, €10-11 bn in crop yield loss, €19 bn in forest damage, €1 bn in damage to buildings.
- and **Europeans care about the air they breathe (Eurobarometer 2022)**

Ambient Air Quality Directive (AAQD)

Update on the revision process

“The Commission will draw on the lessons learnt from the evaluation of the current air quality legislation.

It will also propose to strengthen provisions on monitoring, modelling and air quality plans to help local authorities achieve cleaner air.

The Commission will notably propose to revise air quality standards to align them more closely with the World Health Organization recommendations.”

Communication on the European Green Deal (COM/2019/640 final)

#EUGreenDeal

Ambient air quality : revision of EU Rules

Adopted on 26 October 2022:

- Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on ambient air quality and cleaner air for Europe (recast) - **COM/2022/542 final**
- Commission Staff Working Document Impact Assessment Report - **SWD/2022/545 final** - and the corresponding Executive Summary - **SWD/2022/345 final**

Supported by

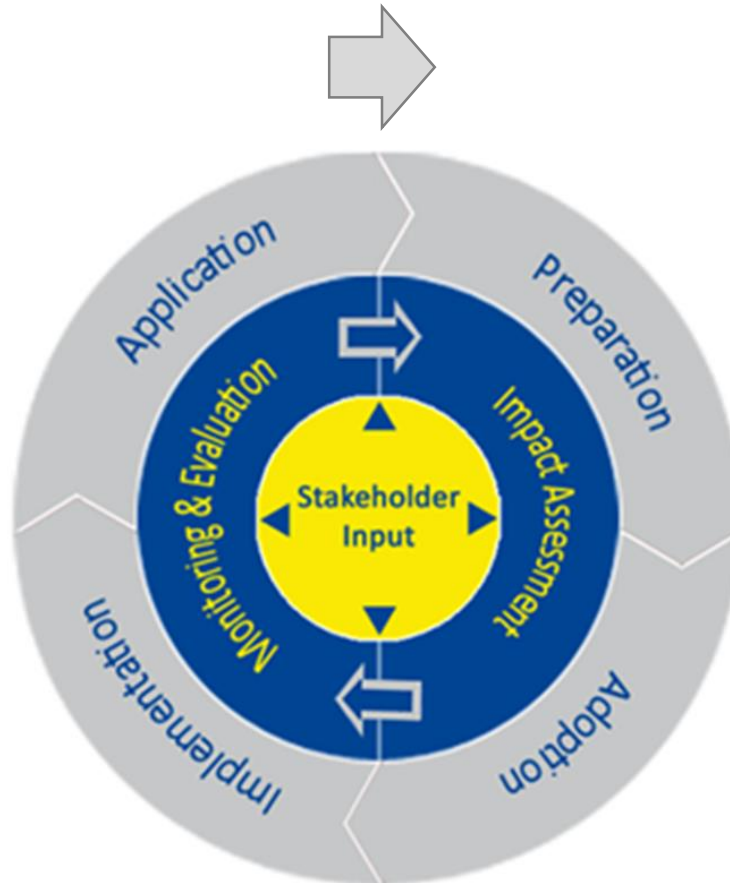
- **Study to support the impact assessment** for a revision of the EU Ambient Air Quality Directives – Final Report & Appendix + Robustness checks and Sensitivity Analysis
- Study on systematic assessment of **monitoring of other air pollutants** not covered under Directives 2004/107/EC and 2008/50/EC

EU policy making cycle (key elements, stylised)

- Evaluation / fitness check
- Monitor, and report on implementation
- Regularly garner stakeholder input / reflections
- If needed: enforcement action by the Commission
- Implementation and compliance support



- Implementation by Member States
- Establish monitoring system
- Implementation strategy by the Commission
- Transposition / conformity check by Com.
- Transposition by Member States



- Roadmap and inception impact assessment
- Stakeholder consultation
- Impact assessment
- Draft legislative proposal
- Adoption by College of Commissioners



- Position by the European Parliament
- Position by the Council
- Negotiation between co-legislators
- Agreement on final legislative act and adoption**
- Publication in the Official Journal

**Adoption
foreseen for
Q4 2024!**

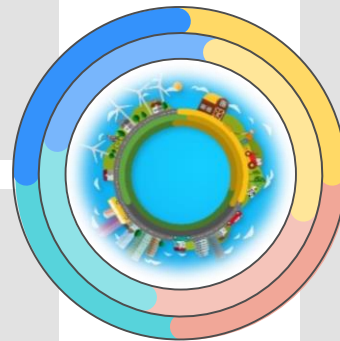
What does the revision improve?

Environment & health

- **Zero pollution objective** at the latest by 2050
- **Intermediate 2030 EU air quality standards**
- Update of **other air quality metrics**, including more refined average exposure obligations
- **Regular review mechanism**

Governance & enforcement

- Air quality plans to be more effective in **ending and preventing exceedances** of EU standards
- **Improved enforceability**: new provisions on access to justice, compensation and penalties
- More **transboundary cooperation** on air quality



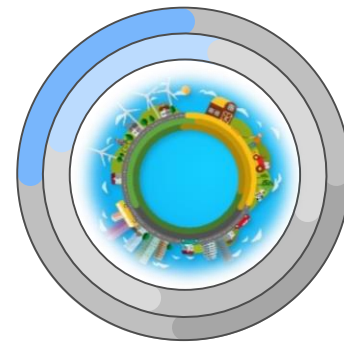
Monitoring & assessment

- Refined approach to **air quality monitoring**, increased use of **air quality modelling**
- Additional information on representativeness of **sampling points**, better inform air quality action
- Monitoring **pollutants of emerging concern** (e.g. ultrafine particles, black carbon, ammonia)

Information & communication

- More **up-to-date air quality information**
- Requirements for **air quality indices** to provide hourly reporting of available air quality data
- **Informing the public** about possible health impacts and provide recommendations

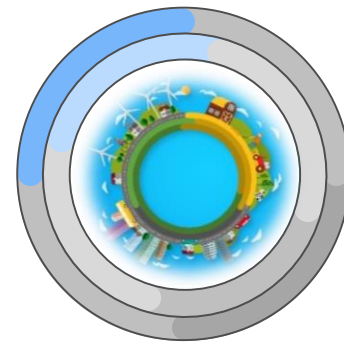
Environment & health: 'air quality standards'



EU air quality standards – 'long-term' averages ([Annex I](#))

Pollutant	Period	Until 2030	As of 2030		WHO 'Guideline'
PM _{2.5}	(calendar year)	25 µg/m ³	10 µg/m³		5 µg/m ³
PM ₁₀	(calendar year)	40 µg/m ³	20 µg/m³		15 µg/m ³
NO ₂	(calendar year)	40 µg/m ³	20 µg/m³		10 µg/m ³
SO ₂	(calendar year)	-	20 µg/m³		-
Benzene	(calendar year)	5 µg/m ³	3.4 µg/m³		1.7 µg/m ³
Pb (lead)	(calendar year)	0.5 µg/m ³	0.5 µg/m³		0.5 µg/m ³
As (arsenic)	(calendar year)	6 ng/m ³	6.0 ng/m³		6.6 ng/m ³
Cd (cadmium)	(calendar year)	5 ng/m ³	5.0 ng/m³		5 ng/m ³
Ni (Nickel)	(calendar year)	20 ng/m ³	20 ng/m³		25 ng/m ³
Benzo(a)Pyrene	(calendar year)	1 ng/m ³	1.0 ng/m³		0.12 ng/m ³
Ozone	(5yr avg AOT 40)	18.000 µg/m ³ x h	18.000 µg/m³ x h	(target value)	-
Ozone	(5yr avg AOT 40)	6.000 µg/m ³ x h	6.000 µg/m³ x h	(long-term obj.)	-

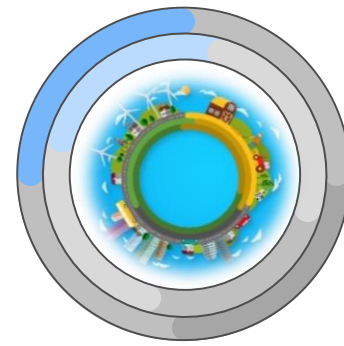
Environment & health: 'air quality standards'



EU air quality standards – 'short-term' averages (Annex I)

Pollutant	Period	Until 2030	As of 2030		WHO 'Guideline'
PM _{2.5}	(1 day)	-	25 µg/m ³ (-18d)		15 µg/m ³ (-3d)
PM ₁₀	(1 day)	50 µg/m ³ (-35d)	45 µg/m ³ (-18d)		45 µg/m ³ (-3d)
NO ₂	(1 day)	-	50 µg/m ³ (-18d)		50 µg/m ³ (-3d)
NO ₂	(1 hour)	200 µg/m ³ (-18h)	200 µg/m ³ (-3h)		200 µg/m ³ (-1h)
SO ₂	(1 day)	125 µg/m ³ (-3d)	50 µg/m ³ (-18d)		40 µg/m ³ (-3d)
SO ₂	(1 hour)	350 µg/m ³ (-24h)	350 µg/m ³ (-3h)		-
CO	(1 day)	-	4 mg/m ³ (-18d)		4 mg/m ³ (-3d)
CO	(8 hour max)	10 mg/m ³	10 mg/m ³		10 mg/m ³
Ozone	(3yr avg 8h max)	120 µg/m ³ (-25d)	120 µg/m ³ (-18d)	(target value)	100 µg/m ³ (-3d)
Ozone	(3yr avg 8h max)	120 µg/m ³ (-3d)	100 µg/m ³ (-3d)	(long-term obj.)	100 µg/m ³ (-3d)

Environment & health: 'other metrics'



Average exposure reduction obligations

Pollutant	Period	As of 2030
PM _{2.5}	(10 year)	-10 to -25% per 10 year
Applies if average exposure concentration is > 5 µg/m ³		
NO ₂	(10 year)	-15 to -25% per 10 year
Applies if average exposure concentration is > 10 µg/m ³		

To be based on **Average Exposure Indicator**, expressed as µg/m³ (AEI) shall be based upon measurements in **urban background** locations in average exposure territorial units (AETU);

The AEI shall be assessed as a **3-calendar-year** running annual mean averaged over all urban background sampling points in the AETU.

AETU = NUTS1 or NUTS2 or combination thereof if smaller than entire territory of the Member State and < 85 000 km²

Alert thresholds

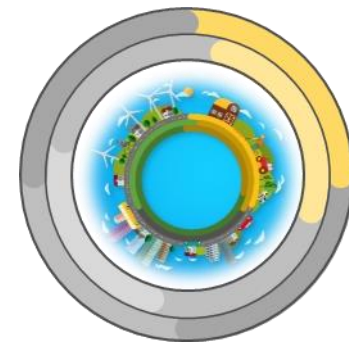
Pollutant	Current	Agreement
PM _{2.5}	-	50 µg/m ³
PM ₁₀	-	90 µg/m ³
SO ₂	500 µg/m ³	350 µg/m ³
NO ₂	400 µg/m ³	200 µg/m ³
Ozone	180 µg/m ³	240 µg/m ³

Measured as an hourly average over 3 consecutive hours for SO₂ and NO₂; as a daily average over 3 consecutive days or less for PM_{2.5} and PM₁₀

Information thresholds

Pollutant	Current	Agreement
PM _{2.5}	-	50 µg/m ³
PM ₁₀	-	90 µg/m ³
SO ₂	-	275 µg/m ³
NO ₂	-	150 µg/m ³
Ozone	240 µg/m ³	240 µg/m ³

Measured over 1 hour for SO₂, NO₂; 1 day for ozone, PM_{2.5} and PM₁₀



Monitoring of UFPs in the AAQD

- In its latest Air Quality Guidelines (from 2021), the World Health Organization (WHO) has recommended further research on the health impacts of ultrafine particles but has not proposed specific guideline values - also due to a lack of sufficient measurement data.
- Important to measure at both rural and urban relevant locations to enhance and consolidate scientific understanding of their effects on human health and the environment.
- Monitoring of UFPs:
 - at least one sampling point per 5 million inhabitants will have to be established at a location where high concentrations are likely to occur (Art 9.8) – e.g. influenced by sources from air, water or road transport (such as airports, ports, roads), industrial sites or domestic heating (Annex VII)
 - requirement to measure at monitoring supersites at both urban and background locations
- *also relevant:* where the objective is to assess the contributions of industrial sources, ports or airports, at least one sampling point shall be installed downwind from the main source within the relevant predominant wind direction in the nearest residential area (Annex IV. B.2(h)).



Measurements at monitoring supersites

ANNEX VII

MEASUREMENTS AT MONITORING SUPERSITES AND OF MASS CONCENTRATION, CHEMICAL COMPOSITION OF PM_{2,5}, OZONE PRECURSOR SUBSTANCES AND ULTRAFINE PARTICLES

SECTION 1 – MEASUREMENTS OF POLLUTANTS AT MONITORING SUPERSITES

Measurements at all monitoring supersites at urban background locations and rural background locations shall include the pollutants listed in Tables 1 and 2 respectively.

Table 1 - Pollutants to be measured at monitoring supersites at urban background locations

Pollutant	Type of measurement
PM ₁₀ , PM _{2,5} , UFP, BC	Fixed measurements
NO ₂ , O ₃	Fixed measurements
SO ₂ , CO	Fixed or indicative measurements
Size distribution of UFP	Fixed or indicative measurements
Benzo(a)pyrene, other polycyclic aromatic hydrocarbons (PAH) as relevant ⁽¹⁾	Fixed or indicative measurements
Total deposition ⁽²⁾ of benzo(a)pyrene, and other polycyclic aromatic hydrocarbons (PAH) as relevant	Fixed or indicative measurements
Arsenic, cadmium, lead, and nickel	Fixed or indicative measurements
Total deposition ⁽²⁾ of arsenic, cadmium, lead, nickel and mercury	Fixed or indicative measurements
Benzene	Fixed or indicative measurements
Chemical composition of PM _{2,5} in accordance with Section 1 of Annex VII	Fixed or indicative measurements

¹ Benzo(a)pyrene and the other polycyclic aromatic hydrocarbons referred to in Article 9(8).

² Where the siting of a monitoring supersite at an urban background location does not allow for the guidelines and criteria of EMEP to apply in accordance with Point C, point (f), of Annex IV, the corresponding deposition measurement may be performed at a separate urban background location within the area of representativeness.

Source: https://www.europarl.europa.eu/doceo/document/TA-9-2024-0319_EN.html

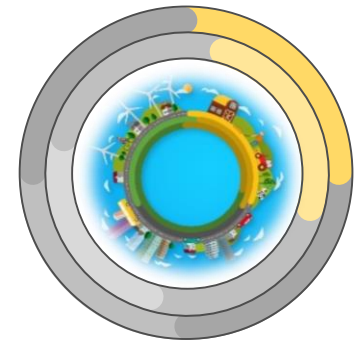
Table 2 - Pollutants to be measured at monitoring supersites at rural background locations

Pollutant	Type of measurement
PM ₁₀ , PM _{2,5} , UFP, BC	Fixed measurements
NO ₂ , O ₃ and ammonia (NH ₃)	Fixed measurements
SO ₂ , CO	Fixed or indicative measurements
Total deposition of benzo(a)pyrene and other polycyclic aromatic hydrocarbons (PAH) as relevant	Fixed or indicative measurements
Total deposition of arsenic, cadmium, lead, nickel and mercury	Fixed or indicative measurements
Benzo(a)pyrene, other polycyclic aromatic hydrocarbons (PAH) as relevant ⁽¹⁾	Fixed or indicative measurements
Arsenic, cadmium, lead, and nickel	Fixed or indicative measurements
Chemical composition of PM _{2,5} in accordance with Section 1 of Annex VII	Fixed or indicative measurements
Total gaseous mercury	Fixed or indicative measurements

⁽¹⁾ Benzo(a)pyrene and the other polycyclic aromatic hydrocarbons referred to in Article 9(8).

Table 3 - Pollutants recommended to be measured at monitoring supersites at urban background locations and rural background locations if not covered by the requirements of Tables 1 and 2

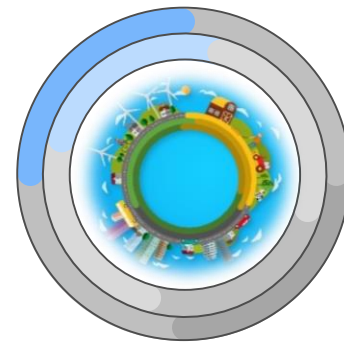
Pollutant	Type of measurement
Size distribution of UFP	Fixed or indicative measurements
Particulate matter oxidative potential	Fixed or indicative measurements
Ammonia (NH ₃)	Fixed or indicative measurements
Levoglucosan to be measured as part of the chemical composition of PM _{2,5}	Fixed or indicative measurements
Total gaseous mercury	Fixed or indicative measurements
Particulate and gaseous divalent mercury	Fixed or indicative measurements
Nitric acid	Fixed or indicative measurements



Measurements at monitoring supersites

- Urban background locations: at least 1 per 10 mil. Inhabitants in the Member State.
- Rural background locations:
 - at least 1 if territory $> 10\,000\text{ km}^2$ and $< 100\,000\text{ km}^2$
 - if territory $> 100\,000\text{ km}^2$, at least 1 every $100\,000\text{ km}^2$
- Joint supersites possible with one or more neighbouring Member States
- These may be taken into account for the minimum number of SPOs (not the case for meeting minimum number of SPOs for UFPs if MS > 2 million inhabitants – annex III.D) .

Regular review

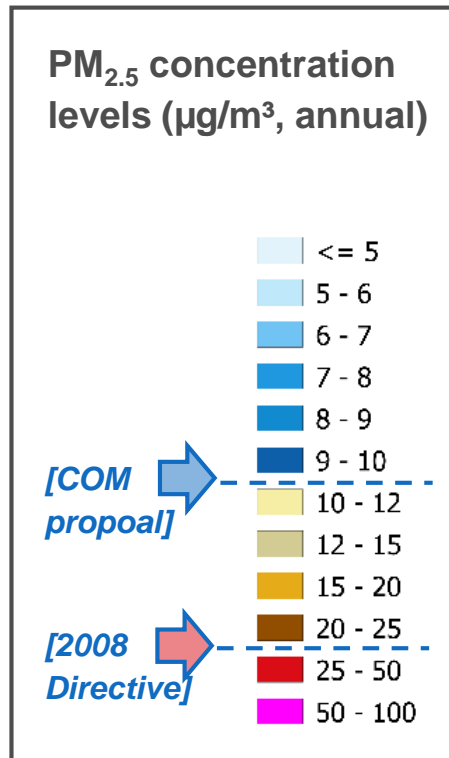


- By **31 December 2030** and every 5 years thereafter, and more often if substantial new scientific findings, such as revised WHO Air Quality Guidelines, the Commission shall review the scientific evidence related to air pollutants and their effects on human health and the environment.
- Review if applicable air quality standards continue to be appropriate and whether additional pollutants should be covered.
- The review shall assess the most up-to-date scientific evidence, including, where applicable, on **air pollutants** measured at the **monitoring supersites** referred to in Article 10 but currently not included in Annex I.

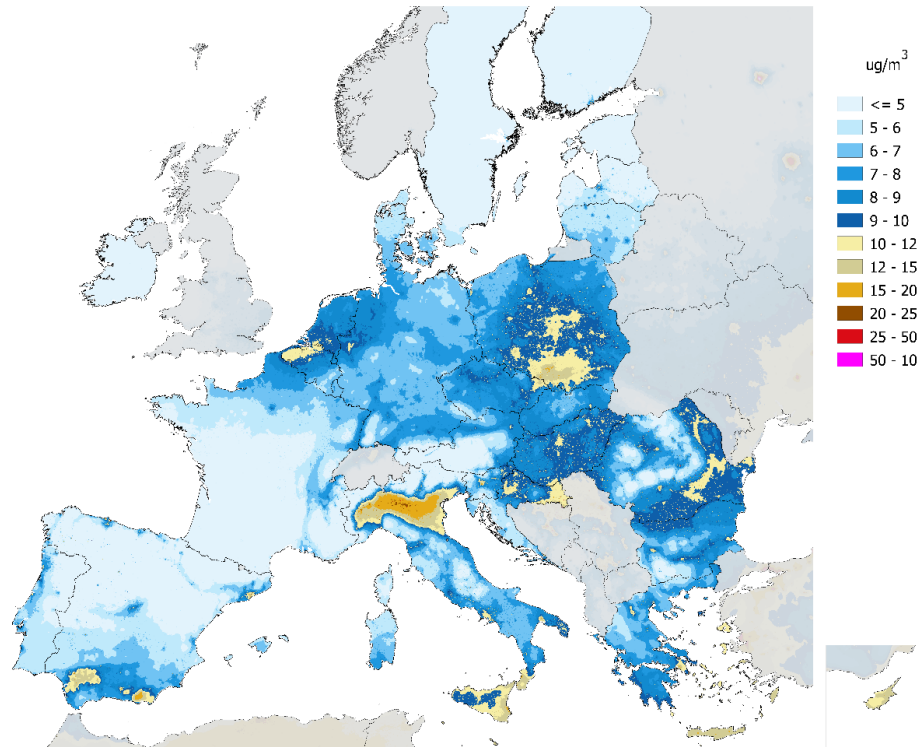
What do we expect the proposal will achieve?

Significant reductions of PM_{2.5} levels, based on baseline projections plus additional measures (note: no hotspot specific measures assessed)

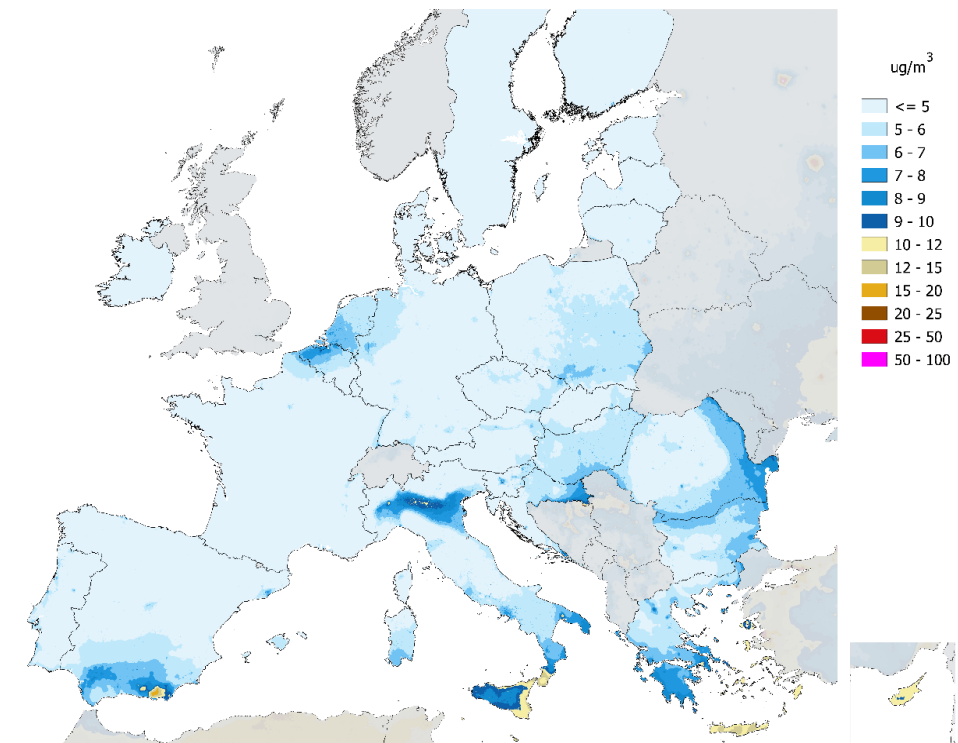
94%
of sampling points to
meet proposed limit
values by 2030



PM_{2.5} levels in 2020



PM_{2.5} levels in 2030 with COM proposal



Based on GAINS/EMEP/uEMEP. Note that these maps show the total concentration levels, and include also contributions from natural sources of wind blown dust and sea salt.

What will the new Directive achieve?

- **Health benefits:** Reduces **annual mortality** (premature deaths) linked to air pollution by more than 75% (and by 50% more than without this policy)⁽¹⁾
 - also reduces **related morbidity** (illnesses) by 50% more than without this policy.
- **Social benefits:** Stricter limit values particularly protect sensitive populations and vulnerable groups; Directive requires additional health impact information.
- **Environmental benefits:** Decreases in **eutrophication (-22%)** and **acidification (-63%)** of ecosystems; less crop losses and damage to forests.
- **Economic benefits:** Benefits far outweigh the costs, with annual total gross **benefits estimated at €42 bn** (and up to €121 bn depending on the valuation method) in 2030, compared to measures that costs less than €6 bn annually.

National Emission reduction Commitments (NEC) Directive

Update on the evaluation

Indicative timeline NECD review



Contact us:

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Thank you

