The revised Ambient Air Quality Directive

FAIRMODE
5 March 2025

Clean Air & Urban Policy Unit

European Commission

The pathway to Directive (EU) 2024/2881

The Ambient Air Quality Directive recast

Directive 2008/50/EC

on ambient air quality and cleaner air for Europe

As amended by **Commission Directive (EU) 2015/1480**

Directive 2004/107/EC

relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air

As amended by **Commission Directive (EU) 2015/1480**

Directive (EU) 2024/2881

on ambient air quality and cleaner air for Europe (recast)

Member States need to transpose this by **11 Dec 2026**

Directive (EU) 2024/2881

Chapter I	● General Provisions
Chapter II	● Assessment of Air Quality
Chapter III	● Air Quality Management
Chapter IV	● Plans
Chapter V	● Information & reporting
Chapter VI	● Implementing acts
Chapter VII	● Enforcement
Chapter VIII	● Transposition (& Timeline)

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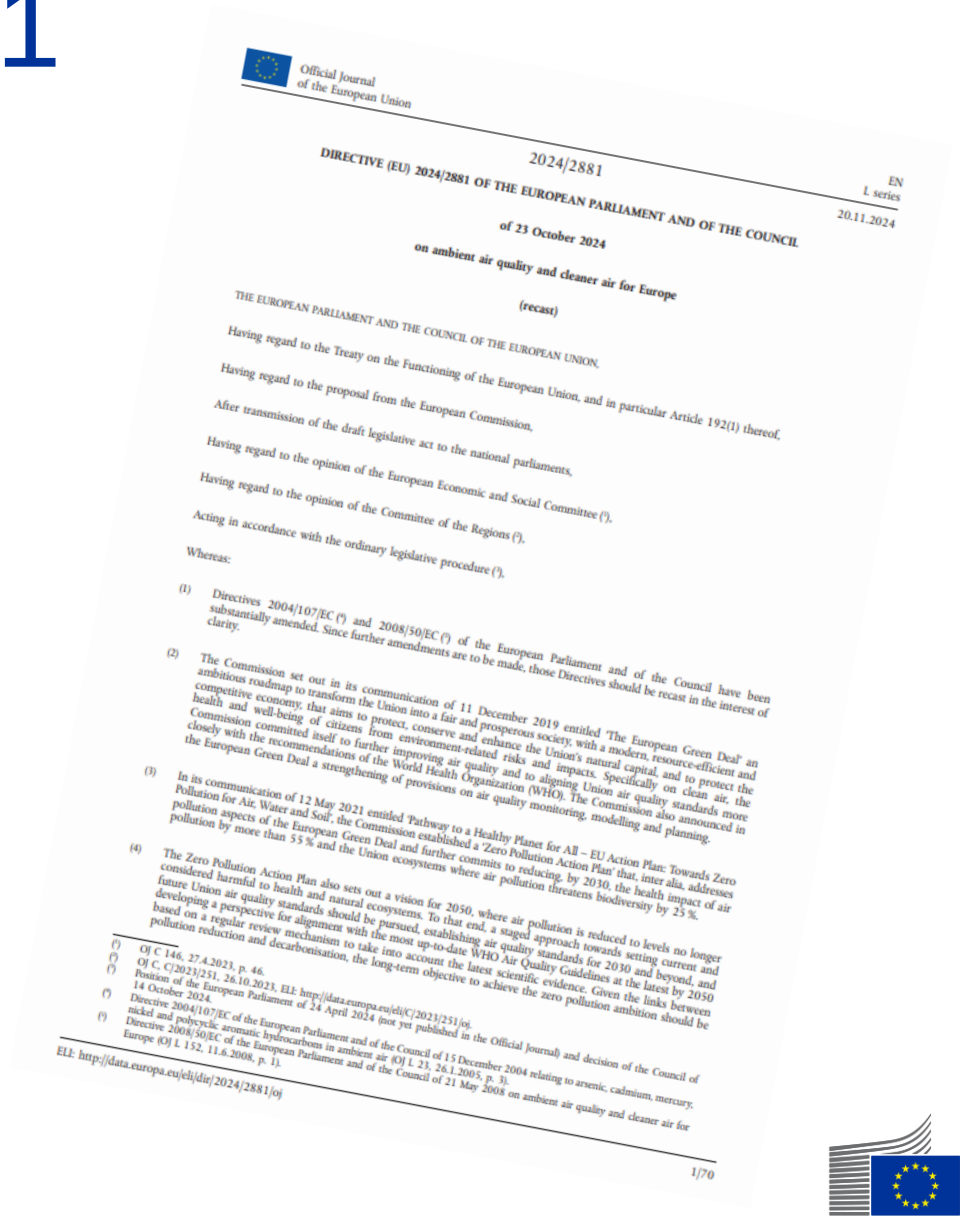
Annex I to Annex XII



Official Journal of the European Union

2024/2881

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DIRECTIVE (EU) 2024/2881 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of 23 October 2024

on ambient air quality and cleaner air for Europe

(recast)

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty on the Functioning of the European Union, and in particular Article 192(1) thereof,

Having regard to the proposal from the European Commission,

After transmission of the draft legislative act to the national parliaments,

Having regard to the opinion of the European Economic and Social Committee (1),

Having regard to the opinion of the Committee of the Regions (2),

Acting in accordance with the ordinary legislative procedure (3),

Whereas:

(1) Directives 2004/107/EC (4) and 2008/50/EC (5) of the European Parliament and of the Council have been substantially amended. Since further amendments are to be made, those Directives should be recast in the interest of clarity.

(2) The Commission set out in its communication of 11 December 2019 entitled 'The European Green Deal' an ambitious roadmap to transform the Union into a fair and prosperous society, with a modern, resource-efficient and competitive economy, that aims to protect, conserve and enhance the Union's natural capital, and to protect the health and well-being of citizens from environment-related risks and impacts. Specifically on clean air, the Commission committed itself to further improving air quality and to aligning Union air quality standards more closely with the recommendations of the World Health Organization (WHO). The Commission also announced in the European Green Deal a strengthening of provisions on air quality monitoring, modelling and planning.

(3) In its communication of 12 May 2021 entitled 'Pathway to a Healthy Planet for All – EU Action Plan: Towards Zero Pollution for Air, Water and Soil', the Commission established a 'Zero Pollution Action Plan' that, inter alia, addresses pollution aspects of the European Green Deal and further commits to reducing, by 2030, the health impact of air pollution by more than 55 % and the Union ecosystems where air pollution threatens biodiversity by 25 %.

(4) The Zero Pollution Action Plan also sets out a vision for 2050, where air pollution is reduced to levels no longer considered harmful to health and natural ecosystems. To that end, a staged approach towards setting current and future Union air quality standards should be pursued, establishing air quality standards for 2030 and beyond, and developing a perspective for alignment with the most up-to-date WHO Air Quality Guidelines at the latest by 2050 based on a regular review mechanism to take into account the latest scientific evidence. Given the links between pollution reduction and decarbonisation, the long-term objective to achieve the zero pollution ambition should be

(1) OJ C 146, 27.4.2023, p. 46.
(2) OJ C, C/2023/251, 26.10.2023, ELI: http://data.europa.eu/eli/C/2023/251/oj.
(3) Position of the European Parliament of 24 April 2024 (not yet published in the Official Journal) and decision of the Council of 14 October 2024.
(4) Directive 2004/107/EC of the European Parliament and of the Council of 15 December 2004 relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air (OJ L 23, 26.1.2005, p. 3).
(5) 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).

ELI: http://data.europa.eu/eli/dir/2024/2881/oj

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What's new

Environment & health

- **Zero pollution objective** at the latest by 2050
- Intermediate **2030 EU air quality standards**
- **Postponement** of deadlines possible (climate and orographic, domestic heating, projections)
- New metrics & **average exposure obligations**

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)

Governance & enforcement

- **Regular review mechanism**
- Air quality plans to be **more effective**
- **Improved enforceability**: new provisions on access to justice, compensation and penalties
- More **transboundary cooperation** on air quality

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

Modelling in the revised AAQD, highlights

There are **79 references** to modelling / modelling applications in the revised AAQD (in the current AAQDs there were 21 and 12 references, respectively).

'Modelling application' means application of a modelling system, understood as a chain of models and submodels, including all necessary input data, and any post-processing. (Art 2(24))

Clear requirement for Member States to **designate competent authorities** and bodies responsible for the promoting the accuracy of modelling applications. (Art 5(d))

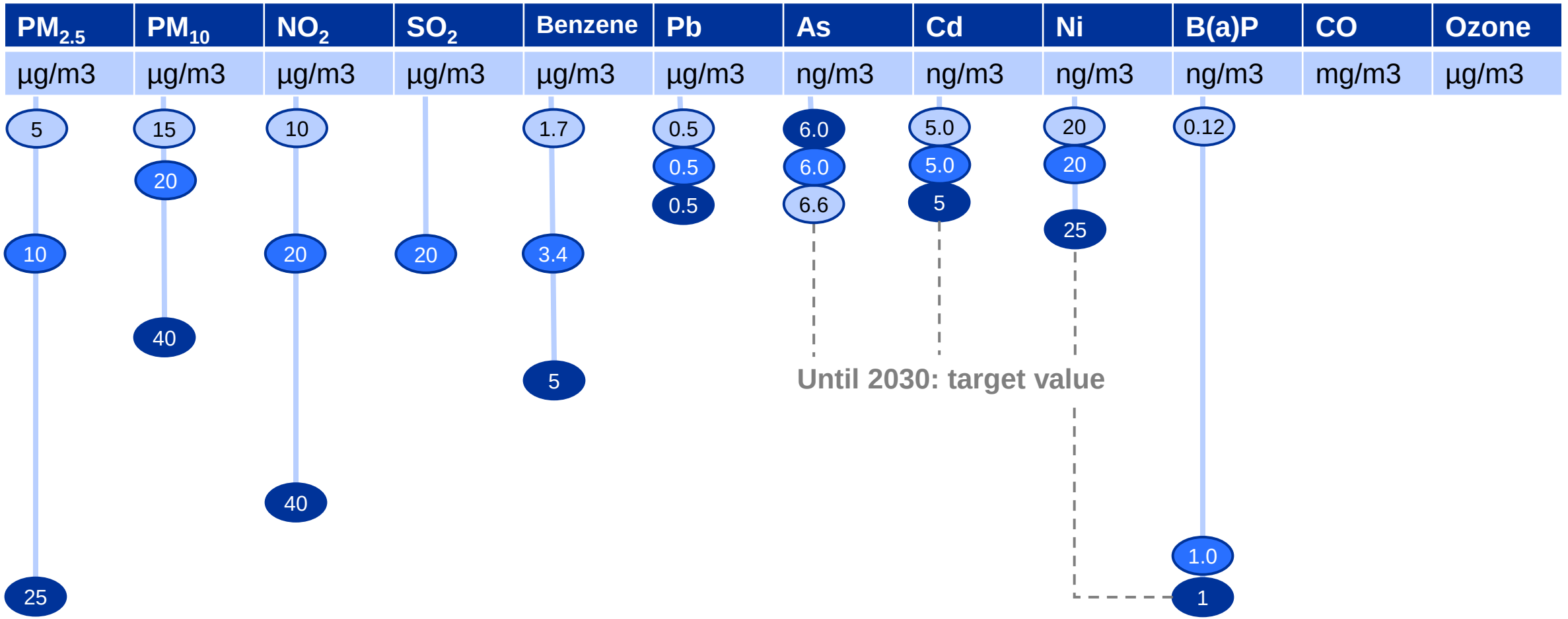
In the absence of an EN standard on **modelling quality objectives**, Member States may choose the modelling applications they use, in accordance with Annex V. (Art 11, Annex V+VI)

The Commission shall provide […] **further technical details** for (a) modelling applications […]; (b) determining the spatial representativeness of sampling points. (Art 8(7))

Role of modelling in the revised AAQD

Role for Modelling: **AQ Assessment**	Modelling applications provide data on distribution and levels of air quality >>> see, for example, in Articles 8 and 9 (plus 16 and 17), and Annex V
Role for Modelling: **Spatial Represent-ativeness**	Modelling applications inform spatial representativeness and network design >>> see, for example, in Articles 8 and 9, and Annex IV
Role for Modelling: **Forecasting**	Modelling applications offer short-term projections of air quality / pollution peaks >>> see, for example, Articles 15 and 20, and Annexes I and X
Role for Modelling: **Source Apportionment**	Modelling applications assess links between emission sources and air quality >>> see, for example, Annex VIII, but also for Articles 16 to 21
Role for Modelling **AQ Planning**	Modelling applications quantify the expected impact of measures >>> see, for example, Annex VIII and Articles 18 to 20

Air quality standards (annual)



Air quality standards (short term)

$PM_{2.5}$	PM_{10}	NO_2		SO_2		Benzene	Pb	As	Cd	Ni	B(a)P	CO		Ozone
µg/m3	µg/m3	µg/m3		µg/m3		µg/m3	µg/m3	ng/m3	ng/m3	ng/m3	ng/m3	mg/m3		µg/m3
[d]	[d]	[d]	[h]	[d]	[h]							[d]	[8h]	[8h]
15 3d	45 3d	50 3d	200 1h	40 3d	350 3h							4 3d	10	100 3d
25 18d	45 18d	50 18d	200 3h	50 18d	350 24h							4 18d	10	120 18d
	50 35d		200 18h	125 3d									10	120 25d

ozone target value
(3 year average)

Not to be exceeeded more on more than: x

x WHO guidance levels

x EU limit value as of 2030

x EU limit/target value until 2030

Postpone attainment deadline

Where, in a given zone, conformity with the limit values for $PM_{10,}$ $PM_{2,5}$, NO_2, benzene or benzo(a)pyrene **cannot be achieved by the deadline (2030)**, Member States may postpone that deadline for that particular zone provided that specified conditions set are met:

- *up to **1 January 2040**, if justified by site-specific dispersion characteristics, orographic boundary conditions, adverse climatic conditions, transboundary contributions, or where the necessary reductions can only be achieved by replacing a considerable fraction of the existing domestic heating systems that are the source of pollution causing exceedances; or*
- *up to **1 January 2035**, if justified by projections that demonstrate that even taking into account the expected impact of effective air pollution measures identified in the air quality roadmap, the limit values cannot be attained by the attainment deadline.*

In order to postpone an attainment deadline, Member States need to *inter alia* establish an **air quality roadmap** by 31 Dec 2028 for the zone(s) in question, supplemented by information on abatement measures, and demonstrate how exceedance periods above the limit values will be kept as short as possible. This is to be underpinned by air quality projections.

Air quality plans & roadmaps

AIR QUALITY PLAN

WHEN IS IT NEEDED?

There is an exceedance of limit of target value after attainment deadline
or
if average exposure reduction obligation (AERO) is not attained.

WITH WHAT OBJECTIVE?

To keep the exceedance period as short as possible.

AIR QUALITY ROADMAP

WHEN IS IT NEEDED?

There is an exceedance of 2030 limit or target values in the period from 2026 to 2029.

WITH WHAT OBJECTIVE?

To attain the limit or target values by the attainment deadline.

Air quality plans & roadmaps

AIR QUALITY PLAN

AIR QUALITY ROADMAP

Year **N**: exceedance

Year **N + 1**: exceedance reported

Year **N + 2**: max. time to set up plan / roadmap

Year **N + 4**:
max. time to end exceedance

Exceedance to end by
attainment deadline

Exception: not applicable to ozone target value (Art. 19(2) and AERO (Art. 19(4))

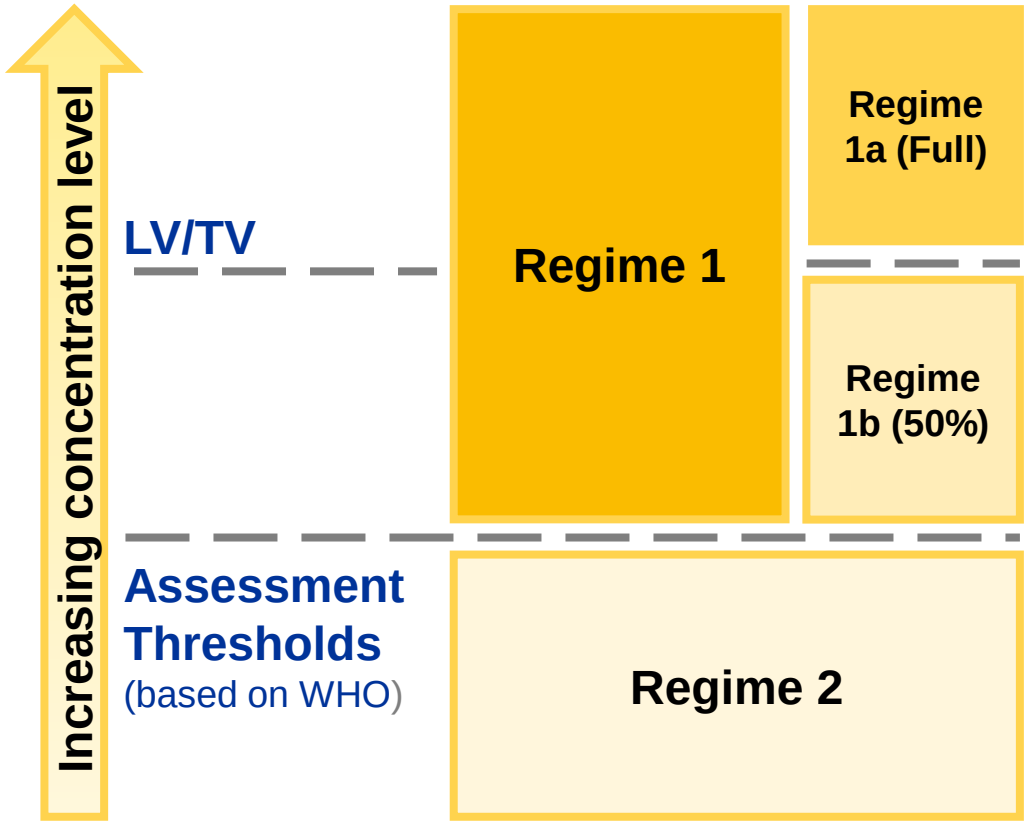
For limit and target values: 2030 (or later in case of postponement under Art. 18.)
Yearly obligation as of 2030 for AERO

Year **N + 5**: if exceedance: update plan / roadmap

Year **N + 7**: max. time to update plan / roadmap

Assessment regimes & criteria

Refined **monitoring and assessment regimes**, with stronger role for modelling and additional requirements to assure monitoring continuity and spatial representativeness.



Regime 1a - *fixed sampling points shall be used; may be supplemented by indicative measurements/modelling to assess air quality. From 2 yrs after adoption of IA modelling: indicative or modelling shall be used. Modelling at least every 5 yrs.*

Regime 1b - *fixed sampling points shall be used; but can be reduced by up to 50% under conditions (i.e. if there is sufficient modelling and/or indicative measurements, same number of indicative as fixed replaced).*

Regime 2 - *modelling applications, indicative measurements, objective-estimation techniques or a combination shall be sufficient for assessment of AQ.*

Monitoring supersites & UFPs

Monitoring stations at urban background and rural background locations with **multiple sampling points** to gather long-term data on several pollutants – including pollutants of emerging concern such as UFP, black carbon or ammonia, and others.

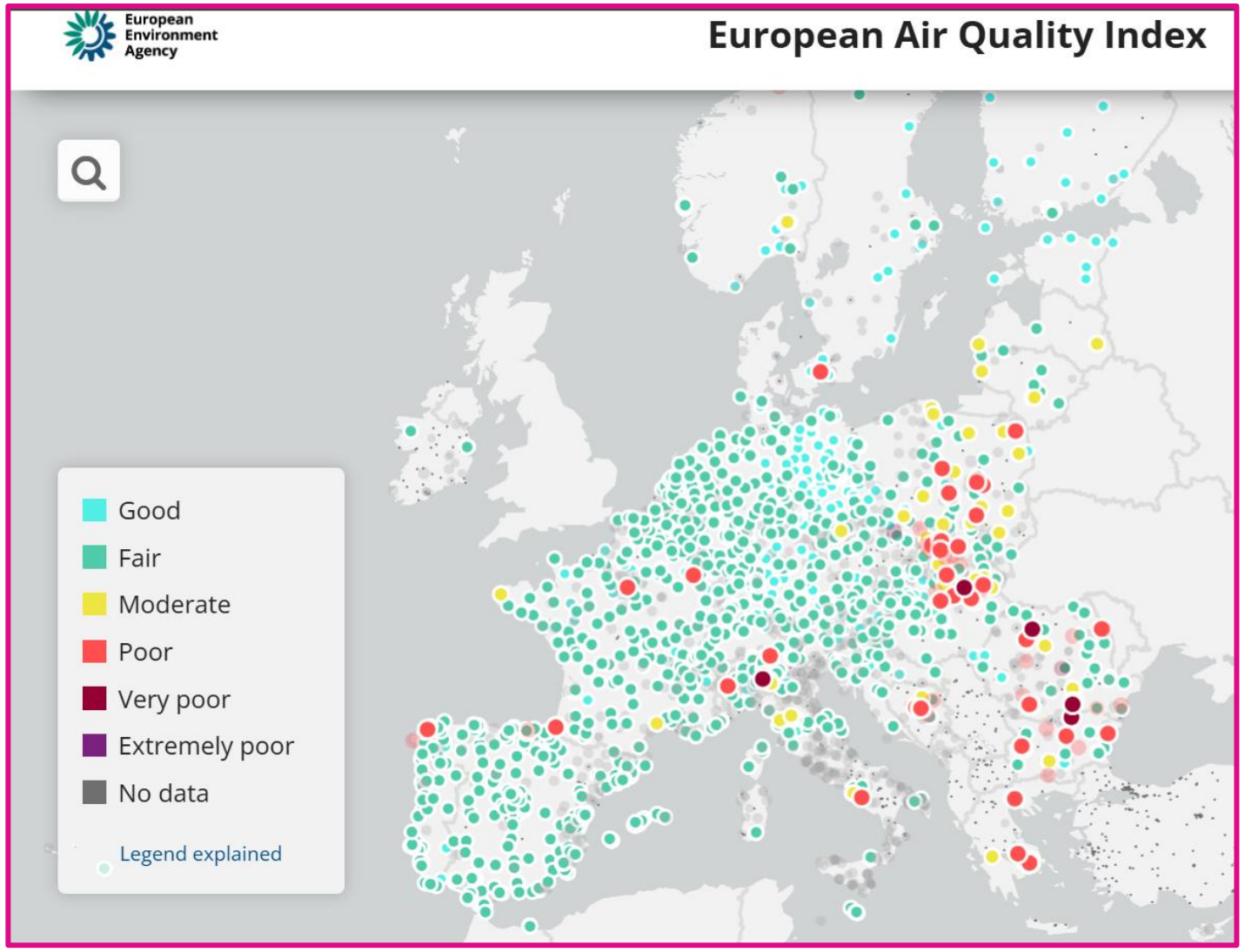
>> at **urban background locations:** at least 1 per 10 million inhabitants.

>> at **rural background locations**: if territory > 10.000 km², then at least 1 per 100.000 km².

For a comprehensive list of pollutants to be measured or recommended to be measured at monitoring supersites, see **Annex VII**.

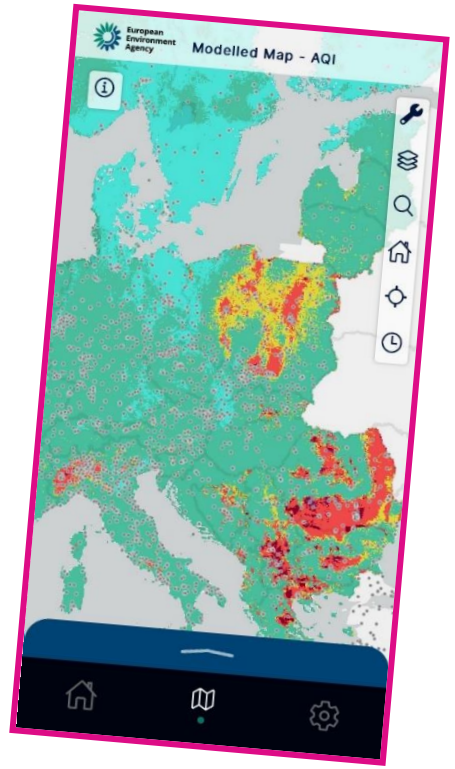
In addition: For **ultrafine particles (UFPs)**, at least one sampling point per 5 million inhabitants will have to be established at a location where high concentrations are likely to occur – e.g. influenced by sources from air, water or road transport (such as airports, ports, roads), industrial sites or domestic heating (Annex VII).

Air Quality Index



- $PM_{2.5}$
- PM_{10}
- NO_2
- SO_2
- Ozone

1h



Screenshot of 28 Jan 2025 – 18:00
www.eea.europa.eu/en/analysis/maps-and-charts/index

Towards (more) harmonised modelling

To promote and support the **harmonised use of scientifically sound air quality modelling,** the appropriate competent authorities and bodies shall ensure the following:

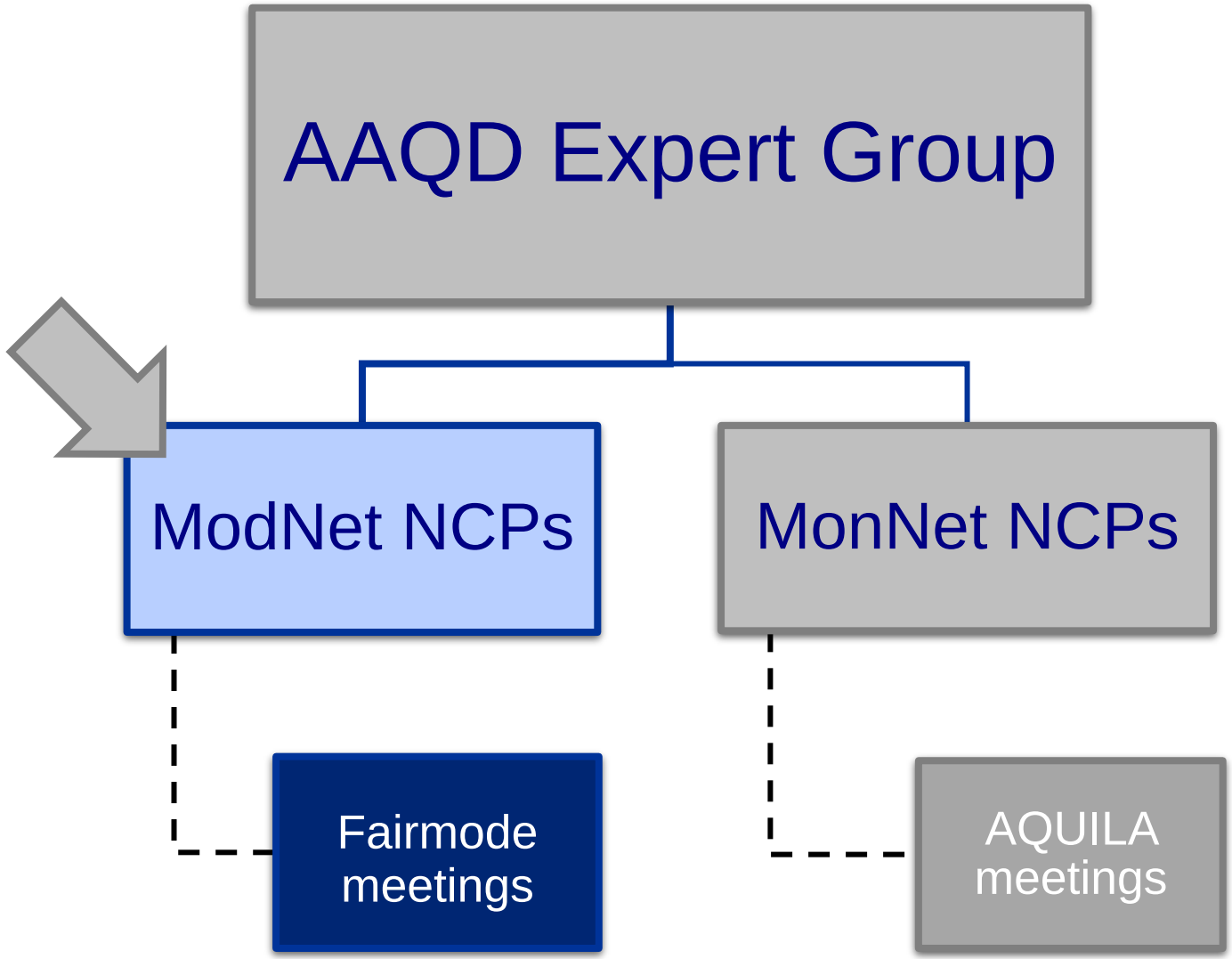
a) that the designated reference institutions participate in the **European network of air quality modelling** set up by the Commission's Joint Research Centre;

b) that **best practices in air quality modelling** identified by the network through scientific consensus are adopted in relevant applications of air quality modelling for the purposes of fulfilling legal requirements […], without prejudice to model adaptations necessitated by singular circumstances;

c) that the quality of relevant applications of air quality modelling is periodically checked and improved through **intercomparison exercises** organised by the Joint Research Centre;

d) that the European network of air quality modelling be responsible for the **periodic review**, at least every 5 years, of the **ratio of modelling uncertainties** […]

European network of air quality modelling



Technical support documents

Air Quality Monitoring for air quality policy

Technical support document on the use of reference and non-reference methods, and on the quality assurance process to meet relevant data quality objectives for regulated air pollutants

Air Quality Modelling for air quality policy

Technical support document on the use of modelling for various application domains under the Ambient Air Quality Directive

Revision of the technical guidance document on the demonstration and subtraction of exceedances attributable to **natural sources** under the Ambient Air Quality Directive

Revision of a technical guidance document on the determination of contributions from the re-suspension of particulates following **winter sanding or salting** of roads

Some concluding reflections

EU Clean Air Policy works! We have seen major improvements in air quality since the 1990s.

Air quality monitoring (4.000 monitoring stations) and air quality modelling provide us with an **exceptionally robust, comparable and harmonized information basis** across the EU.

Air quality modelling is afforded a much bigger role in the revised Ambient Air Quality Directive: for assessment, spatial representativeness, source apportionment, forecasting, and planning

Modelling applications will need to be **fit-for-purpose** – what this means will depend on the purpose. The choice of model(s) to use lies with Member States, but there are requirements.

Need to further advance air quality modelling to **support implementation** of the Ambient Air Quality Directive … **and communicate clearly what modelling applications can / cannot do!**

Thank you

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