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COMMISSION STAFF WORKING DOCUMENT
EXECUTIVE SUMMARY OF THE IMPACT ASSESSMENT REPORT

Accompanying the document

Proposal for a Directive of the European Parliament and of the Council
on ambient air quality and cleaner air for Europe (recast)

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EXECUTIVE SUMMARY OF THE IMPACT ASSESSMENT REPORT

Despite significant reductions of harmful air pollutant emissions over the past three decades in the EU, around 300 000 premature deaths per year (compared to up to 1 million per year back in the early 1990s) and a significant number of non-communicable diseases are still attributed to air pollution across the EU (and especially related to particulate matter, nitrogen dioxide and ozone).

The European Commission committed, in the [European Green Deal and in the subsequent Zero Pollution Action Plan](#), to further improve air quality and to align EU air quality standards more closely with the recommendations of the World Health Organization (WHO), most recently revised in September 2021.

The Ambient Air Quality Directives (Directives 2004/107/EC and 2008/50/EC) set standards for the concentration levels of 12 ambient air pollutants to be attained by all Member States across their territories against specific timelines. The [fitness check](#) of these directives concluded that they have been *partially* effective in improving air quality and achieving air quality standards, but that not all their objectives have been met to date. The Directives have led to the establishment of a representative high-quality monitoring of air quality, and contributed to a downward trend in air pollution across the EU.

Nevertheless, four types of significant shortcomings in air quality policy remain and point to scope for improvements to the existing framework. Firstly, EU air quality standards are not as protective as those recommended by the WHO. Secondly, the fact that air quality plans required by the Ambient Air Quality Directives are often insufficient to prevent exceedances or minimise their duration, points to implementation challenges and related governance and enforcement shortcomings. Thirdly, reliability and comparability of air quality monitoring, modelling and assessments could be improved. Finally, further harmonisation of the way air quality information is presented, especially at Member State level, would provide further EU added value, and help ensure even higher comparability of information.

This impact assessment considers merging the two directives and a total of 68 potential specific policy measures, combined in 19 potential policy options, to address the identified shortcomings. Most of them are complementary and somewhat independent from each other. Some co-benefits across options are considered. This impact assessment suggests to retain 15 policy options - including 16 measures to improve the governance and enforcement of air quality plans, 15 measures to further improve the reliability and comparability of air quality monitoring and modelling, 4 measures to improve access to air quality data and information with a particular focus on enhancing the use of digital tools, as well as 5 measures to strengthen the use of the average exposure indicator and keep EU air quality standards under regular review.

Three policy options, namely those contrasting different levels of alignment with the WHO Air Quality Guidelines (i.e. ‘full alignment’ (I-1), ‘closer alignment’ (I-2) and ‘partial alignment’ (I-3)), will require a political choice. The impact of these three policy options have been assessed

in a quantitative manner and would each render significant health and environment benefits – albeit to varying degrees.

Stakeholder feedback pointed to a preference for a high level of ambition. In the public consultation, 73 % percent of all respondents, mainly representatives of *civil society and NGOs* and *EU citizens*, expressed a clear preference to align with the 2021 WHO Air Quality Guidelines. However, this assessment shows that, by the year 2030, reaching air pollutant concentration levels that fully correspond to the latest Guidelines (equivalent to $5 \mu\text{g}/\text{m}^3$ for fine particulate matter, $\text{PM}_{2.5}$) may not be possible at all for large parts of sampling points in the EU (71 % in the case of $\text{PM}_{2.5}$), even as virtually all technology options are explored.

This assessment takes into account that air quality is also affected by sectors and activities, e.g. transport, industry, energy and agriculture, and includes assumptions on the effect of major initiatives under the European Green Deal such as the European Climate Law and the Fit for 55 package, the Methane Strategy, the Sustainable and Smart Mobility Strategy, EURO-7 vehicle emission standards, the Biodiversity and the Farm to Fork Strategies as well as the very recent RePowerEU initiative. It however does not consider (given their very limited predictability, at this stage) other potential abatement options, such as much accelerated changes of behaviours across society or shifts to cleaner fuels.

This resulting analysis shows that policy option I-3 ('partial alignment' with the 2021 WHO Air Quality Guidelines by 2030) has the highest benefit-to-cost ratio (between 10:1 and 28:1). Most air quality sampling points in the EU might be expected to meet the corresponding air quality standards with little additional effort. The net benefits amount to more than 29 billion EUR. For policy option I-2 ('closer alignment' with the 2021 WHO Air Quality Guidelines by 2030) the benefit-to-cost ratio is expected to be slightly lower (between 7.5:1 and 21:1). Some 6% of sampling points would not be expected to meet the corresponding air quality standards without additional effort at local level (or may need time extensions or exceptions). The net benefits amount to more than 36 billion EUR, i.e. 25% more than policy option I-3. Under policy option I-1 ('full alignment' with the 2021 WHO Air Quality Guidelines by 2030) the benefit-to-cost ratio remains significantly positive also (between 6:1 and 18:1). However, 71% of sampling points would not be expected to meet the corresponding air quality standards without additional effort at local level (and in many of these instances would not be able to meet these standards at all with technical feasible reductions only). The net benefits amount to more than 38 billion EUR, i.e. 5% more than policy option I-2.

As regards impacts on the environment, notably on the share of ecosystem areas exceeding critical loads for eutrophication from deposition of nitrogen, closer alignment would, without prejudice of further co-benefits a sound implementation of the Biodiversity Strategy and of the planned Nature Restoration Law may render, all three options reduce the share of ecosystem areas suffering from critically high loads of nitrogen. When it comes to social impacts, sensitive population groups (including children, pregnant women, elderly citizens and those suffering from pre-existing conditions) are the most affected by air pollution today. Therefore, they will in most instances benefit the most from reduced air pollution impacts on their health. Net gross domestic product

(GDP) gains by 2030 are expected for all policy options, in the range of 0.26 % to 0.44 %. Improving air quality is also expected to bring economic gains related to reduction of negative air pollution impacts such as healthcare expenditures, crop yield losses, absence from work due to illness (including of dependent children) and lower productivity at work.

The total administrative burden ranges from EUR 76 to 106 million. All these are costs borne by public authorities since the Ambient Air Quality Directives do not impose direct administrative costs on consumers and businesses. However, these sectors do bear important adjustment costs, notably due to measures needed to achieve EU air quality standards. Annual adjustment (or mitigation) costs have been estimated to be substantial in absolute terms: EUR 7.0 billion for full alignment (I-1), EUR 5.6 billion for closer alignment (I-2), EUR 3.3 billion for partial alignment (I-3) for the year 2030. Costs are expected to be higher (relatively speaking) for those Member States that either see persistent air pollution challenges today, or where specific measures would be required. In particular, for the residential heating sector additional costs would occur as well as, to a lesser degree, for the industry and agriculture sectors. Still, for all options considered, overall net benefits of the initiative outweigh costs considerably (between 29 and 38 billion EUR).

For all three policy options (i.e. independent of the political choice made) there is a clear case for embracing a staged approach towards setting current and future EU air quality standards: (1) establish clear EU air quality standards for the mid-term, i.e. the year 2030 (with a limited number of temporary exceptions where these are clearly warranted); (2) develop a long-term, post-2030 perspective for a full alignment with the 2021 WHO Air Quality Guidelines, whilst getting on track towards alignment also with future WHO Guidelines to achieve the zero pollution vision by the year 2050; (3) a regular review mechanism to assure that the latest scientific understanding of air quality guides future decisions, and retains flexibility elements given potential (future) geopolitical challenges.