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Public Consultation on the revision of the Ambient Air Quality Directives

ClientEarth Position Paper

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Contents

Background

ClientEarth welcomes the revision and strengthening of Directive 2008/50/EC on ambient air quality and cleaner air for Europe ("**Air Quality Directive**") and Directive 2004/107/EC relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air ("**Fourth Daughter Directive**") (jointly, "**AAQDs**"). Air pollution is the top environmental risk to human health in the EU, responsible for around 370,000 premature deaths in 2019 alone in Europe. The rules laid down in the AAQDs put into concrete terms the EU's obligations concerning environmental protection and the protection of public health. The revision of the AAQDs is an essential step to ensure cleaner air, protect the health of EU citizens and implement the EU's obligations flowing from the Charter of Fundamental Rights and the treaties.

The following briefing expands upon ClientEarth's answers to the public consultation on "air quality – revision of EU rules". It is structured in line with the Commission's three policy areas, with an additional section addressing the question of "feasibility". Not every policy proposal in each policy area is addressed, but those which are, are sign-posted by the sub-heading of the relevant section.

ClientEarth agrees with the Commission's proposal in policy area 1 to align EU air quality standards with World Health Organization ("**WHO**") recommendations. The revision of the AAQDs is a once-in-a generation opportunity to ensure people in the EU aren't condemned to ill health from dirty air for decades to come. We expect the Commission to show leadership and have the ambition to ensure full alignment with the latest WHO air quality guidelines. We stress that this must be done through legally binding limit values, which are and must remain the backbone of the AAQDs. All EU citizens have an equal right to breathe healthy air and so any proposals for "average exposure limits", "exposure reduction targets" or "aspirational long-term objectives" are inadequate on their own and must not be allowed to replace legally binding limit values.

ClientEarth is pleased to see the Commission's proposal to improve the current air quality legislative framework. The revision offers the opportunity to strengthen implementation and enforcement mechanisms to ensure governments take all necessary steps to achieve timely compliance with air quality standards. In this paper we make some practical suggestions of how the drafting of the current AAQDs could be improved. In particular, we support the concretising of provisions on delivery air quality plans, to ensure sufficient and timely action to achieve compliance with new limit values before relevant attainment deadlines, and the expansion of the requirements for air quality plans generally. We welcome the introduction of penalties for breaches of air quality standards (and highlight some other EU laws on which such a mechanism might be based), and we call for explicit mechanisms for access to justice and compensation for health damage for air pollution.

ClientEarth has long been of the view that the provisions for air quality monitoring and modelling could be strengthened. In this briefing we propose some drafting amendments to do this, but in summary, we consider the following changes to be necessary to improve the collection of data on air quality in the EU.

- Increase the minimum number of PM2.5 stations and set clearer requirements for the relative proportion of different types of monitoring stations;
- Introduce definitions of different types of monitoring stations;
- Require the installation of monitoring stations for Black Carbon and Ultrafine Particles;
- Ensure continuity of measurements for all pollutants;

- Strengthen the siting criteria;
- Provide clearer requirements for the content, publication and review of the documentation on network design and site locations; and
- Require a more regular use of models and indicative measurements to support information from fixed sampling points and introduce reference methods for modelling and indicative measurements.

Policy Area 1

1.1 Alignment with World Health Organization recommendations

The Fitness Check found that "*the current air quality standards are not as ambitious as established scientific advice suggests for several pollutants, especially fine particulate matter (PM2.5)*". This gap has only become wider and more concerning after the WHO published the new Air Quality Guidelines Global Update ("**AQG**") on 22 September 2021. Across the EU, legal limits for NO2 are now 4 times higher than WHO recommendations, while legal limits for PM2.5 are now 5 times higher than the new guidelines. Europe is lagging behind globally on this vital issue, with all other developed countries in the world having much stronger legal limits on harmful concentrations of PM2.5 (from Australia to Switzerland, from Canada to the US).[1]

The new WHO AQG reflect the best available science and confirm that levels of toxic pollutants far below those limit values currently enshrined in EU law are necessary in order to protect human health. For example, the WHO AQG recommend an annual level of no more than 5 µg/m3 of PM2.5, and a 24-hour limit of 15 µg/m3. Yet the annual limit value in the Air Quality Directive for PM2.5 is 25 µg/m3, and there is no limit value at all for daily concentrations of PM2.5. This is despite the fact that, as early as 2004, a Working Group producing a preparatory recommendation for the drafting of that directive "*supported setting a 24-hour limit value for PM2.5 based on the 90-percentile.*"[2] Similarly, the WHO AQG recommend that daily concentrations of NO2 be kept below 25 µg/m3, but the current AAQDs do not provide any limit value for 24-hour concentrations of this pollutant. Now that it is once again revising the AAQDs, the Commission must act urgently to protect the health and safety of EU citizens by fully aligning EU law with WHO recommendations.

The WHO called on governments to establish "*adequate legislation for protection of the population from the health effects of air pollutants" and implement "*[a]*batement measures and air quality improvement* […] *to achieve* […] *the air quality guideline (AQG) levels as expeditiously as possible*".[3]

The European Green Deal announced that the Commission would align EU air quality standards closely with WHO recommendations, and one of the suggestions of policy area 1 is to "*Set aspirational long-term objectives to meet all World Health Organization recommendations (i.e. as per updated WHO Air*

[1] See M.K. Joss and others, 2017. "Time to harmonize national ambient air quality standards for global health equity", *International Journal of Public Health*, vol. 62, No. 4 (May 2017), pp. 453–462, available at: https://www.swisstph.ch/fileadmin/user_upload/SwissTPH/Institute/Ludok/Grenzwerte/Joss_et_al-2017-International_Journal_of_Public_Health.sup-1.pdf
[2] page 181, 'Second Position Paper on Particulate Matter', by CAFE Working Group on Particulate Matter, 20 December 2004, https://ec.europa.eu/environment/archives/cafe/pdf/working_groups/2nd_position_paper_pm.pdf
[3] WHO, AQG, p. 174.

Quality Guidelines)". While we wholeheartedly agree with the aim of meeting all WHO recommendations, we stress that this **must** be done by setting them as binding legal limits, and not through aspirational long-term objectives.

From information shared by the Commission during the First Stakeholder meeting on 23 September 2021, we understand that the scenarios considered for this policy area are as follows:

Different levels of ambition (example: for $PM_{2.5}$)

AMBITION LEVEL

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EU standards today / baseline 

Low ambition 

Mid ambition 

High ambition 

WHO – Air Quality guidelines and interim targets for PM (annual mean)

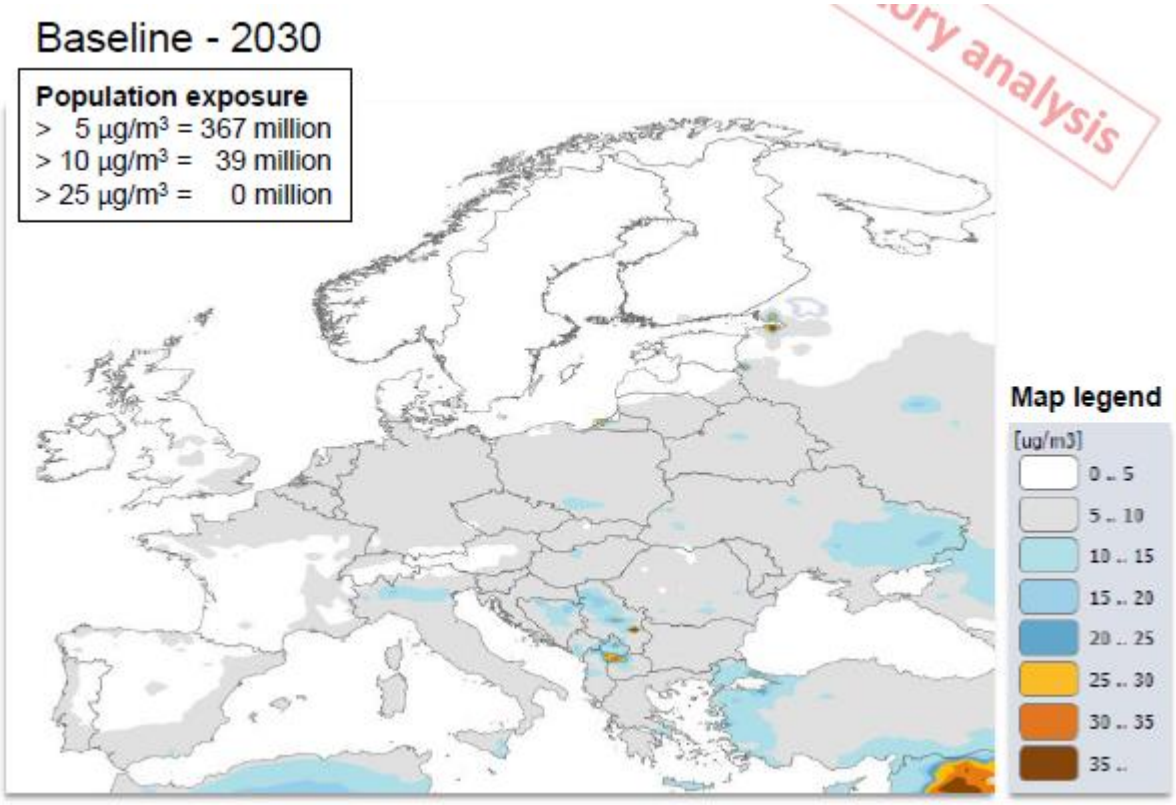
Annual mean level	$PM_{2.5}$ (µg/m3)	Mortality
Interim target 1	35	+ 24 % above guideline level
Interim target 2	25	+ 16 % above guideline level
Interim target 3	15	+ 8 % above guideline level
Interim target 4	10	+ 4 % above guideline level
AQ guideline level	5	mortality at guideline level

When assessing feasibility of compliance with the WHO recommendations, the baseline scenario should include not only the current AAQDs, but the whole EU *acquis* that will contribute to lower emissions of pollutants. That includes the NEC Directive 2016/2284/EU (the "**NEC Directive**"), various relevant source regulations and other sector policies, such as for energy, mobility and agriculture.

If the whole EU *acquis* is taken into consideration, ClientEarth considers that a revised PM2.5 limit value merely aligned with the WHO Interim Target 4 by 2030 would represent a completely inadequate level of ambition and hardly anything more than the baseline.

Various modelling studies show that compliance with WHO guideline recommendations is achievable in Europe. According to the technical report of IIASA accompanying the Second Clean Air Outlook, **the EU *acquis* baseline scenario will already bring levels of PM2.5 in the vast majority of Europe (90%) below 10 µg/m3 by 2030. In many areas, levels of PM2.5 would even be lower than 5 µg/m3**.

A similar analysis was shared during the First Stakeholder meeting, showing that, in the baseline scenario, the entirety of the EU is expected to be below 15 µg/m3 by 2030 and only very limited hotspots would be between 10 and 15 µg/m3, without further actions:



Based on the Commission's own projections, Scenario 2 (and, *a fortiori*, Scenario 3) can hardly be considered anything more than the baseline scenario, given that the existing EU *acquis* is already expected to deliver better air quality than Interim Target 3 in 2030.

In ClientEarth's view, Scenario 4 (and, *a fortiori*, Scenario 5) would represent a disappointingly low level of ambition. The introduction of a PM2.5 limit value aligned with Interim Target 4 to be achieved by 2030 would only drive the adoption of pollution abatement policies in those, very limited, areas of Europe that are not already projected to be below 10 µg/m3 by 2030 in the baseline scenario. Scenario 4 and 5 would result in the vast majority of Europe (90%) not being obliged to implement any of the further pollution abatement policies that are possible and would deliver significant health and economic benefits.

New limit values, more ambitious than Interim Target 4, are essential to keep driving concentrations of air pollutants as low as possible in the framework of the Zero Pollution Ambition. The Zero Pollution Action Plan ("**ZPAP**") adopted by the Commission in May 2021 requires a reduction in the number of premature deaths caused by air pollution (with a focus on PM2.5) in the EU by 2030 to a minimum of 55% below the levels in 2005. A recent report of the European Environment Agency ("**EEA**") confirmed that, although the number of premature deaths per year has fallen since 2005, this has not been at a rate sufficient to meet the 2030 target.[4] Indeed, even if the limit values for PM2.5 in line with Target 4 had

[4] *See Health Impacts of Air Pollution in Europe, 2021*, European Environment Agency, 15 November 2021, https://www.eea.europa.eu/publications/air-quality-in-europe-2021/health-impacts-of-air-pollution

been attained by 2019, this would still have been insufficient to meet the ZPAP target. Only a limit value for PM2.5 in line with the WHO's 2021 guidelines (5µg/m3) will ensure that the ZPAP target is met.

For this reason, as well as the other reasons outlined above, ClientEarth calls on the Commission to adopt Scenario 6, and commit to binding limit values aligned as closely as possible with the WHO AQG by 2030.

1.2 Establishing Legally Enforceable Limit Values

Poor air quality has implications for a wide range of human rights, including the rights to life, health, water, food, housing and an adequate standard of living. The Court of Justice of the EU ("**CJEU**") has expressly recognised that the provisions of the Air Quality Directive are a direct expression of the fundamental obligations of the Union under the Treaties.[5]

As clarified by the UN Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment, States and governments are subject to various obligations, including the obligations – which are both procedural and substantive – in relation to the right to breathe clean air.[6] According to the UN Special Rapporteur, States have an obligation to establish and maintain substantive environmental standards and to incorporate the WHO guidelines "*as legally binding national standards.*"[7] States must also ensure the effective enforcement of such air quality standards as they "*are useless if they are not implemented and enforced.*"[8]

In this regard, ClientEarth underlines that the alignment with WHO standards must be in the form of legally enforceable limit values, which must remain the backbone of the revised Air Quality Directive. The Fitness Check found that "*limit values have been more effective in facilitating downward trends than other types of air quality standards*". The revision of the Ambient Air Quality Directives should be based on the non-regression principle. Pollutants currently regulated by limit values should remain so, and supplemented by limits for short term exposure where these don't already exist, such as for PM2.5 and NO2.

Moreover, ClientEarth submits that new legally binding limit values need to be introduced for pollutants that are currently regulated by the Fourth Daughter Directive as mere target values. In particular, it is essential to introduce a limit value for concentrations of Benzo(a)pyrene ("**B(a)P"**). This is a particularly harmful carcinogenic substance. The main source of B(a)P emissions is coal and wood burning in household boilers, stoves and fireplaces. For instance, in Poland, this sector is responsible for 91% of B(a)P emissions. Even if effective solutions exist to address this type of emission, the current target value is not prescriptive enough to motivate authorities to take action. The introduction of a binding limit value would be an essential element to address this serious problem.

Target values should be introduced for pollutants which are as yet unregulated, and about which scientific evidence is expected to rapidly evolve in the coming years, such as Black Carbon ("**BC**") and Elemental Carbon ("**EC**"). The WHO AQGs are clear that "*evidence links black carbon particles with*

[5] See Case C-723/17 *Craeynest*, para. 33. See also Opinion of Advocate General Kokott in Case C-723/17 *Craeynest*, para. 53.
[6] See UN Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment, "Thematic report on clean air and human rights" (<https://undocs.org/en/A/HRC/40/55>)
[7] Ibid., para. 69.
[8] Ibid., para. 76.

cardiovascular health effects and premature mortality, both for short- (24-hour) and long-term (annual) exposures", and that "*BC/EC particles contain known toxic constituents such as carcinogens*". Furthermore, besides its noxious effect on human health, BC is a powerful climate-warming agent.[9] We therefore think it is critical that air quality standards be introduced for these substances. However, because it is expected that further scientific knowledge on these pollutants will be forthcoming, these could be a target value during a preliminary stage, but should eventually (and automatically) become a limit value (akin to the regulation of PM2.5 annual average concentrations under the Air Quality Directive). We therefore call for a target value of 1.08 µg/m3 to be set for BC, and 0.5 µg/m3 for EC, the quantities of each at which statistically significant associations with health outcomes have been found.[10]

It is our firm position that it would be an error to rely on exposure reduction targets instead of limit values to regulate air pollutants. There are still many uncertainties about how to estimate exposure of people to pollutants, and exposure reduction targets have been shown to have a very limited impact over the past 10 years. Furthermore, exposure reduction targets risk entrenching inequalities across the EU. All EU citizens should have the right to breathe the same standard of air, and their entitlement to a healthy environment must not be dependent on their current level of exposure to toxic pollutants. Reliance on exposure reduction targets, as the only air quality objective, risks resulting in authorities accepting significant exceedances of WHO AQGs in pollution hotspots, if they are able to comply with the average target by taking action in other areas, where reductions are more easily achieved. However, it is important to remember the uneven distribution of health impacts of air pollution in Europe: groups of lower socio-economic status also tend to be more negatively affected by air pollution. The EEA found such unequal exposure and impacts both at urban level and at regional level across Europe.[11] Exposure reduction targets alone risk exacerbating such social injustice as they would not protect groups of lower socio-economic status that are already exposed to higher and more harmful levels of pollution in hotspots. Exposure reduction targets and differentiated standards across the EU would also risk worsening the divide between levels of pollution among regions of different average socio-economic status across Europe.

Legally enforceable limit values, which are the same across the EU, are the only way to guarantee that every citizen's fundamental human rights are safeguarded.

Policy Area 2

2.1 Make it easier to adjust EU air quality standards to the evolving technical and scientific progress

ClientEarth considers that the inclusion in the AAQDs of an explicit mechanism for automatically revising the air quality standards in light of technical and scientific progress is essential if they are to achieve their goal of protecting public health. Article 32 of the Air Quality Directive expressly required the Commission to review the standard for PM2.5 – and other pollutants as appropriate – by 2013, and present a proposal to the European Parliament and the Council. Although it has been scientifically known since 2013 that the current annual limit value for PM2.5 is too weak to effectively protect human health, the

[9] p144-147, WHO Global Air Quality Guidelines, WHO, 22 September 2021
[10] Ibid., p148
[11] See European Environment Agency, *Unequal exposure and unequal impacts: social vulnerability to air pollution, noise and extreme temperatures in Europe*, Report No 22/2018.

need to go through ordinary legislative procedure has prevented the adaptation of the air quality standards to this scientific knowledge. This legislative sluggishness has put citizens' health at risk and is continuing to do so.

The new AAQDs must recognise the importance of expert advice and be more agile in ensuring that law and policy are guided by the very latest science. Scientific evidence should play an independent, transparent and meaningful role in the setting and reviewing of air quality standards. The WHO recommendations are the fundamental reference, and we set out in our response to policy area 1 why it is crucial that EU law achieves full alignment with the 2021 WHO AQG. However, the update cycle of the WHO guidelines takes several years (for instance, it took 16 years between the 2005 and the latest 2021 AQG). It will be essential for the EU to be able to receive and adapt to more timely advice on new scientific developments. New EU air quality laws could create a mechanism to systematise previous experiences (such as the REVIHAAP and HRAPIE projects) and allow the EU institutions to receive periodic updates on scientific developments.

The setting and review of binding targets should be based on a sound evidence base. However, no independent body currently exists with the full suite of technical competence and resources necessary to advise on the health and environmental effects of air pollution, air pollution science and technology and to assess what emission abatement and exposure /deposition reductions are possible in practice.

The Commission should consider setting a new Scientific Advisory Board on Healthy Air (akin to the Scientific Advisory Board on Climate Change). The Advisory Board should be required to carry out a review of air quality standards at 4-yearly intervals (or sooner). That review should include an assessment of whether the EU air quality standards are fit to protect people and the environment from the negative impacts of air pollution. Such review should consider, as a minimum:

- the best available and most up to date scientific evidence and advice regarding air pollution, its effects on human health and the environment;
- the latest WHO guidelines existing at the time;
- the impact of air pollution on sensitive population groups, species and habitats;
- international commitments (including under the UNECE) and impacts;
- the precautionary principle; and
- the rectification at source principle.

It is important that the Advisory Board is established and funded in a way that ensures its independence from Member States and EU institutions.

The advice provided by the Scientific Advisory Board must be made publically available and should trigger concrete actions to address the shortcomings identified.

Our preferred mechanism would be for the EU air quality standards to be tied to WHO recommendations, so that when the WHO issues new guidelines or recommendations on levels of air pollution, the limit values set down by EU law are automatically updated as well. This should not just be limited to updates to the WHO's global air quality guidelines, which may take several years to be published, but should include regional studies on air pollution in the European context (such as the REVIHAAP and HRAPIE projects). The advice of the suggested Scientific Advisory Board on Healthy Air would play a central role in identifying the latest and sound scientific recommendations on air quality levels for the protection of human health.

In combination with and/or as an alternative to the suggested automatic adjustment mechanism, the revised AAQDs could include a provision empowering the Commission to adopt delegated acts to

strengthen air quality standards when new scientific evidence comes to light suggesting that this is necessary.

We believe that the AAQDs should establish an overarching ambition for clean air, with the aim of achieving levels of air pollution that have the lowest possible negative effect on human health and the environment. The AAQDs should already set legally binding limit values at levels that have the lowest possible negative effect on human health – those levels are currently reflected in the WHO AQG. However, we know that there are no safe levels of pollution. The scientific knowledge about health effects of air pollution is likely to keep progressing, either by identifying health effects at levels lower than WHO AQGs or by identifying health effects from emerging pollutants. The Commission should have the power to update and supplement the definition of what are "*levels of air pollution that have the lowest possible negative effect on human health and the environment*" reflecting scientific developments.

In ClientEarth's opinion, it is possible to empower the Commission to adopt delegated acts to supplement or amend air quality standards while remaining within the scope of Article 290 TFEU. In particular, we underline how the Commission is empowered to adopt similar delegated and/or implementing acts in the framework of other pieces of EU law. For instance:

- Article 5(3) of the Biocides Regulation (EU) No 528/2012 foresees the delegation of power to the Commission to "*specify the scientific criteria for the determination of endocrine disrupting properties*". Such specification, and the related banning of certain substances from the internal market, was done relying on the recommendations of the WHO on the topic.
- Article 13(5) of the Industrial Emissions Directive foresees the adoption of implementing acts to determine best available techniques (BAT) and their associated emission limit values (BAT-AELs) or other environmental performance levels (BAT-AEPLs), in order to allow environmental obligations to adapt to science and technology.

In these examples, the adoption of secondary legislation (delegated and/or implementing acts) aims at supplementing and/or amending, in the light of evolving scientific or technological knowledge, the definition of environmental objectives.

While ClientEarth's preferred approach is outlined above, we submit that, at the very least, the AAQDs should contain a provision requiring the Commission to seek an opinion every 4 years from an independent scientific body (e.g. the suggested Scientific Advisory Board on Healthy Air) on whether the existing EU air quality standards are fit to protect people and the environment from the negative impacts of air pollution. Where such review highlights gaps in the system of legal protection against air pollution, the Commission should be required to present a proposal to the European Parliament and the Council to update and strengthen the AAQDs within a reasonable period of time. This option would require the Commission to seek regular scientific advice and rely on this. However, it remains a low-ambition option as it entails a lag between the latest scientific knowledge and any consequent improvements being made to EU air quality standards. Changes should be made to the current wording of Article 32 Air Quality Directive to make sure that, when science shows that existing air quality standards are not adequate to protect health, a proposal for strengthening the AAQDs is presented. The AAQDs should also enshrine into legislation the non-regression principle to guide any future revision.

2.2 Air Quality Plans

The revision of the AAQDs offers an opportunity to improve the legislative framework on the development of Air Quality Plans. Changes to the legislative framework are essential to ensure better implementation and enforcement of the AAQDs and more timely and effective compliance with the air quality standards.

The questionnaire for the public consultation proposes 6 further policy options for policy area 2. ClientEarth's stance on these is set out in the answers to the questionnaire. In the sections that follow, we will focus on and address some of the examples raised in the First Stakeholder meeting of 23 September 2021.

2.2.1 Delivery and remedial plans

In ClientEarth's opinion, the revision should consider improvements to the legislative framework for both delivery and remedial plans.

Delivery plans are the air quality plans that competent authorities are required to adopt *before* the attainment deadline, to ensure compliance with air quality standards (limit values or target values). Delivery plans are currently provided for under the first subparagraph of Article 23(1) of the Air Quality Directive.

Remedial plans are the air quality plans to be adopted in the event of exceedances of limit values for which the attainment deadline is already expired (currently provided for under the second subparagraph of Article 23(1) of the Air Quality Directive).

Beyond specifying and improving provisions to guide the development of air quality plans (see section 2.2.2 below), ClientEarth believes that the revision of the AAQDs offers an opportunity to clarify the legal framework on the purpose and requirements of delivery and remedial plans. Delivery plans are essential to ensure timely compliance with air quality standards set under the AAQDs. However, the current legal framework for delivery plans is very vague and weak. As a result, the Commission and civil society have been unable to take early enforcement action even when it has been clear that limit values were going to be breached. Enforcement activities and infringement proceedings have started only when Member States have failed to comply with limit values *after* the attainment deadline.

2.2.1.1 Delivery Plans

In ClientEarth's view, it would be important to further elaborate the legal provisions on delivery plans to make sure that competent authorities, the Commission and civil society can regularly review the impact of pollution abatement policies adopted before the attainment deadline. When it becomes apparent that such policies are inadequate and there is a risk of not attaining the limit values by the deadline, the legal framework should require the competent authority to review and improve the delivery plans. The legal framework should offer an opportunity for early enforcement interventions rather than having to wait until the deadline for compliance will be missed and focus only on remediation.

The legal framework for National Air Pollution Control Programmes in the NEC Directive provides a good example for requirements on delivery plans and programmes.

In particular, ClientEarth suggests introducing the following requirements to strengthen the legal framework for delivery plans in the AAQDs.

First, similar to Article 6(3) NEC Directive, the revised AAQDs should require delivery plans to be reviewed and updated regularly. In ClientEarth's opinion, before the attainment deadline, it is reasonable to require competent authorities to review and update air quality plans at least every three years. The new AAQDs should clearly define the scope of these reviews, to ensure they are not just a procedural tick box. For example, reviews should include the need to assess and report on:

- the status and timetable of the implementation of measures
- the measured effectiveness of measures already implemented
- new evidence on the effectiveness of existing planned measures (or alternatives previously discounted).

Moreover, it is essential to provide for a mechanism to check if the pollution abatement policies in the plan are delivering their expected outcomes and are such as to ensure that the relevant zone or agglomeration is on track to achieve compliance by the attainment deadline at the latest. The revised legal framework should define a linear reduction trajectory between the entry into force of the new AAQDs and the attainment deadline for the new limit values. As an example, Annex XI of the current Air Quality Directive provided a "margin of tolerance" for NO_2 equal to "*50% on 19 July 1999, decreasing on 1 January 2001 and every 12 months thereafter by equal annual percentages to reach 0% by 1 January 2010*".

The revised legal framework should also require annual assessments to check if levels of pollution are decreasing in line with the reduction trajectory. The assessment could easily be linked with the annual reports currently required under Article 26(2) of the Air Quality Directive. In particular, the annual air quality reports should provide information about concentrations of air pollutants assessed during the previous year and include projections on the levels of pollution expected in the coming years. Such projections should include business-as-usual (BAU) projections, as well as projections based on the latest information on the implementation of planned measures and their likely impact (in a similar way that the NEC requires WM and WAM scenarios).

If an annual report shows that levels of pollution exceed any limit value plus the relevant margin of tolerance and/or the projections show that there is a risk of non-compliance with the limit value by the attainment deadline even with planned measures in place, Member States should be obliged to update and improve the air quality plans within a minimum time period (12 months), without prejudice to the regular revision cycle, in order to secure compliance with the limit value by the attainment deadline. This obligation to update the air quality delivery plans could be based on the example of Article 6(4) of the NEC Directive.

2.2.1.2 Remedial Plans

In ClientEarth's opinion, it is essential to maintain and further specify the obligation in the second subparagraph of Article 23(1) Air Quality Directive to set out "*appropriate measures, so that the exceedance period can be kept as short as possible*". The revision of the legal framework offers the opportunity to take stock and consolidate the vast case-law of the CJEU on the interpretation and application of this fundamental provision.

It would be important to clarify expressly how remedial plans differ from delivery plans. While delivery plans are routine air quality management tools, remedial plans must be seen as an emergency mechanism that applies where there is already a serious breach of Union law that results in grave dangers to human health.

The urgency of remedial plans should be reflected in additional provisions on the development of such plans. For instance, it is ClientEarth's view that such urgency justifies setting shorter timeframes for the adoption process of remedial plans compared to delivery plans. Furthermore, the CJEU has repeatedly clarified that the margin of discretion of Member States regarding the content of remedial plans is significantly limited by the requirement to ensure that the exceedance period is kept as short as possible[12]. In line with such case-law, the revised AAQDs should clarify expressly that:

- gradual improvements that may be sufficient for delivery plans are not enough to comply with the requirements of remedial plans;[13]
- Member States shall not only adopt but also implement as soon as possible appropriate measures to attain compliance[14] and cannot postpone the implementation of effective measures;[15]

structural difficulties arising from the socio-economic and budgetary implications of effective air pollution abatement measures that need to be carried out, cannot justify postponing the compliance deadline, unless they are exceptional and such as be considered *force majeure*.[16]

2.2.2 Provisions to guide the development of air quality plans

While Annex XV is a key element of the Air Quality Directive, it has overall remained the same since 1996 (Annex XV of the Air Quality Directive corresponds mainly to Annex IV Directive 96/62/EC). Therefore, there are several aspects that could now be improved in light of the experience in air quality management during the last 20 years.

2.2.2.1 Annex XV, Section A, Minimum content of air quality plans to be adopted under Article 23

Improvements are needed to make sure that air quality plans provide adequate information on the following aspects:

- health impacts on the population and vulnerable sectors of the population related to exposure to current levels of pollution
- better description of the baseline scenario
- better description of the possible measures considered for adoption and assessment of their impacts
- better description of measures adopted, including allocation of responsibilities for implementation, timetables and assessment of projected impacts
- inclusion of information about the public participation process during the adoption of the plan.

We respectfully suggest that the following amendments to Annex XV, Section A, as it is currently drafted, would resolve some of the issues above:

[12] See, *ex multis*, judgment of the CJEU of 10 November 2020 in Case C-644/18 *Commission v Italy*, para. 150
[13] Ibid., para. 149.
[14] Ibid., para. 150.
[15] See Case C-404/13 *ClientEarth*, para. 31.
[16] See, *ex multis*, judgments of 24 October 2019 in Case C-636/18 *Commission v France*, para. 85, and of 22 February 2018 in Case C-336/16, *Commission v Poland*, para. 101.

- Point 2 “General information”:
    - insert in point (b) the requirement to provide “*information on the resulting harmful impacts on human health, paying particular attention to sensitive populations*”
- Amend Point 6(b) as follows:

  “*information on all air pollution abatement measures that can be adopted at appropriate local, regional or national level for implementation in connection with the attainment of air quality objectives, including at least the pollution abatement measures listed under* [Annex XV, Section B.3.]”
- Insert a new Point 6(c) as follows:

  “*assessment of possible air quality impacts resulting from the implementation of each pollution abatement measures (considered individually), including the method of analysis and the associated uncertainties*”
- Replace Point 7 “*Details of those measures or projects for improvement which existed prior to 11 June 2008*” with the following:

  “*7. Baseline air quality and pollution policy framework in which context the air quality plan has been developed, including:*

  (a) description of existing air quality measures and their progress in improving air quality

  (b) projected further evolution of air quality assuming no change to already adopted measures (baseline scenario)”.
- Replace Point 8 “*Details of those measures or projects adopted with a view to reducing pollution following the entry into force of this Directive*” with the following:

  “*8. Description of pollution abatement measures selected for adoption in the air quality plan:*

  (a) listing of all measures

  (b) detailed description of the pollution abatement measures selected for adoption

  (c) description of measures aiming at the protection of sensitive population groups, including children

  (d) identification of the responsibilities attributed to national, regional and local authorities in implementing the measures and of the relevant financial resources allocated

  (e) timetable for implementation of each measure, including deadlines for start and end of implementation and timeline for reviewing, monitoring and evaluating impacts of implemented measures

  (f) where the start date for implementation of a measure is later than 3 months from the date of adoption of the air quality plan, an explanation of the reasons why an earlier start date is not possible

  (g) estimate of the impacts expected by the implementation of each measure individually. The authority responsible for the adoption of the air quality plans shall not rely on the possible impacts of measures that are subject to future and uncertain conditions (for

instance, measures to be implemented by third parties, unless the competent authority has entered into a binding agreement or issued binding directions/orders securing the implementation of such measure)

(h) where the analysis pursuant to point 6(c) identified measure(s) that would have greater impacts in improving air quality, but it has not been selected for adoption, an explanation of the reasons why adoption of such measure is not possible

(i) estimate of the likely improvement of air quality expected to result from the combined implementation of all measures selected for adoption and identification of the date when compliance with the relevant air quality objectives is likely to be achieved."

2.2.2.2 Annex XV, Section B, Information to be provided under article 22(1)

This section is now obsolete, in so far as it applies to plans adopted under Article 22 to seek time derogations. However, the information requested under point 2 (implementation of other pieces of EU law) and point 3 (checklist of possible air pollution abatement measures that should be considered for implementation in connection with the attainment of air quality objectives) would be very useful to improve the content of air quality plans to be adopted under Article 23.

In particular, one of the key flaws of most air quality plans is that the competent authority only provides information about the measures selected for implementation. No information is included on other measures that would potentially be more effective in reducing pollution. The failure to include such information makes it difficult for the public and courts to review whether an air quality plan is adequate to achieve compliance in the shortest time possible.

It would be important, therefore, to maintain such checklist (either in Section B or Section A of Annex XV). It would also be important to verify whether there are new pollution abatement measures worth consideration. For instance, the suggestion to consider *"(d) measures to limit transport emissions through traffic planning and management (including congestion pricing, differentiated parking fees or other economic incentives; establishing low emission zones)*" could be amended to specify that low emission zones should be based on the most recent Euro Standard at the very least, with authorities also required to consider "zero emissions zones" based on restricting all internal combustion engine vehicles.

Any amendment to Annex XV, Section B, should be read consistently with the amendments to Annex XV, Section A, suggested by ClientEarth in the previous section 2.2.2.1 – particularly in relation to Points 6(b), 6(c) and 8(h).

As regards the list of Directives, it would be important to update it in light of the most recent rules (e.g. the Ecodesign Directive, the Medium Combustion Plants Directive, various climate policy rules, CAP financing, etc.). It should also be expanded to include not only Directives, but also other relevant EU rules (e.g. Regulations).

We therefore propose that Annex XV, Section B be amended as follows:

- Clarify that such information is required also for the adoption of delivery and remedial air quality plans under Article 23.
- Update Point 2 to ensure that reference is made to the most recent versions of the relevant pieces of EU law and policies.

- Amend Point 3 to clarify that it includes a minimum check list of air pollution abatement measures that can be adopted for implementation in connection with the attainment of air quality objectives.
- Clarify that competent authorities are under an obligation to give reasons when they discard the implementation of measures included in the check list. The margin of discretion of authorities should be significantly reduced, especially when adopting remedial plans.
- Verify whether such checklist can be updated to make reference to new pollution abatement measures, in light of the experience gathered in the implementation of the Air Quality Directive.

More generally, ClientEarth submits that it would be important to include in the revised AAQDs a mechanism to keep the requirements of Annex XV up-to-date with developments in air pollution science and technology. In section 2.1 above, we suggested the establishment of a Scientific Advisory Board on Healthy Air. One of the tasks of such Advisory Board could be to periodically assess what emission abatement and exposure /deposition reductions are possible and most effective in practice. The Commission should have the duty and power to adopt delegated acts to amend Annex XV in light of such advice.

2.2.2.3 Process to adopt air quality plans

Other recurrent issues relate to the time taken by competent authorities to draw up air quality plans. Drafting and adoption of remedial plans has taken in some cases several years, frustrating the urgency required by Article 23, in order to ensure attainment of the limit values in the shortest time possible. Moreover, competent authorities often are not aware that public participation on draft air quality plans is mandatory under the Public Participation Directive 2003/35/EC. One common mistake is the belief that public participation is only required when air quality plans need to be submitted to a Strategic Environmental Assessment.

When public participation procedures take place, competent authorities often do not share enough information to allow meaningful participation. For instance, draft plans often include only very high-level statements about possible policies, but do not include any detail about possible measures or their estimated impact. When draft plans include an impact assessment, in most cases no information is provided about the method of analysis, assumptions and linked uncertainties.

We therefore recommend that a new Section C be inserted into Annex XV containing clarifications and minimum requirements for the adoption of air quality plans. In particular:

- The AAQDs should set maximum timeframes for the adoption of delivery and remedial air quality plans (respectively, 12 and 6 months). As regards remedial plans, it should be expressly clarified that they are an emergency tool to address serious hazards to public health. Procedures to draw up and update remedial air quality plans should last the shortest time possible and, in any event no more than 6 months.
- Competent authorities should carry out public consultations during the adoption (and any subsequent amendment) of both delivery and remedial air quality plans, pursuant to Article 2 of Directive 2003/35/EC; as part of such consultation, the competent authority shall publish a draft air quality plan containing the minimum information required under Annex XV, Section A, and a non-technical summary.

We also suggest amending Annex XV, Section A, to require inclusion in the final air quality plan of a summary of the public information and consultation measures taken pursuant to Article 2 of Directive 2003/35/EC, their results and the changes to the plan made as a consequence.

2.2.2.4 Information about forecasting methods, sensitivities and uncertainties

Another common issue regarding the implementation of air quality plans is the adoption of flawed methods of analysing the projected impact. Competent authorities often try to overestimate the possible impact of the selected measures and/or rely on overly optimistic assumptions. Very few air quality plans explain the methods used for forecasting the evolution of air quality and the underlying assumptions and uncertainties.

Moreover, scenarios are often modelled only for five-year intervals. Such practice makes it difficult to verify whether other measures would lead to compliance at an earlier date.

We therefore recommend the insertion of a new Section D in Annex XV containing clarifications and minimum requirements for analysing the projected impact of pollution abatement measures. In particular, it should be required that competent authorities:

- describe the methods used for forecasting the evolution of air quality and assessing the impact of air quality plans, including the relevant assumptions and emissions factors;
- include in the impact assessment only pollution abatement measures that will definitely be adopted and implemented (for instance, include measures that fall under the responsibility of other levels of governance only where the relevant authority has formally committed to implement such measure);
- in line with the obligation to achieve compliance in the shortest time possible, when modelling future scenarios for remedial plans, whenever the projections extend to longer periods of time (e.g. 3/5/10 years), the results should be shown for each year of the projection period;
- include an assessment of the margin of uncertainty of the projections and margin of confidence on factors such as the real world emissions of vehicles or stoves or the uncertainty about the impact of voluntary measures aiming at pushing behaviour changes;
- include sensitivity scenarios describing the upper and lower confidence intervals in light of possible variations in the different assumptions and description of the best-case, most likely and worst-case scenarios.

2.3 Alert thresholds and short-term action plans

Alert thresholds are particularly useful to prevent impacts to human health in the short-term, during pollution peaks. As such, it is essential that the AAQDs provide for alert thresholds (Article 13(4) and Annex XII of the Air Quality Directive) and for the obligation of Member States to inform the public (Article 19) and to adopt and implement short-term action plans during high pollution events (Article 24).

However, a major gap in the AAQDs is the lack of alert thresholds for particulate matter ("**PM**").

As a result, cities across the EU have inconsistent systems to inform people and take action in the very short-term to prevent human exposure and reduce pollutant concentrations during high PM pollution events.

Moreover, it must be noted that the thresholds for NO2 and SO2 are too high and do not recognise the vulnerability of certain subgroups of the population e.g. asthma patients, who require alerts ahead of notifications to the general population.

Short-term action plans are an essential tool to reduce health risks during high pollution peaks. They play a key role in informing people about health risks. There is also evidence that short-term action plans can be an effective tool to reduce air pollutant concentrations within 24 to 72 hours from their implementation.[17] While some pollution events are also influenced by regional, national or even transboundary sources, short-term action plans can and should address local sources of pollution, in order mitigate (and avoid worsening) local concentrations. Short-term action plans have also the key function to determine behaviour changes, with particular focus on protecting vulnerable groups.

Even if short-term action plans are a necessary and effective tool to protect human health, unfortunately, the Air Quality Directive weakened the legal framework compared to the previous Directive 96/62/EC. In particular, under the Directive 96/62/EC, Member States were always obliged to draw up short-term action plans "*where there is a risk of the limit values and/or alert thresholds being exceeded*" (Article 7(3)).

Article 24 of the Air Quality Directive maintained the obligation to draw up short-term action plans only in relation to the risk of alert thresholds being exceeded. However, in relation to short-term (hourly or daily) limit values, it is left to the discretion of Member States to decide whether to draw up short-term action plans ("*Member States may, where appropriate, draw up such short-term action plans*.") This represents a significant step back in terms of legal protection of the health of European citizens, especially considering that for PM there are no alert thresholds.

The revised AAQDs should mandate short-term action plans for all regulated pollutants (including PM). The AAQDs should also include a list of best practices in terms of short-term emergency measures and require competent authorities to consider such a list, when drawing up short-term plans. In particular, the short-term emergency measures should cover two elements:

(1) Emergency pollution abatement policies targeted at addressing relevant source of pollution (such as restrictions on circulation of private vehicles, free tickets for public transport/bike share, stopping operation of industrial facilities, prohibition on use of solid fuels for domestic heating, etc.);

(2) Measures aimed at protecting vulnerable groups from health risks during pollution peaks (such as allowing remote working to avoid the risk of going outdoors).

Such list of emergency measures would be subject to revision by the Scientific Advisory Board on Healthy Air (see section 2.1 above) with the power of the Commission to adopt delegated acts.

[17] See Thunis, P., Degraeuwe, B., Pisoni, E. et al., *Analyzing the efficiency of short-term air quality plans in European cities, using CHIMERE air quality model*, Air Qual Atmos Health (2017) 10: 235. https://doi.org/10.1007/s11869-016-0427-y

2.4 Expand the provision on penalties related to air pollution

Tightening the legislative framework on air quality plans is one way to ensure better compliance with EU air quality standards. An equally important tool is the use of penalties for authorities which to do not take the steps required of them.

However, as clearly demonstrated by the ruling of the CJEU in Case *Deutsche Umwelthilfe* (C-752/18), individuals and NGOs have faced hurdles in certain national systems when trying to enforce the provisions of the AAQDs. For instance, in Germany, authorities that refuse to comply with their obligations under the AAQDs only face the threat of financial penalties of low amount that do not result in a significant persuasive effect, for the reason that the payment of penalties does not involve actual losses for the competent authority.

Conversely, in France[18] and Belgium[19], court cases targeting air pollution resulted in the imposition of significant financial sanctions (up to Euro 10 million for each semester) that keep growing for any further continued period of breach (so-called "*astreintes*").

Clearly, there is wide discrepancy in the national systems, resulting in lack of effective remedies in several countries and an uneven playing field across the EU. The current situation highlights the need to revise the provisions on penalties in the AAQDs and introduce a more detailed provision, compared to the current vague wording of Article 30 of Directive 2008/50/EC.

CJEU case law provides a model of how these provisions should be drafted. In *Deutsche Umwelthilfe*, the CJEU stated that national legal systems must provide for "*effective coercive measures in order to ensure that the public authorities comply with a judgment that has become final, such as, in particular, high financial penalties that are repeated after a short time and the payment of which does not ultimately benefit the budget from which they are funded.*"[20]

More specifically, in ClientEarth's view, the most effective way to ensure compliance is to threaten time-based penalties for further periods of non-fulfilment of the obligations. The payment of the penalties could contribute to the establishment of a "clean air fund" to support the implementation of pollution abatement measures and/or compensate victims of air pollution. Civil society organisations should be actively involved in managing such clean air fund and the legal framework should ensure that the fund is managed by entities independent from the government.

The revised AAQDs could also include a list of criteria to be taken into account for the imposition of penalties and provide guidance on the level of sanctions. In this regard, the Commission could refer as an example to the systems of sanctions already existing in other fields of EU law. For instance, Article 13 of Directive 2005/29/EC in the field of consumer law states that "*Member States shall lay down the rules on penalties applicable to infringements of national provisions adopted pursuant to this Directive and*

[18] Conseil d'État 428409, lecture du 4 août 2021, ECLI:FR:CECHR:2021:428409.20210804. See also press release from French Conseil d'Etat: https://www.conseil-etat.fr/actualites/actualites/pollution-de-l-air-le-conseil-d-etat-condamne-l-etat-a-payer-10-millions-d-euros

[19] Judgement of the Court of Appeal of Brussels 2021/9295 of 7 December 2021 in case 2020/AR/1107 available at: https://www.greenpeace.org/static/planet4-belgium-stateless/2021/12/ab603c2a-kopie_arrest_2020ar1107_id42552-10606016.pdf . By December 2021, the size of the penalty amounts to Euro 750,000 – see press release of Greenpeace Belgium: https://www.greenpeace.org/belgium/fr/communique-de-presse/25692/greenpeace-gagne-son-proces-contre-le-gouvernement-flamand-et-cree-le-fonds-pour-un-air-sain/.

[20] Judgment of the CJEU on 19 December 2019 in Case C-752/18, *Deutsche Umwelthilfe*, para. 40.

shall take all measures necessary to ensure that they are implemented. The penalties provided for shall be effective, proportionate and dissuasive."[21] It then goes on to set out criteria to be taken into account in determining the sum of the penalty, which include "*the nature, gravity, scale and duration of the infringement*". In certain circumstances, the penalties must be fines set at 4% of a trader's annual turnover, or a maximum amount of EUR 2 million, where the annual turnover is not known. Similarly, in Article 83 Regulation (EU) 2016/679 ("**GDPR**")[22], effective, proportionate and dissuasive administrative fines may be imposed on infringing bodies. Here, too, the "*nature, gravity and duration of the infringement*" should be taken into account when determining the sum of the fine, as well as several other factors. Guidelines on the basis of annual turnover are also set out. Article 83 even provides for a mechanism by which public authorities might be subject to fines.

These provisions could be mirrored in the revised AAQDs, creating a system of variable administrative fines, the amount of which is to be determined by factors including the margin of exceedance, the duration of the exceedance, and the size of population affected.

Relying exclusively on the forthcoming Environmental Crimes Directive ("**ECD**") as a means of creating accountability for breaches of air quality standards would be misguided. The ECD is not a sufficient tool for a series of reasons. Firstly, it targets **criminal** offences, and requires "*intention*" (art. 3(1)) or "*serious negligence*" (Art. 3(2)). In most cases of breaches of the AAQDs, these elements are unlikely to be present. Furthermore, trying to establish whether there was any such intention or negligence will create a further time lag between the breach and the penalty. Instead of trying to use criminal liability to punish exceedances, ClientEarth advocates for administrative sanctions, which apply automatically upon any breach of the limit values. This will incentivise compliance at all times, and particularly by specific deadlines.

More importantly, the ECD is inappropriate because it contains a closed list of offences in Article 3. These are mostly offences which are likely to be committed by private companies placing products which are likely to cause environmental damage on the market or by operators of industrial plants. The only offence which might apply to causing air pollution is Article 3(1)(a), which bans "*the discharge, emission or introduction of a quantity of materials or substances or ionising radiation into air, soil or water which causes or is likely to cause death or serious injury to any person or substantial damage to the quality of air, the quality of soil or the quality of water, or to animals or plants*". While this offence sanctions the entity causing the pollution, the ECD does not contain any offence applicable to public authorities responsible for ensuring compliance with air quality standards. The key gap in the enforcement mechanism of the current AAQDs are the lack of sanctions for public authorities who fail to comply with air quality standards or adopt adequate air quality plans. The ECD fails to address this, and so it cannot be considered a substitute for penalty provisions in the AAQDs themselves.

[21] Article 13, Directive 2005/29/EC of the European Parliament and of the Council of 11 May 2005 concerning unfair business-to-consumer commercial practices in the internal market (as amended by Directive (EU) 2019/2161)
[22] Regulation (EU) 2016/679 General Data Protection Regulation

2.5 Add provisions for access to justice and for compensation for health damage from air pollution

2.5.1 Access to Justice

The Fitness Check found that enforcement action by civil society actors in front of national courts has proven to be important to accelerate downward trends for air pollution. This has been confirmed by the Roadmap, which correctly notes that "*the effectiveness of legal enforcement action by civil society is linked to the functioning of access to justice at national level*".

However, there are no explicit access to justice provisions in the current AAQDs. A horizontal access to justice directive was proposed in 2003, but was blocked by Member States and so was never adopted and has now been withdrawn. The result is that national access to justice rules vary widely between different EU Member States. Numerous studies, including the 2012/2013 access to justice report (the 'Darpö report')[23] and the 2019 Milieu Study on the implementation of the Aarhus Convention in the area of access to justice in environmental matters,[24] both carried out on behalf of the Commission, demonstrate that there are still significant hurdles to effective access to justice at national level. The Milieu study concluded *inter alia* that "*broad legal standing is granted by law and in practice in less than half of the Member States (13 out of then 28)*" and "*the issue of legal standing is an enduring one, as demonstrated both by the legal settings in the EU-28 and the experiences of potential claimants (NGOs) and national judges.*"[25] In some jurisdictions, there are limitations regarding the type of cases that can be brought. Overly restrictive national legislation means that changes in the legal framework will be required.

A number of CJEU preliminary rulings have laid strong foundations for the right to clean air and access to justice in the EU in air quality matters, including the following key aspects: (1) EU citizens have a right to breathe air that meets EU limit values.[26] (2) Where air does not meet these limits, EU citizens have the right of standing, that is the right to go to court to demand the adoption of adequate air quality plans that ensure compliance.[27] (3) EU citizens have the right to substantive review of the content of plans. Member States are under an obligation of result to achieve compliance with the limit values. This means that the air quality plan must contain all the measures necessary to secure compliance in the shortest time possible, not merely a "gradual return".[28] (5) EU citizens have standing also to enforce other provisions of the Air Quality Directive, such as to demand the installation of monitoring stations to ensure the collection of accurate and reliable information.[29] (6) Given the fundamental nature of the interests protected by the Air Quality Directive, the discretion of Member States is significantly reduced. National courts must review in depth administrative decisions entailing complex scientific assessments, such as the design of air quality

[23] 2012/13 Access to Justice studies" prepared by Professor Jan Darpö for the European Commission, accessible under <http://ec.europa.eu/environment/aarhus/access_studies.htm>.
[24] Milieu Consulting, "Study on EU implementation of the Aarhus Convention in the area of access to justice in environmental matters: Final report" (September 2019, 07.0203/2018/786407/SER/ENV.E.4), available at: https://ec.europa.eu/environment/aarhus/pdf/Final_study_EU_implemention_environmental_matters_2019.pdf , ("**Milieu Study**")
[25] ibid, pp. 106-107
[26] See Case C-59/89 *Commission v Germany*, para. 18-19.
[27] See Case C-237/07 *Janecek*, para. 35-42, and Case C-404/13 *ClientEarth*, para. 53-56.
[28] See Case C-404/13 *ClientEarth*, para. 49 and 57.
[29] See Case C-723/17 *Craeynest*, para. 42.

monitoring networks and the content of air quality plans.[30] (7) Finally, national courts must grant effective remedies to address breaches of the AAQDs, including appropriate orders to the competent authority[31] and adequate sanctions against the national authority.[32]

While such case law provides a solid basis for pursuing clean air cases before national courts in Member States where judges are receptive to EU case law, access to justice problems persist in certain jurisdictions - particularly in Central and Eastern Europe, where national courts routinely ignore the case law of the CJEU, denying individuals and NGOs standing to challenge air quality plans.

In particular, ClientEarth has already identified and faced serious access to justice barriers in Bulgaria and Poland (in May 2020, the Commission started infringement proceedings in this regard). In the case of Poland, access to justice for cases on air quality plans will be even more difficult to achieve after the July 2021 decision of the Polish Constitutional Tribunal[33], upholding a very narrow interpretation of legal standing for individuals and NGOs. This judgment confirms the existing jurisprudence of the Polish courts, which are denying access to justice in air quality plans cases.

In January 2021, a Hungarian NGO was also refused access to justice by the Hungarian Supreme Court in a case concerning the review of the Budapest air quality plan.[34]

Even in those countries where individuals and NGOs have standing, there may be other access to justice problems (including length of proceedings, costs and lack of effective remedies). For instance, in the Czech Republic, there are no effective remedies: in 2018, national courts quashed the air quality plans in Prague, Brno, Ostrava and Ustecky region – but the courts did not have the power to issue an order to the government to adopt a new plan. As a result, the government procrastinated for over two years before preparing revised air quality plans. Similarly, in 2019 ClientEarth, with local NGOs and individuals, won a case in Bratislava, resulting in the court quashing the city's air quality plan. However, the judge did not have the power to order the adoption of new plans or set a deadline for compliance. As of September 2021, a revised air quality plan had not yet been finalised, nor had the public been consulted on it.

While CJEU rulings are binding, the reality is that in many Member States there are national procedural rules conflicting with EU access to justice rules, as interpreted by the CJEU. This situation leads to uncertainty, as national courts keep applying national procedural rules rather than giving primacy to EU (case) law, and inefficient compliance and enforcement mechanisms, as citizens are denied access to justice.

The most efficient way of ensuring adequate and timely access to justice and achieving a level playing field across the EU would be the introduction of explicit access to justice provisions in the revised AAQDs, consolidating the vast case law of the CJEU in this field and requiring all 27 Member States to amend their national legal frameworks when conflicting with EU law.

On 14 October 2020, the Commission published a Communication on improving access to justice in environmental matters in the EU and its Member States (COM(2020) 643). In this Communication the Commission identifies as a priority area that the co-legislators "*include provisions on access to justice in*

[30] See Case C-723/17 *Craeynest*, para. 33 and 45.
[31] See Case C-404/13 *ClientEarth*, para. 58.
[32] See Case C-752/18 *Deutsche Umwelthilfe*, para. 38.
[33] Constitutional Tribunal judgment in case SK 23/17 of 1 July 2021
[34] Judgment of the Hungarian Supreme Court of 19 January 2021, no. Kfv.IV.37.700/2020/5.

EU legislative proposals made by the Commission for new or revised EU law concerning environmental matters" (para. 33). The revision of the AAQDs is a procedure where this commitment should be immediately implemented.

The Commission further states that "*access to justice provisions will be drafted in light of CJEU case law as summarised in the* [Commission Notice on access to justice in environmental matters]."[35] This Commission Notice makes extensive reference to CJEU case law on the AAQDs,[36] giving the Commission an extensive basis for its drafting. In particular, the access to justice provision should consolidate the CJEU case law and explicitly clarify that:

- EU citizens have a right to breathe air that meets EU limit values.[37]
- Where air does not meet these limits, EU citizens have the right of standing, that is the right to go to national courts to demand the adoption of adequate air quality plans that ensure compliance.[38]
- EU citizens have the right to substantive review of the content of plans.[39]
- EU citizens have standing also to demand the installation of monitoring stations to ensure the collection of accurate and reliable information.[40]
- Given the fundamental nature of the interests protected by the AAQDs, the discretion of Member States is significantly reduced. National courts must review in depth administrative decisions entailing complex scientific assessments, such as the design of air quality monitoring networks and the content of air quality plans.[41]
- Finally, national courts must grant effective remedies to address breaches of the AAQDs, including appropriate orders to the competent authority[42] and adequate sanctions against the national authority.[43]

2.5.2 Compensation for health damage

ClientEarth welcomes the Commission's suggestion that it will consider provisions for citizens to bring claims for damages for health issues caused by air pollution. Damages claims can be an important tool to ensure fulfilment of the obligations deriving from the AAQDs. For example, in May 2021, the Polish Supreme Court ruled that poor air quality exceeding legally binding standards may lead to a breach of constitutionally protected rights such as health, freedom, and privacy, and consequently may entitle affected individuals to a claim damages.[44]

However, in the EU 27 Member States significant hurdles remain for individuals who have suffered negative health impacts from exposure to air pollution. The biggest legal hurdle is establishing the causal link. This is despite the fact that there is overwhelming epidemiologic evidence on the negative health

[35] Commission Communication COM(2020) 643, para. 33 referring to Commission Notice 2017/2616, OJ C 275, 18.8.2017, p. 1-39
[36] Commission Notice (ibid), see inter alia paras 48-52, 96, 104, 146 and 164.
[37] See Case C-59/89 *Commission v Germany*, para. 18-19.
[38] See Case C-237/07 *Janecek*, para. 35-42, and Case C-404/13 *ClientEarth*, para. 53-56.
[39] See Case C-404/13 *ClientEarth*, para. 49 and 57.
[40] See Case C-723/17 *Craeynest*, para. 42.
[41] See Case C-723/17 *Craeynest*, para. 33 and 45.
[42] See Case C-404/13 *ClientEarth*, para. 58.
[43] See Case C-752/18 *Deutsche Umwelthilfe*, para. 38.
[44] Supreme Court (SC) judgment in case III CZP 27/20 of 28 May 2021.

impacts of air pollution on the population. Yet because air pollution is usually just one of several concurrent causal factors, it is difficult to prove the link at individual level. A recent ground-breaking decision issued by the inner south London coroner found that air pollution was a cause of the death of a nine-year-old girl, Ella Kissi-Debrah, in February 2013.

However, it is still too difficult for victims of infringements of the AAQDs to prove that they have actually suffered harm as a result of air pollution and to obtain compensation. For instance, several French citizens have started legal actions (including in Montreuil, Lyon, Grenoble) seeking damages for health impacts related to air pollution. While in all the cases the courts of first instance found that the French government had failed to comply with the obligations set under the Air Quality Directive, no compensation has been awarded, because the claimants have not been able to prove that they have actually suffered harm as a result of the infringement.[45] One of these actions has recently resulted in two preliminary questions being referred by the Administrative Court of Appeal of Versailles to the CJEU about the scope of individuals' right to claim compensation for damage to their health caused by Member State breaches of the Air Quality Directive.[46]

In ClientEarth's view, the correct interpretation of the existing legal order is that EU citizens already enjoy a right to air quality with levels of pollutants not exceeding the limit values set under the AAQD. This individual right to clean and healthy air has legal consequences. Individuals benefit from the right to obtain effective remedies from domestic courts in the event that their rights are infringed. Two complementary forms of remedy are necessary in this context: (1) securing Member State compliance with limit values in order to prevent harm; and (2) holding Member States liable to compensate individuals in instances where harm has already been sustained (the principle of State liability).[47]It is our analysis that breaches of air quality standards engage the 'Francovich' doctrine of State liability, and thereby entitle individuals who have suffered harm as a result to seek compensation in domestic courts against the Member State in question. The principle of State liability for non-compliance with EU law was established by the CJEU in Joined Cases C-6/90 and C-9/90 *Francovich*. The CJEU held that, as a matter of principle, full effectiveness of EU law requires that a State could be liable to compensate an individual for damage caused by an infringement of EU law for which that State was responsible.[48] The conditions which must be satisfied before liability in damages may arise were reformulated as a three-limbed test in *Brasserie du Pêcheur*: "*the rule of law infringed must be intended to confer rights on individuals; the breach must be sufficiently serious, and there must be a direct causal link between the breach of the obligation resting on the state and the damage sustained by the injured parties.*"[49] On our analysis, these conditions are satisfied when Article 13 and/or Article 23 of the current Air Quality Directive are breached.

In this regard, it is important to stress that the fact that individuals are in the position to ask authorities to adopt air quality plans pursuant to Article 23 in order to achieve urgent compliance with the limit values

[45] See Cases (1) Farida T. , (Tribunal Administratif de Montreuil 2019), N° 1802202 , (2) N., (Tribunal de Paris, 2019), N°1709333/4-3, (3) M. G., (Tribunal de Paris, 2019), N°1814405/4-3 , (4) D.E., (Tribunal Administratif de Grenoble, 2020), N° 1800067.
[46] Case C-61/21 JP v Ministre de la Transition écologique, Premier ministre; Request for a preliminary ruling from the Cour administrative d'appel de Versailles (France) lodged on 2 February 2021.
[47] For an in-depth analysis of the legal framework and detailed proposals, see ClientEarth's briefing "Individual right to clean and healthy air in the EU", published in June 2021 and available here: https://www.clientearth.org/media/adtcznde/individual-right-to-clean-and-healthy-air-in-the-eu-pdf.pdf
[48] Joined Cases C-6/90 and C-9/90 Francovich, §§33-37
[49] Brasserie du Pêcheur at §51

set under Article 13 does not mean that individuals should be prevented from also obtaining compensation in instances when they have already suffered damage. As clarified by the CJEU, the possibility to directly invoke rights granted by EU law in national courts "*is only a minimum guarantee and is not sufficient in itself to ensure the full and complete implementation of the Treaty*."[50]

However, as discussed above, in practice domestic rules determining the evidential burden that individuals must overcome to prove a causal link between State breaches of the AAQDs and the damage they have incurred risk making it impossible or excessively difficult for those individuals to obtain compensation. The revision of the AAQDs therefore provides a unique opportunity to codify, and thereby clarify, these rights.[51]

The revision of the AAQDs should therefore include provisions to harmonise rules on compensation. It would be important to regulate the following aspects:

- Clarify that any person who has suffered material or non-material damage as a result of an infringement of the relevant provisions in the AAQDs shall have the right to receive compensation.
- Facilitate claims of victims of air pollution in line with precautionary principle and principle of prevention. Neither the burden nor the standard of proof required for the establishment of the causal link should render the exercise of the right to damages practically impossible or excessively difficult. When an individual can provide *prima facie* proof that they suffer health impacts from air pollution (for instance, by making reference to reliable epidemiological studies), there should be a rebuttable presumption that they suffered harm as a result of the infringement of the AAQDs. This rebuttable presumption should apply unless the infringer can credibly demonstrate to the satisfaction of the court that air pollution had no material contribution to causing the actual harm.
- Establish clear limitation period so that victims have sufficient time to bring an action. In particular, victims should have at least 5 years to bring damages claims, starting from the moment when they had the possibility to discover that they suffered harm from an infringement.

In this regard, the Commission could refer as an example to the systems of compensation for damages already existing in other fields of EU law.

For instance, under Directive 2014/104/EU "*Member States shall ensure that any natural or legal person who has suffered harm caused by infringement of competition law is able to claim and to obtain full compensation for that harm*" (Article 3). Being aware that consumers and victims of unlawful commercial practices generally face difficulty in establishing damage,[52] Article 17 foresees a presumption that cartel infringements cause harm, leaving it to the infringer to rebut that presumption. The limitation period for bringing such an action must be at least 5 years, starting from when the claimant "*knows, or can reasonably be expected to know"* that the infringement has occurred.[53]

[50] Ibid., at §20
[51] The possible clarification from the CJEU in the answer to the preliminary ruling in Case C-61/21 does not exclude the need for revising the legal framework in the revision of the AAQDs, which would clearly codify the application of compensation rights across all Member States and ensure a higher level of legal certainty and a level playing field in the EU.
[52] See Recital 41.
[53] Articles 3 and 10, Directive 2014/104/EU on antitrust damages actions

The GDPR provides another example. Article 82 of the GDPR grants "*any person who has suffered material or non-material damage as a result of an infringement of this Regulation* […] *the right to receive compensation from the controller or processors for the damage suffered*". Furthermore, when multiple controllers and/or processors have been involved in the wrongful processing, each of them may be held liable for the entire damage, "*in order to ensure effective compensation of the* [individual]". In the context of infringement of air quality guidelines, such a mechanism might be useful to give individuals the right to claim damages from whichever level of administrative authority was most convenient for them. As well as incentivising all levels of governance to comply with clean air standards, this would also improve access to justice for individuals.

2.6 Expand the requirements on the provision of information (e.g. on health impacts)

Timely information about high pollution episodes is an essential tool to protect human health against short-term impacts of polluted air.

The revision of the AAQDs should introduce harmonised information and alert thresholds for all pollutants (filling the current gap concerning alerts for particulate matter). Information should also be provided for pollutants which are currently non-regulated (BC and Ultrafine Particles ("**UFP**")). As set out in sections 1.2 and 3.2, the WHO is concerned about the impact of these pollutants on human health, and citizens should be aware of this potential risk even as the science continues to evolve.

The information and alert thresholds should consider the vulnerability of certain subgroups of the population e.g. asthma patients, who require alerts ahead of notifications to the general population. Information thresholds should be set at the same level of the WHO recommendation for short-term exposure (hourly/daily). Under the legal framework of fundamental rights, governments have a positive obligation to provide timely and accurate information to the public about levels of pollution and the related health impacts.[54] This information must be based on the most recent scientific knowledge, even when there is some uncertainty, as such essential information will enable individuals to assess risks to their health and lives.[55] Governments have no discretion in relation to this obligation; they must follow scientific recommendations (in this case the WHO AQGs) completely.[56]

Regarding alert thresholds, it is ClientEarth's opinion that the key consideration should be the health effects and potential danger to individuals, with particular consideration of vulnerable groups. We recommend that alerts should be issued when pollution reaches twice the levels recommended by the WHO AQGs.

Authorities should be required to issue warnings before the pollution events occur, relying on forecasting methods and models. The alerts should contain information on the likely health impacts and provide recommendations on how to reduce exposure. This is particularly important in the implementation period, during which the limit values in line with WHO guidance have not yet been achieved.

The revision of the AAQDs should also introduce more prescriptive rules on what type of information is communicated. The average person is not able to understand what a specific concentration of pollutants

[54] See case *Guerra and Others v. Italy*, 14967/89, [1998], § 60 and Di Sarno and Others v. Italy, 30765/08, [2012], para. 107 and 113
[55] Vilnes and other v. Norway, 52806/09, [2013], para. 233-237
[56] See mutatis mutandis Vilnes and other v. Norway, § 244 and Brincat and others v. Malta, 60908/11, [2014], para. 103-110

in the air mean for their health. The AAQDs should clarify harmonised systems to convey complex scientific information in simple and understandable ways to lay people. The AAQDs should also require the communication of health information and require authorities to have a system to reach directly vulnerable groups with the relevant information required to protect their health.

Finally, the revised AAQDs should reintroduce the obligation to adopt short-term action plans to prevent and/or address high pollution events (see section 2.3 above).

Policy Area 3

3.1 Establish more detailed rules on the location of sampling points

3.1.1 Number of PM10 and PM2.5 stations

The Air Quality Directive does not include specific minimum required numbers of PM2.5 and PM10 stations. Instead there is only a minimum required number of stations measuring any PM. Moreover, the Air Quality Directive provides that, where PM2.5 and PM10 are measured at the same monitoring station, these shall count as two separate sampling points.[57]

The current provisions are the heritage of historic developments of EU air quality laws and the progressive rising of PM2.5 as a pollutant to be regulated. The lack of minimum numbers for PM2.5 stations could be justified at a time where no limit value existed.

However, the result of the current provisions is that the number of PM2.5 sites is considerably lower compared to PM10.[58] Moreover, "[t]*he minimum number of PM monitoring stations required is ambiguous if the classification of PM10 and for PM2.5 in relation to the assessment thresholds is not identical*."[59]

As correctly noted by the European Parliament, the vagueness and weakness of the provisions on minimum numbers of PM2.5 stations is not in line with the current awareness about the health impacts and the widespread exceedance of WHO guideline values in Europe.[60]

ClientEarth agrees and supports the European Parliament's recommendation that Annex V of the Air Quality Directive should be improved by setting distinct, and increased, minimum numbers for PM2.5 sampling points.[61] An increase in PM2.5 monitoring sites should not be used as an excuse to decrease the number of PM10 monitoring stations.

As a result, we recommend that Annex V A.1 of the Air Quality Directive be improved by introducing distinct minimum numbers for sampling points for PM2.5 and PM10 and increasing the number of PM2.5 stations, in line with the current awareness about the health impacts and the widespread exceedance of the WHO guideline values in Europe.

[57] Air Quality Directive, Annex V, footnote (2).
[58] See European Parliament (2019). 'Sampling points for air quality: Representativeness and comparability of measurements in accordance with Directive 2008/50/EC on ambient air quality and cleaner air in Europe' (study requested by the ENVI Committee) (hereinafter, "**European Parliament Study**"), page 11.
[59] Ibid., page 21
[60] Ibid., page 59
[61] Ibid., page 11

3.1.2 Definitions of station type and area classification

Monitoring stations can be distinguished depending on their type (traffic, industrial or background) and the area classification (urban, suburban or rural).

The AAQDs do not contain clear definitions of the different station types and area classifications.

It is possible to find the relevant definitions in non-legislative documents – namely: the so-called IPR Guidance[62] and the EIONET vocabulary.

However, the current framework is unclear and generates inconsistent implementation.

The lack of express and clear definitions in the AAQDs creates uncertainty. It is not easy to find the document that provides the definitions. Members of the public and local authorities often are not aware that such non-binding guidance exists and that it contains definitions on types of monitoring stations. Moreover, there have been several updates of the IPR Guidance and several versions are still available on the web (generating even more confusion, if someone consults an older version).

In addition, there are some inconsistencies between the IPR Guidance and the EIONET vocabulary regarding the definitions of station type. In particular:

- the definition of "traffic" stations in the IPR Guidance is shorter and vaguer than the one provided by the EIONET Vocabulary
- the IPR Guidance does not clarify expressly that "traffic" and "industrial" stations shall be "*in a location that should represent the highest concentrations to which the population are exposed to within the zone*".

Apart from such inconsistencies, the definitions provided are too vague and leave a grey zone between different types of stations. Possible sampling locations in zones go from one extreme (for instance, roads where the highest concentrations of traffic-related pollution occur) to the other (for instance, sub-urban areas, not dominated by any single source type, where levels are representative of the average exposure of the general population). In between, there are many areas where pollution may be dominated by a single source (for instance, traffic) and levels of pollution may be higher than background, but not the highest in the zone.

The existing definitions provided by the IPR Guidance and EIONET do not clarify how to deal with such mid-areas. "Traffic" and "industrial" seem to be at one end of the spectrum, as they should represent the highest concentrations within the zone.[63] However, it is not clear if "background" stations are a wide residual category (that would include all areas where pollution is lower than at the traffic or industrial hot-spots) or a narrowly-defined type. In particular, according to the first sentence of the IPR Guidance's definition, "background" stations seem to be a residual category that includes "[a*]ny location* [which] *is neither to be classified as 'traffic' or 'industrial'*". However, other requirements narrow down the scope of the definition, by adding that background stations should (a) be representative of the average exposure of the general population within the type of area under assessment; (b) be representative of a wider area of at least several square kilometres; (c) not be dominated by a single source type (e.g. traffic). To add

[62] Member States' and European Commission's Common Understanding of the Commission Implementing Decision 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 (Decision 2011/850/EU).
[63] See EIONET Vocabulary.

further confusion, the definition adds an exception, according to which "background" stations may be dominated by a single source if that source type is typical within the area under assessment.

Such lack of clarity leaves it to competent authorities to decide, almost arbitrarily, whether to classify a station as "traffic" or "background". It is obvious that this situation undermines the possibility to compare levels between different cities and Member States.

This lack of clarity makes it also very difficult to verify whether Member States are complying with the minimum requirements regarding the ratio between "traffic" and "background" stations set under Annex V, footnote (1). In order to comply with this ratio, authorities can qualify a station falling in the grey zone as "traffic" or "background", depending on their needs.

Finally, it is worth stressing that Annex VIII contains a definition of "urban", "suburban" and "rural" areas for the purpose of classifying and locating sampling points for assessments of ozone concentrations. Notably, "urban" stations shall be "[a]*way from the influence of local emissions such as traffic*" and in locations "*with very little or no traffic*". The current lack of clarity on the definition of station types leads to the paradox that authorities may classify a sampling point as traffic-orientated for the purpose of assessing NO2, PM10 and PM2.5 levels, while, at the same time, selecting it as a station for the assessment of urban levels of ozone.[64]

Considering that background stations in urban areas can often be dominated by traffic as the single dominant source[65] and that there is not a clear definition of how to assess the representativeness of stations, the best way to distinguish between "traffic" and "background" stations would be to clarify that "traffic" stations must be placed in hot-spots, while "background" stations are a residual category, for all other locations in a zone. This approach would avoid the risk of leaving a grey zone of locations that do not fall under any definition.

A different set of station type classification should be introduced for ozone assessment, where often traffic sites register low concentrations and background sites register the highest levels.

Also, consideration should be given to introducing a specific category of monitoring sites to be installed in hotspots for PM pollution. In most cities, the main source of primary PM emissions is domestic heating, rather than traffic or industry. Authorities should be required to map zones and agglomerations, to identify the areas where the highest concentrations of PM are likely to occur. To this end, competent authorities should rely on source apportionment and on data collected at existing PM sampling points about chemical composition.

In consequence, ClientEarth recommends that the revised AAQDs contain clear and consistent definitions of station types ("traffic", "industrial" and "background") and area classifications ("urban", "suburban" and "rural"). Such definitions could be included either in Annex III or Annex V.

In particular, the definitions should clarify that "traffic" and "industrial" stations shall be placed "*in a location that should represent the highest concentrations to which the population are exposed to within the zone*". Conversely, "background" stations should be defined as a residual category.

A different set of station classification, using different names and types, should be introduced for ozone, in order to avoid confusion in siting criteria.

[64] For instance, in Brussels, this is the case for the "traffic" stations BETR001 and BETWOL1.
[65] This is the case, for instance, for most urban background NO2 stations.

The Commission should also consider introducing a specific station type for hotspots of PM in urban and suburban areas with high density of solid fuel burning for domestic heating.

3.1.3 Proportion between number and type of stations

Annex V of the Air Quality Directive is not consistent, as it sets minimum numbers of sampling points for zones/agglomerations; however, the requirements for the proportion between total number of urban background and total number of traffic oriented stations is set for the entire territory of a Member State (see Annex V, Section A(1), footnote (1)). Such a discrepancy between the different levels and the criteria, makes it very difficult for individuals and NGOs to assess compliance with the requirements. It also leads to inconsistent practices across the EU.

Moreover, Annex V requires authorities to "*include at least one urban background monitoring station and one traffic-orientated station provided this does not increase the number of sampling points*". However, it does not clarify what type of station should be installed in zones and agglomerations where only one sampling point is mandatory. ClientEarth submits that, when only one station is required, this should be in the area where the highest concentrations occur in order to avoid the risk of exceedances going unnoticed. This single station per zone/agglomeration, therefore, should be traffic-orientated.

The legal framework on the ratio between number and type of stations is further weakened by the extremely wide discretion of authorities in classifying a station as "traffic" or "background" (see above, section 3.1.2).

We therefore recommend that Annex V, A.1, footnotes (1) and (2) be amended to provide as follows:

- the proportion between number and types of stations should apply at zone and/or agglomeration level, rather than in the whole territory of Member States; and
- in zones and/or agglomerations where only one sampling point is required, this should be traffic-orientated.

3.1.4 Continuity of measurements

Annex V, A.1, footnote (1) contains the following provision on the continuity of measurements: "*Sampling points with exceedances of the limit value for PM10 within the last three years shall be maintained, unless a relocation is necessary owing to special circumstances, in particular spatial development*." Considering that there have been various instances in which authorities have been able to achieve compliance with NO2 limit values by relocating sampling points that had registered exceedances, the provision should apply to all pollutants (including NO2 and PM2.5) rather than only PM10.

Relocation should be allowed only when a specific point has been continuously below the lower assessment threshold for a minimum number of years (3 or 5).

3.1.5 Siting criteria

3.1.5.1 Macroscale siting criteria

The macroscale siting criteria are broadly consistent and sufficiently clear. There are however two aspects that could be improved.

First, the requirement in Annex III, B.1.(a) of the Air Quality Directive that "*sampling points directed at the protection of human health shall be sited in such a way as to provide data on* […] *the areas within zones and agglomerations where the highest concentrations occur to which the population is likely to be directly or indirectly exposed for a period which is significant in relation to the averaging period of the limit value(s)*". In ClientEarth's experience, a number of authorities are claiming that exceedances of limit values at roadside locations are not relevant, as people do not spend a significant period of time there in relation to the averaging period of the limit value (for instance, annual average concentrations of NO2).

The wording "*to which the population is likely to be directly or indirectly exposed for a period which is significant in relation to the averaging period of the limit value(s)*" is not needed, considering that Annex III, A.2 already clarifies that compliance with limit values shall not be assessed at "*any locations situated within areas where members of the public do not have access and there is no fixed habitation*" or "*on the carriageway of roads; and on the central reservations of roads except where there is normally pedestrian access to the central reservation.*"

It would, therefore, be desirable to amend Annex III, B.1.(a), so as to require the location of sampling points in the areas within zones and agglomerations where the highest concentrations occur, except for the locations mentioned in Annex III, A.2.

Moreover, the macroscale criteria require sampling points to have a certain level of representativeness. However, no guidance is provided on how to determine the representativeness of sampling points.

ClientEarth therefore recommends to delete the wording "*to which the population is likely to be directly or indirectly exposed for a period which is significant in relation to the averaging period of the limit value(s)*" from Annex III, B.1.(a) and amend the provision so as to require the location of sampling points "*in the areas within zones and agglomerations where the highest concentrations occur*." A reference may be included to the fact that this requirement is subject to the provision in Annex III, A.2. about excluded locations.

ClientEarth would also like to see additional guidance on how to determine the representativeness of sampling points.

3.1.5.2 Microscale siting criteria

The Commission should review the microscale siting criteria to identify where the margin of discretion is not justified under a technical point of view. If so, the criteria should be improved in order to offer clearer guidance to competent authorities and improve comparability of data from different Member States and cities.

For instance, Directive 99/30/EC required authorities to locate inlets of traffic orientated samplers for NO2 at no more than 5 meters from the kerbside. Under the current Air Quality Directive, this criterion has been increased to 10 meters. This increased discretion has led in some cases to "artificial" drops in measured levels, simply by moving a station further away from the kerbside, considering NO2 measurements exhibit high spatial variability.

The Commission should also consider amendments to the criteria that "*traffic-orientated sampling probes shall be at least 25 m from the edge of major junctions*". According to a recent review of monitoring stations across Europe, positioning an air quality station closer than 25 m to the edge of a major junction has no significant effect on measured levels of pollutants. In some situations, better

ventilation at junctions causes comparably lower concentrations at the junction itself than in other parts of the road segment.[66]

As suggested by the European Parliament Study, rather than the distance from junctions, there are several other characteristics of a traffic monitoring station that significantly influence the concentration level measured and its representativeness for the whole road network of a given zone.

Such characteristics relate to the traffic volume and the local dispersion conditions, depending on the width and the type of street and the structure of buildings around the monitoring site. In order to ensure the objective of measuring the highest concentrations in the zone, the Air Quality Directive should require authorities to locate traffic stations in street canyons.[67]

To resolve this, the Commission should review the microscale siting criteria to identify where the margin of discretion is not justified under a technical point of view. If so, the criteria should be improved in order to offer clearer guidance to competent authorities. In particular, the Commission should consider reducing the maximum permitted distance of traffic stations from the kerbside from 10 to 5 meters.

Moreover, the Commission should consider amending the criteria requiring traffic stations to be at more than 25 meters from major junctions. The Directive should clarify that this criterion is only relevant when the particular location at a major junction would lead to measuring "*very small micro-environments*" that are not representative of levels along that road segment. In this regard, a link should be made between the microscale siting criteria and the representativeness requirement under the macroscale criteria.

Finally, the Commission should consider introducing other siting criteria relating to characteristics such as traffic volume, local dispersion conditions and spatial land use. The Air Quality Directive should require the installation of monitoring stations in street canyons.

Unlike Section B (which sets binding criteria for the Macroscale siting of sampling points), the guidance for microscale criteria in Section C applies only "*in so far as is practicable*". Section C provides that "*Any deviation from the criteria listed in this Section shall be fully documented through the procedures described in Section D*". However, Annex III does not clarify whether deviations affect the validity of data collected. Annex III should expressly clarify that deviations do not allow authorities to ignore the data collected from such sampling points. Deviations can lead to either underestimating or overestimating concentration levels. For instance, the impact of locating a monitoring station at a major junction may result in lower measured concentrations (because of better ventilation).

Therefore, authorities should be obliged to describe in the site selection documentation not only the reasons for any deviations, but also the estimated impact on concentrations measured, along with a potential correction factor. Annex III, Section C should be amended to provide that deviations from the microscale criteria do not allow authorities to ignore the data collected from such sampling points.

Furthermore, either Section C or Section D of Annex III should be amended to oblige authorities to describe in the site selection documentation not only the reasons for any deviations from microscale criteria, but also the estimated impact on concentrations measured, along with a potential correction factor.

3.1.5.3 Documentation and review of site selection

[66] See European Parliament Study, page 30 and Annex C.
[67] Ibid., page 31

As underlined by the CJEU in Case C-723/17 *Craeynest*, it is essential that authorities prepare comprehensive documentation that includes evidence supporting the choice of the location of all monitoring sites.[68] The site documentation is essential to allow oversight on whether the network design is adequate to measure both hotspots and general exposure. It is equally important that authorities regularly re-assess the network design.

However, in ClientEarth's experience, authorities have implemented this obligation to a very limited extent. If it does exist, such documentation is very sparse and does not contain any information on how the network has been designed. Such documentation is not proactively published by authorities.[69]

Section D of Annex III should be amended in order to include better guidance on how authorities should pre-assess and re-assess the network design and how they should document the site selection, and make this information publically available.

As regards pre-assessment and re-assessment, Annex III, Section D, should lay out expressly the steps that competent authorities must follow in designing (and re-assessing) the network. Modelling and other complementary measurements play a key role in assessing the spatial distribution of pollution levels and designing the network. The Directive should, therefore, require authorities to use models and indicative measurements to assess the spatial distribution of levels of pollution in zones and agglomerations.

The site documentation should then include a section to explain how authorities have taken into consideration the results of such pre-assessment/re-assessment of spatial distribution in order to select the location of fixed sampling points, including reasons to explain:

- the selection of locations representative of the highest levels of pollution in the zone or agglomeration
- the selection of locations representative of the general exposure of population
- any deviation from the microscale siting criteria and the likely impact on measured levels, including a possible correction factor to take into account under- or over-estimation of pollution levels.

Finally, the site documentation should include an adequate and timed plan for regular re-assessment of the network design. Annex III, Section D, already provides that the documentation shall be updated and reviewed at least every 5 years, to ensure that selection criteria, network design and monitoring site locations remain valid and optimal over time. In addition to such provision, authorities should be obliged to carry out more frequent modelling and indicative studies. In ClientEarth's view, it is reasonable to require authorities to model spatial distribution of pollutants and carry out measurement campaigns of short duration at locations likely to be typical of the highest pollution levels at regular intervals (at least yearly). Whenever the results of the modelling and/or indicative measurements detect flaws in the monitoring network (for instance, because there is no fixed monitoring station in the area of modelled maximum levels), this should trigger an obligation to review the network design within a maximum deadline (1 year).

[68] Judgment of the Court (First Chamber) of 26 June 2019, *Lies Craeynest and Others v Brussels Hoofdstedelijk Gewest and Brussels Instituut voor Milieubeheer* (Case C-723/17), para. 51.
[69] See also European Parliament Study, page 9: "*with the exception of Germany, no documentation is available showing if the traffic-orientated monitoring stations cover the areas with the highest concentration per zone. Furthermore, none of the analysed Member States have prepared documentation showing if monitoring sites reflect the general population exposure.*"

Annex III, Section D, should also be amended to expressly require authorities to proactively make the site documentation available to the public. Consideration should also be given to the opportunity of carrying out public consultations during the network design procedures.

As a result, ClientEarth recommends that the following amendments be made to Annex III, Section D, in order to include better guidance on the process to be followed when designing monitoring networks. In particular, Annex III should include requirements on the following:

- mandatory use of models and indicative measurements to pre-assess and re-assess the spatial distribution of levels of pollution in zones and agglomerations;
- an obligation to give reasons and include evidence to support the network design, explaining in particular:
    - the reasons for the selection of locations representative of the highest levels of pollution in the zone or agglomeration;
    - the reasons for the selection of locations representative of the general exposure of population; and
    - the reasons for any deviation from the microscale siting criteria and the likely impact on measured levels, including a possible correction factor to take into account under- or over-estimation of pollution levels.
- an obligation to prepare and describe in the site documentation adequate and timed plans for regular re-assessment of the network design, including the compulsory modelling of spatial distribution of pollutants and carrying out of measurement campaigns of short duration at locations likely to be typical of the highest pollution levels at regular intervals (at least yearly); and
- an obligation to correct the network design within a maximum deadline (one year), whenever the results of the modelling and/or indicative measurements detect flaws in the monitoring network (for instance, because there is no fixed monitoring station in the area of modelled maximum levels).
- an obligation for authorities to proactively make the site documentation available to the public, and to actively consider carrying out public consultations during the network design process.

It could also be useful to include a template for site documentation in order to increase comparability between different cities and Member States. The Commission should be empowered to adopt delegated acts to define such template.

3.2 Expand monitoring requirements to broader set of harmful air pollutants

The revised AAQDs should follow the WHO good practice statements and regulate a broader set of harmful air pollutants, including BC and UFP. In particular, the WHO recommends to:

- Make systematic measurements of BC and/or EC. Such measurements should not replace or reduce the existing monitoring of pollutants for which guidelines currently exist.

- Expand the common air quality monitoring strategy by integration of UFP monitoring into existing air quality monitoring. Include size-segregated real-time PNC measurements at selected air monitoring stations in addition to, and simultaneously with, other airborne pollutants and characteristics of PM.

The WHO stresses that both pollutants are of concern and their concentrations should be kept under review. The additional evidence on chemical composition and number of particles would also be an essential piece of information for future epidemiological studies on the health effects of BC and UFP and for distinguishing these effects from the effects of other pollutants.

We therefore recommend that the monitoring requirements in the AAQDs be expanded to include BC and UFP. In addition, the monitoring requirements should contain a mechanism which allows them to be automatically expanded to include any such further pollutants as evolving scientific evidence might indicate is harmful to human health. This mechanism should be contained in or replicate the suggestions for adaptation to the latest scientific knowledge set out in section 2.1 above.

3.3 Enable enhanced use of modelling for air quality assessment

3.3.1 Role of modelling in air quality assessment

Since the adoption of the Air Quality Directive, there have been significant developments in the use of modelling techniques. It is now clear that models are essential for several purposes, including the following:

a) supporting network design and the selection of locations for sampling points;

b) assessing air quality, complementing the use of fixed monitoring stations, in order to provide complete spatial coverage of air quality;

c) supporting air quality management, since models are essential to carry out source apportionment, estimate impacts of planned measures and policies and forecast possible high pollution episodes.

The current legislative framework, however, is not adequate to support the consistent and adequate use of modelling tools across the EU.

Modelling techniques differ significantly depending on spatial resolution and the consideration of factors such as meteorology, spatial land use, street canyons or traffic data. While FAIRMODE have been providing guidance, it is clear that there is a need for binding reference methods.

Similarly, in recent years we have witnessed the rapid development of many disparate low cost sensors. The JRC has been assessing different types of sensors.[70] Some of these, while not being properly low cost, are still significantly cheaper than air quality monitoring stations and can provide relatively high quality data. Validation of the most reliable sensors would allow authorities to install additional sampling points that, while not accurate enough for the requirements of fixed monitoring stations, could meet the

[70] See, for instance, JRC (2017), *Evaluation of low-cost sensors for air pollution monitoring: Effect of gaseous interfering compounds and meteorological conditions*, available at https://ec.europa.eu/jrc/en/publication/evaluation-low-cost-sensors-air-pollution-monitoring-effect-gaseous-interfering-compounds-and

quality requirements of indicative methods and allow more accurate information about spatial distribution of pollution in cities in a cost-effective manner.

ClientEarth therefore recommends the amendment of Annex VI of the current Air Quality Directive to introduce reference methods for modelling and indicative measurements (mid and low cost sensors).

Beyond establishing reference methods, the revised AAQDs should also clarify in which circumstances and for what purposes authorities may be required to use modelling and other complementary measuring methods.

As clarified in section 3.1.5.3, modelling and indicative measurements should be required in order to support the network design.

Moreover, considering the developments in the use of models, ClientEarth submits that the Commission should consider making the use of models mandatory to assess air quality, complementing the information gathered through fixed monitoring stations.

Finally, the use of models and indicative measurements is particularly important to assess the exceedance of lower or higher assessment thresholds. Currently, this assessment relies principally on measured concentrations. The use of indicative measurements/modelling is only facultative.[71] This legislative framework leads to a very high risk of "false negatives". In areas where the assessment thresholds are not exceeded, the monitoring network is usually very limited and not adequate to provide a full picture of spatial distribution of pollution. Only the mandatory use of modelling and indicative measurements can ensure that exceedances of assessment thresholds and limit values do not go unnoticed.

ClientEarth requests that the Commission consider amending Annex III to require competent authorities to use models to assess compliance with air quality objectives (limit values and target values), complementing the information gathered at fixed monitoring stations.

Finally, the Air Quality Directive should be amended to clarify the relevance of information gathered by authorities about air quality levels through methods beyond their official sampling points. For instance:

- a competent authority may install more monitoring stations than the minimum number required under Annex V of the Directive;
- a specific monitoring station may gather less than 90% of data during a year;
- a competent authority may carry out modelling or other indicative measurements, without opting to reduce the number of monitoring stations by 50%, as provided under Article 7(3) of Directive 2008/50.

The final sub-paragraph of Article 7(3) provides that "*The results of modelling and/or indicative measurement shall be taken into account for the assessment of air quality with respect to the limit values.*" However, this provision does not clarify if authorities are always obliged to take into account the

[71] See Annex II, "*Exceedances of upper and lower assessment thresholds shall be determined on the basis of concentrations during the previous five years where sufficient data are available.* […] *Where fewer than five years' data are available, Member States* ***may*** *combine measurement campaigns of short duration during the period of the year and at locations likely to be typical of the highest pollution levels with results obtained from information from emission inventories and modelling to determine exceedances of the upper and lower assessment thresholds.*"

results of modelling and/or indicative measurements or only when an authority opts to reduce the number of fixed sampling points by up to 50%.

ClientEarth has identified various instances in which authorities take advantage of such lack of clarity to ignore exceedances of limit values detected through models, indicative measurements or monitoring stations not included in the official network.

Such an approach is against the precautionary principle and undermines the function of the limit values to protecting health and life.

The Commission should amend the AAQDs in line with the precautionary principle and expressly clarify that once authorities carry out modelling or indicative measurements to supplement information from fixed sampling points, the results of such additional assessment methods should always be taken into account for official assessment of compliance with air quality standards, unless the authority can provide substantiated arguments to show that the results are not correct.

Similarly, authorities should be obliged to take into account data gathered at any monitoring station – regardless of whether they have included it among the official sampling points communicated to the Commission through EIONET.

Whenever there are discrepancies between different measurement methods (fixed sampling points, modelling and/or indicative measurements), competent authorities should adopt a precautionary approach and rely on the information source highlighting the highest concentrations of pollution. Conversely, results from modelling and/or indicative measurements should never lead to a reduction of the concentration levels assessed through fixed sampling points.

The suggested changes to the Air Quality Directive could be included in Annex III, by adding a new Section E on modelling and indicative measurements.

3.4 Further specify minimum elements required of air quality plans (e.g. cost-benefit analysis, projections, etc.)

Please see section 2.2 above.

Feasibility

ClientEarth welcomes the Commission's proposals to align EU air quality standards with WHO recommendations, improve the current air quality legislative framework, and strengthen air quality monitoring, modelling and plans. As has been demonstrated above, these are important steps forward, which will go far towards protecting the health of European citizens.

In light of this, ClientEarth believes the Commission's concern with the feasibility of these options is misplaced, for several reasons. Firstly, the public consultation asks respondents to consider the costs of the proposals, but says nothing on the benefits. This is an error, since the benefits, including economic, of reducing air pollution would be significant and by far outweigh the cost of pollution abatement policies. The Fitness Check on the AAQDs clearly concluded that "*Good air quality makes good economic sense*" and found that the costs of implementing the AAQDs (EUR 70 to 80 billion per year) are significantly

lower than the costs caused by air pollution to society, health and economic activities (between EUR 330 and 940 billion, per year).

These conclusions are supported by new evidence published since the publication of the Fitness Check. A working paper from the OECD in 2019 estimated that, in Europe, "*a 1µg/m3 increase in PM2.5 concentration (or a 10% increase at the sample mean) causes a 0.8% reduction in real GDP that same year*".[72] Another study from CE Delft assessed that air pollution costs Europeans €1,276 per year per capita. [73]

The Second Clean Air Outlook also confirmed that "*Air pollution* […] *entails considerable economic costs by inducing increased medical expenses, reduced productivity, for example through lost working days, and reduced agricultural yields*".[74] Examining the implementation of the NEC Directive and other relevant environmental legislation and policy, the Outlook found that "*if all the measures that are technically possible were implemented, these net benefits could be about EUR 21 billion a year by 2030*".[75]

ClientEarth suggests that economic benefits of revising the AAQDs in line with the policy suggestions above should also be considered and weighed against any perceived costs.

However, the most important benefit is the impact that these measures will have on the protection of the health of individuals, particularly the most vulnerable in our society. No political or economic consideration can or should be important enough to justify the damage that *not* implementing these policy suggestions in law will have on human health. There is no cost that can outweigh the benefit of protecting lives.

Moreover, it is important to stress that air pollution issues are also socio-economic issues, as found by the EEA in its report on "Unequal exposure and unequal impacts" on lower income households. A low level of ambition of the revised AAQDs would mean that low income households and regions across the EU will be forced to continue to suffer disproportionally bigger health effects and economic costs air pollution than wealthier regions.

ClientEarth stresses that the Commission's consideration of feasibility is based in the present. This "present-based" approach only takes into consideration what is known to be possible today. However, in so doing, it ignores technological advancements which may have developed by the time the AAQDs come into force, are transposed, or reach their attainment deadline. What may not be considered technically feasible today, may become feasible at the time the legislation is implemented.

A present-based approach also ignores the impact that progressive legislation can have in accelerating social and behavioural change, and driving technological innovation to stretch the realms of what is feasible. For example, the ban on indoor smoking in many European countries has led to widespread change in social norms. In Ireland, a country known for its pub culture, compliance with a ban on smoking in enclosed indoor spaces saw a surprising 95% level of compliance in its first year. And in

[72] OECD (2019), The economic cost of air pollution: evidence from Europe. Economics Department Working Papers No. 1584, ECO/WKP(2019)54.
[73] CE Delft (2020), Health costs of air pollution in European cities and the linkage with transport.
[74] COM/2021/3 final, p1
[75] Ibid., p12

Spain 8% of people who smoked in the January of a year when a partial smoking ban was introduced, had quit by the end of that year.[76]

ClientEarth agrees with the recommendations of the EEA that, when considering innovation for sustainability, "*technology alone won't save us*" and that it is essential to adopt a wider perspective paying equal attention "*to the social and technical aspects of innovation*".[77] As a result, considering only the "technical feasibility" of a policy can be considered a short-sighted metric. .

Finally, ClientEarth submits that findings on feasibility and cost-benefit in specific regions in the EU should not influence the overall level of ambition. While reiterating that the same legally binding limit values should apply across the EU, it would be a mistake to use feasibility in the worst pollution hotspots as the main driver, resulting in a minimum common denominator for the EU. Should the impact assessment conclude that actions to achieve WHO guidelines in some regions would exceed measures deemed cost-effective, the revised AAQDs should still aim for the high level of ambition of full alignment with the WHO AQG, while foreseeing financial support for the regions that would incur higher costs to achieve compliance.

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[76] 'Public smoking ban show signs of success in Europe', Laura Spinney, The Lancet World Report| Volume 369, Issue 9572, P1507-1508, May 05, 2007, https://doi.org/10.1016/S0140-6736(07)60691-6
[77] EEA (2021), Briefing "With people and for people: Innovating for sustainability".