

Consultation on the Transposition of Directive 2008/50/EC on the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe

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1. Introduction

1.1. The purpose of this consultation is to invite comments on the transposition into Scots law of Directive 2008/50/EC on ambient air quality and cleaner air for Europe (“the Directive”) (**Annex A**), which entered into force on 11 June 2008 and must be transposed into national legislation before 11 June 2010.

1.2. Comments are invited on:

- how we intend to transpose the new Directive into Scots law through the draft Air Quality Standards (Scotland) Regulations 2010 (**Annex B**); and
- the accompanying consultation Impact Assessment (**Annex C**).

1.3. The Air Quality Standards (Scotland) Regulations 2010 also transpose the provisions of the fourth daughter Directive (2004/107/EC) relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air.

1.4. Air quality is a devolved matter so the Department for Environment, Food and Rural Affairs (“Defra”), the Department of the Environment Northern Ireland and the Welsh Assembly Government will be carrying out similar consultation exercises in their respective parts of the United Kingdom.

1.5. Subject to consideration of all representations received in response to this consultation, the new Regulations will come into force on 10 June 2010. Upon the introduction of these, the Air Quality Standards (Scotland) Regulations 2007 will be revoked.

2. Responding to this consultation paper

2.1. We are inviting written responses to this consultation paper by **20 April 2010**. Please send your response with the completed Respondent Information Form (**Annex F** - see "Handling your Response" below) to:

claire.dodd@scotland.gsi.gov.uk

or

Claire Dodd
Air, Noise and Nuisance Team
Scottish Government
1-G(N) Victoria Quay
Edinburgh
EH6 6QQ

If you have any queries contact Claire Dodd on 0131 244 7699.

2.2. We would be grateful if you could clearly indicate in your response which questions or parts of the consultation paper you are responding to as this will aid our analysis of the responses received.

2.3. This consultation, and all other Scottish Government consultation exercises, can be viewed online on the consultation web pages of the Scottish Government website at <http://www.scotland.gov.uk/consultations>. You can telephone Freephone 0800 77 1234 to find out where your nearest public internet access point is.

2.4. The Scottish Government now has an email alert system for consultations (**SEconsult**: <http://www.scotland.gov.uk/consultations/seconsult.aspx>). This system allows stakeholder individuals and organisations to register and receive a weekly email containing details of all new consultations (including web links). SEconsult complements, but in no way replaces SG distribution lists, and is designed to allow stakeholders to keep up to date with all SG consultation activity, and therefore be alerted at the earliest opportunity to those of most interest. We would encourage you to register.

Handling your response

2.5. We need to know how you wish your response to be handled and, in particular, whether you are happy for your response to be made public. Please complete and return the **Respondent Information Form** attached at **Annex F** as this will ensure that we treat your response appropriately. If you ask for your response not to be published we will regard it as confidential, and we will treat it accordingly.

2.6. All respondents should be aware that the Scottish Government are subject to the provisions of the Freedom of Information (Scotland) Act 2002 and would therefore have to consider any request made to it under the Act for information relating to responses made to this consultation exercise.

Next steps in the process

2.7. Where respondents have given permission for their response to be made public and after we have checked that they contain no potentially defamatory material, responses will be made available to the public in the Scottish Government Library. You can make arrangements to view responses by contacting the SG Library on 0131 244 4552. Responses can be copied and sent to you, but a charge may be made for this service.

What happens next ?

2.8. The comments received during the consultation will be considered in finalising the Regulations.

Comments and complaints

2.9. If you have any comments about how this consultation exercise has been conducted, please send them to:

Claire Dodd
Air, Noise and Nuisance Team
Scottish Government
1-G(N) Victoria Quay
Edinburgh
EH6 6QQ

Claire.dodd@scotland.gsi.gov.uk

Consultees

2.10. We are seeking information and comments from industry, other non-governmental organisations, consumer groups, trade associations, and any other interested parties. Please tell us if you know of others who would be interested in receiving this consultation document.

2.11. Hard copies are also available by request – please contact Claire Dodd. Additional copies of this document can be made without seeking permission.

3. Background

3.1. The Directive entered into force on 11 June 2008 and must be transposed into national legislation before 11 June 2010. It simplifies existing EU legislation by consolidating into a single directive the Framework Directive (Directive 1996/62/EC) and the first three daughter directives (Directives 1999/30/EC, 2000/69/EC and 2002/3/EC) along with the Council Decision on the exchange of information (Council Decision 97/101/EC). The provisions of the fourth daughter Directive (2004/107/EC) are expected to be incorporated into the Directive at a later date. The Directive will be subject to review by the European Commission in 2013.

3.2. The Directive also introduces new provisions reflecting the experiences of member states in implementing existing air quality legislation and improved scientific understanding of the health effects of PM_{2.5}:

- a new control framework for PM_{2.5};
- the requirement to discount natural sources of pollution, such as sea salt, when assessing compliance against limit values; and
- options for time extensions for meeting compliance deadlines for particulate matter (PM₁₀) (to 2011) and nitrogen dioxide (NO₂) and benzene (to 2015), subject to strict conditions and assessment by the Commission.

4. Discussion

Scottish approach to transposition

4.1. We intend to transpose the Directive by introducing, under section 2(2) of the European Communities Act 1972, new Regulations to replace the Air Quality Standards (Scotland) Regulations 2007. The 2007 Regulations were introduced to transpose the fourth daughter Directive (2004/107/EC), but the opportunity was then taken to consolidate, in a single set of Regulations, all other existing EU ambient air quality legislation. Whilst we considered amending the 2007 Regulations to include the new provisions from the Directive, we concluded that it would be preferable to introduce new Regulations which, as far as possible, reflect the structure and layout of the Directive. Using this approach, it will be more transparent to interested parties as to how we have transposed the Directive. Except where the Directive introduces changes to existing provisions, the substance of the new draft Regulations remains unchanged from the 2007 Regulations.

Transposition notes

4.2. A transposition note setting out how the draft 2010 Regulations transpose each Article of the Directive can be found at **Annex D**. A note is also included for the transposition of the provisions of the fourth daughter Directive. More detail on key issues of interest is set out below.

Devolution

4.3. The draft 2010 Regulations are intended to provide an appropriate legal framework to ensure the obligations imposed by the Directive can be fully and properly transposed across Scotland

4.4. Consistent with existing legislation, Scottish Ministers will be designated as the competent authority for Scotland for the purposes of Article 3 of the Directive for:

- assessment of ambient air quality;
- approval of measurement systems;
- ensuring accuracy of measurements;
- analysis of assessment methods;
- co-ordination across Scotland of any community wide assurance programmes.

4.5. Ambient air quality is a devolved matter. The Regulations will therefore apply in Scotland. The Defra Regulations will only apply in England with the exception of those on the PM_{2.5} Average Exposure Indicator, National Exposure Reduction Target and transboundary pollution where the Secretary of State also has UK-wide responsibilities. This reflects discussion and agreement with colleagues from the relevant administrations in England, Wales and Northern Ireland.

Zones and agglomerations

4.6. In preparing the draft 2010 Regulations the opportunity has been taken to clarify the zones and agglomerations in Scotland referred to in regulation 4 by the provision of a designated map (**Annex E**). The map will be held in the Scottish Government and also located on the websites of the Scottish Government and the Air Quality Archive (<http://www.airquality.co.uk>). Zones and agglomerations are not a new concept and were first provided for under Article 8 of the Framework Directive for the purpose of assessing and reporting exceedences and breaches of air quality limit values. We will use the same zones and agglomerations as for the 2007 Regulations.

Air quality assessment

4.7. For most of the pollutants covered, the draft Regulations allow for different assessment methods of air quality, depending on the levels of pollutants in the zones concerned. These include measuring, mathematical modelling, a combination of the two, or indicative measurements. Fixed measurements are necessary where levels are above the upper assessment thresholds. For ozone however a different regime exists and fixed measurements must be taken where concentrations have exceeded the long-term objectives during any of the last five years. Guidance is provided by the Commission to assist in implementation of any assessment requirements.

4.8. The assessment provisions have been updated to include new reference measurement methods towards harmonising methodology throughout the EU, and new data quality objectives and amendments to the siting arrangements for monitoring stations to enable more robust assessment of air quality.

4.9. In assessing ambient air quality, Scotland makes use of the provision in the Directive to supplement monitoring data with modelling. Both monitored and modelled data are then reported to the Commission. By using this provision, Scotland may reduce the number of sampling points by up to 50% which has two advantages. Firstly this reduces costs, as modelling is more cost-effective than monitoring, and secondly it improves the spatial resolution as the number of data points throughout the territory is increased. The Directive allows this to be undertaken so long as the supplementary methods provide adequate information for the assessment of air quality, and the number of sampling points and the overall spatial resolution are sufficient for the concentration of the relevant pollutant to be established in accordance with the data quality objectives.

4.10. A number of local authority sites have been affiliated into the national monitoring network (AURN), where site requirements under the Directive and local authority monitoring sites coincide. This means that we take on the quality assurance of the data, but the local authority retains ownership of the site. Again this is a cost-effective way to undertake national assessment.

Local authority and industry roles

4.11. All obligations in the draft Regulations in relation to air quality management are attributed to Scottish Ministers. However, local authorities have statutory duties for local air quality management (LAQM) under the Environment Act 1995. They are

required to carry out regular reviews and assessments of air quality in their areas against standards and objectives prescribed in the [Air Quality \(Scotland\) Regulations 2000](#) (as amended). Many of these objectives mirror the limit values prescribed by the Directive. Where any objective is unlikely to be met by the relevant deadline, local authorities must designate those areas as air quality management areas (AQMAs) and take action to work towards meeting the objectives.

4.12. Scottish Ministers have the power, under section 85(5) of the Environment Act 1995, to direct local authorities to take appropriate steps for the implementation of Community Treaties and international agreement binding on the UK.

4.13. The LAQM framework across the UK is currently subject to review. Subject to the recommendations from that it is our intention to explore at a later date the implications for both the EU limits and the Environment Act 1995 regime. The question of whether the Scottish PM_{2.5} objectives established in the Air Quality strategy 2007 should be enshrined in legislation will be one issue for consideration. We would also need to consider local authority duties in relation to PM_{2.5}.

4.14. The new Directive contains no direct obligations for industry. However, SEPA will take the prescribed air quality standards into account when determining permits or other controls on emissions, under other legislation, in order that limit values are not exceeded.

Requirements for reporting to the Commission

4.15. Requirements for member states to submit information to the Commission are not normally subject to transposition. Therefore, reports on pollution levels and the areas concerned for submission to the Commission have not been transposed. UK annual compliance reports submitted to the Commission are available on the Air Quality Archive as part of a more detailed annual report (<http://www.airquality.co.uk/annualreport/index.php>).

Postponement of attainment deadlines and exemption from the obligation to apply certain limit values

4.16. Article 22 of the Directive recognises that achieving compliance with the limit values for PM₁₀, NO₂ and benzene by their attainment dates (2005 for PM₁₀ and 2010 for NO₂ and benzene) has been a challenge for most member states across all of their territories. This provision allows member states to apply for additional time to meet these limit values.

4.17. The provisions allow member states an exemption from the obligation to apply the attainment date for the PM₁₀ limit value until 2011 and to postpone that for NO₂ and benzene until 2015. Notifications by member states to the Commission for these time extensions must be supported by detailed plans for each zone or agglomeration demonstrating that the limit values can be achieved by the new deadlines. The Commission has nine months to assess applications.

4.18. The UK (along with other member states) applied for an extension to the PM₁₀ compliance date of 2005 for those few parts of the UK, including the Glasgow

agglomeration where PM₁₀ limit values were exceeded in 2006. The latest assessment for 2008 and preliminary findings for 2009 show that the limits for particulate matter are now being achieved in the Glasgow agglomeration. The UK application was submitted in April 2009 and a decision was issued by the Commission in December 2009 rejecting the application in the zones where the limit values are now achieved.

4.19. We expect to consult in 2010 on an application to secure additional time to meet the NO₂ limit values. If additional time is granted then an amendment to the Regulations will need to be made to allow for this. For benzene, Scotland has been in compliance since 2007 and so we do not anticipate a need to use the provisions in Article 22 for this pollutant.

A new control framework for PM_{2.5}

4.20. Regulation 23 introduces a new control framework for PM_{2.5} in response to evidence of the health effects which indicates that there is no safe threshold below which exposure would not pose a risk. Consequently, health benefits are gained whenever levels of exposure are reduced.

4.21. Whilst the limit value approach has been effective in driving significant improvements in air quality over recent years, we are now in a position where all attention is focused on action to address the few remaining hotspots (as reflected in the time extension notification). The new exposure reduction framework largely mirrors that in the 2007 National Air Quality Strategy. It aims to achieve a general reduction in concentration of PM_{2.5} in the urban background (which are urban areas where levels of exposure are representative of the exposure of the general urban population) to ensure that large sections of the population get public health benefits from improved air quality. However, to ensure a minimum health protection everywhere, this is combined with a 'backstop' limit value. This approach therefore provides a driver to improve air quality across urban background areas rather than just in a small number of localised hotspots.

4.22. With a new exposure reduction approach in urban areas, combined with the more established limit value approach, the new framework is quite complex. We expect the Commission's review of the Directive in 2013 to include consideration of progress in implementation of this new framework and whether it should become mandatory.

4.23. A national exposure reduction target will be established by the Secretary of State of the Environment for the UK as a whole. This is defined as a percentage reduction in the average concentration in urban background locations to be achieved by 2020. The number of PM_{2.5} monitoring sites required by the Directive to establish this target would not provide for a statistically robust assessment for each devolved administration without significant additional cost.

4.24. The target reduction for 2020 is based on the Average Exposure Indicator (AEI) for the year 2010, which is fixed according to the average concentration of the years 2009, 2010, and 2011. On the basis of current modelling projections, the UK national exposure reduction target is likely to be 10% and we are on track to achieve

a 6% reduction based on current measures. However, this will not be confirmed until the measurement data for 2009, 2010 and 2011 have been collated in early 2012. Options for additional action will be kept under consideration, recognising the need not to incur disproportionate costs.

4.25. The [Defra regulations](#) will specify how the UK AEI for 2010, 2015 and 2020 shall be calculated. The AEI for 2015 must not exceed $20 \mu\text{g m}^{-3}$. Scottish Ministers must take action not entailing disproportionate costs, to help ensure that this is achieved in Scotland. As set out in the consultation Impact Assessment, current projections indicate that we are on track to meet this obligation across the UK.

Standards for PM _{2.5} applying across urban background areas		
National exposure reduction target	% reduction according to the AEI for 2010	2020
Average Exposure Indicator for 2015	$20 \mu\text{g m}^{-3}$	2015

4.26. It is recognised that some UK-wide national measures may be appropriate (such as fiscal measures) in order to help achieve the AEI and the exposure reduction target across the UK. Therefore the Secretary of State has powers to take additional action, as appropriate, in relation to the UK as a whole necessary and after consultation with the Scottish Government and other administrations.

Limit and target values

4.27. Part 3 of the Regulations set target and limit values for PM_{2.5}. These will apply across Scotland in the same way as existing limit values do for other pollutants such as PM₁₀ and NO₂. Scottish Ministers must take all necessary measures, not entailing disproportionate costs, to continue to meet the target value of $25 \mu\text{g m}^{-3}$ and must ensure compliance with the limit value of $25 \mu\text{g m}^{-3}$ across the country by January 2015. A margin of tolerance is applicable to PM_{2.5}. This was introduced by the Directive when it came into force at an initial percentage margin of 20% and is set to decrease annually until it reaches 0% on 1 January 2015. Margins of tolerance are intended to help identify those areas where current air quality is worst and ensure improvements are made.

4.28. As set out in the consultation Impact Assessment, the limit value is expected to be achieved on the basis of current and planned measures. The Directive also introduces a second stage 'indicative' limit value of $20 \mu\text{g m}^{-3}$ which must be met by January 2020, but no margin of tolerance has been applied here. In light of the review by the Commission in 2013, this standard has not been transposed at this stage.

Standards applying across the country		
Target value	$25 \mu\text{g m}^{-3}$	10 June 2010
Limit value	$25 \mu\text{g m}^{-3}$	January 2015

PM_{2.5} sources

4.29. The consultation Impact Assessment explores the impacts of the new obligations on PM_{2.5}. Consideration of the most appropriate suite of control options and delegation of responsibilities can be informed by an understanding of the sources of this pollutant.

4.30. Man-made sources of PM_{2.5} include emissions from the combustion of fossil fuels through road transport, power plants, industrial processes and domestic heating. One of the major sources of PM_{2.5} within urban areas is diesel fuelled heavy duty vehicles. Local construction and demolition activities can also lead to elevated PM_{2.5} concentrations, although construction and demolition dusts tend to be larger than 2.5µm.

4.31. Measures to reduce PM_{2.5} concentrations from road transport are likely to have the biggest effect on concentrations at roadside sites and least impact at rural sites.

4.32. Part of PM_{2.5} comprises secondary particles, formed through chemical reactions in the atmosphere between gases including ammonia, sulphur dioxide and nitrogen oxides. Due to the time taken for these reactions to occur, effects may be caused a long way from the sources of the pollutant precursors. As such, there can be a significant transboundary element to this component, subject to meteorological conditions such as wind direction and speed. Reductions in this component of particulate matter are therefore best addressed by action taken at a European or wider international level through national emissions ceilings.

4.33. Reducing PM_{2.5} concentrations is therefore likely to require application of measures at local, regional, national and international levels. For example, measures to reduce emissions from transport could be tackled at an international level by reducing vehicle emissions through legislation to enforce improvements in engine technology or at a local level by controlling the number or type of vehicles emitting in a certain area. However, such local measures will clearly only affect exposure across a relatively small area and can only act on those parts of the particle mass from local sources. Controlling precursor gas emissions from national and transboundary sources would lead to fairly uniform reductions of secondary particles over large areas.

4.34. It is important to note that the sources, size distribution and concentrations of PM_{2.5} vary considerably over the UK and the limited data available means that their assessment currently contains significant uncertainties. This will improve over time.

Air quality plans

4.35. Regulation 24 requires Scottish Ministers to draw up and implement air quality plans (formerly referred to as plans and programmes) indicating the measures that will be taken where limit values or target values, plus any margin of tolerance, are exceeded in any given zone or agglomeration.

4.36. Where the attainment deadline has expired the plans must set out measures to keep the exceedence period as short as possible. Where the attainment date is in the future, the plans must set out measures to achieve the relevant limit or target value. Plans need to be made available to the public and reported to the Commission within two years of the exceedence being reported. The Commission has an established format for these plans and the central requirement is for quantification of measures where this is possible.

4.37. Within Scotland, zones and agglomerations do not generally comprise a single administrative authority. Plans for each zone are in practice collated centrally by the UK based on an analysis of regional or local authority plans and/or information on specific relevant industrial installations, and any regional or national measures. Following public consultation these are submitted to the Commission as required. We plan to continue with this approach.

4.38. Most recently, at the end of 2009, the UK submitted plans and programmes to the Commission for mitigating NO₂ exceedences reported in 2007 (<http://cdr.eionet.europa.eu/gb/eu/aqpp/envsyokmq>). They include references to local authority action plans and the measures to improve air quality which are set out on the 2007 UK Air Quality Strategy website (<http://www.defra.gov.uk/environment/airquality/strategy/>).

Short-term action plans

4.39. Regulation 25 now makes it discretionary (rather than obligatory) for Scottish Ministers to draw up short-term action plans for pollutants where there is a risk of exceedence of a limit value (for sulphur dioxide (SO₂), NO₂, PM₁₀, PM_{2.5}, lead (Pb), carbon monoxide (CO) and benzene) or target value (for PM_{2.5} and ozone). Short-term action plans are intended as rapid-response policy tools aimed at reducing the immediate risk of a predicted, short-lived exceedence of a limit value, target value and/or alert threshold. This change reflects our view that, in practice, there are very few circumstances in which the adoption of a short-term action plan will make any significant difference to the improvement of air quality or public health achieved through other, longer-term means, as set out in the relevant air quality plans.

4.40. Where there is a risk of exceedence of the alert thresholds for NO₂ and SO₂ the Scottish Ministers remains obliged to draw up short-term action plans. Scottish Ministers retain discretionary powers in the case of plans for ozone alert threshold exceedences.

4.41. In the case of urban, non-industrial sites, exceedences of the limit values for particulate matter show that short-term events are driven mainly by secondary pollutants and, in particular, secondary aerosols originating from outside the UK, and that the contribution of pollutants from local sources is small. For a short-term action plan to be effective emissions from all the contributory sources (including those outside the UK) need to be addressed. A short-term action plan for exceedences reported in the urban, non-industrial sites would therefore need to address emissions across a disproportionately large area. In addition, emissions which result in transboundary secondary inorganic aerosols will have been emitted anything up to

several days before the exceedence occurs and no short-term action plan would be able to affect these.

4.42. In general terms, compliance with annual average limit values is not conducive to short-term action plans. Compliance with the NO₂ limit value, for example, will require concerted action over a long time period so, by definition, any action plan cannot be short-term. For these reasons, our general approach will be not to adopt short-term action plans for urban, non-industrial sites.

4.43. In the case of exceedences attributable to industrial sources, significant individual sources fall under the Pollution, Prevention and Control (Scotland) Regulations 2000 (as amended) , which require each to have a permit containing emission limit values (ELVs) for pollutants likely to be emitted in significant quantities. It is open to SEPA to vary permits if the need arises, and Scottish Ministers have powers to direct SEPA to do so. Scottish Ministers could thus direct a tightening of ELVs as part of a short-term action plan. However, ELVs are set by SEPA on the basis of the use of best available techniques (BAT) for pollution control and so will in any case provide a high level of environmental protection. Moreover, SEPA are obliged, periodically, to review permit conditions, particularly in the light of developments in BAT. It is therefore considered generally unlikely that Scottish Ministers would need to intervene to include tightening of ELVs as part of a short-term action plan.

4.44. It is our view that, in practice, there are few, if any, circumstances in which a short-term action plan would aid significantly the achievement or maintenance of the air quality limit values. We remain confident, however, that the existing provisions under the Environment Act and, in exceptional circumstances, the Pollution, Prevention and Control (Scotland) Regulations can be used to produce short-term action plans should the need arise.

Natural sources of air pollutants

4.45. Article 20 of the Directive recognises that natural sources of pollution (such as sea salt and African dust) may be assessed but not controlled. Where natural contributions to pollutants in ambient air can be determined and, where exceedences are due in whole or part to these contributions, they must now be deducted when assessing compliance with limit values. In the UK the main natural contribution to pollutants is sea salt. Scientific evidence suggests that this element of particulate matter pollution is relatively harmless to human health and the environment.

4.46. Under air quality reporting arrangements with the Commission, the Secretary of State is obliged to provide the Commission with evidence of how natural sources contribute to reported exceedences in limit values. This requirement will not change the way data is collected, but an additional annual assessment will be undertaken to ascertain what exceedences may be caused by natural sources and would therefore not trigger infringement proceedings. Annual reports will continue to be available from the intranet on the European Environment Agency's Central Data Repository (<http://cdr.eionet.europa.eu/gb/eu/annualair>) and as part of the more detailed annual report available from the Air Quality Archive (<http://www.airquality.co.uk/annualreport/index.php>).

4.47. Analysis of the impact of applying natural sources deductions to reported exceedences shows a subsequent reduction in pollution control or abatement measures required to achieve compliance with limit values with a net benefit of £875 million between 2010 and 2030. Further details on this can be found in the consultation Impact Assessment (Option 2).

4.48. The Commission has been tasked with providing guidance on how natural sources should be deducted, but as yet this guidance is not finalised. At the present time, the only robust methodology for the subtraction of natural sources from PM₁₀ measured in the UK is one which removes the sea salt contribution. This methodology is described in section 3.2 of the technical report which was submitted as part of the UK notification to the Commission for an exemption from the obligation to apply PM₁₀ limit values until 2011 (<http://www.scotland.gov.uk/Resource/Doc/258662/0076703.pdf>)

Consultation Impact Assessment

4.49. The consultation Impact Assessment applies to the whole of the UK and addresses the impacts of the natural source deductions and the new PM_{2.5} obligations. It compares the impact arising from the transposition of the Directive with the impact of not transposing the Directive.

4.50. As the UK will also be submitting a notification for additional time to meet the NO₂ limit value a separate assessment will be produced in association with that.

4.51. As already mentioned, the evidence shows the benefits of transposing the Directive: the total net benefit of at least £875 million between 2010 and 2030 with potential additional benefits if time extensions are secured for meeting PM₁₀ and NO₂ limit values.

5. Consultation questions:

5.1. We intend that transposition should meet the requirements of the new Directive (2008/50/EC), the fourth daughter Directive (2004/107/EC) and Council Decision 97/101/EC. We would welcome views as to the extent that the draft 2010 Regulations achieve this.

5.2. Do you consider that our assessment of the impacts of transposing the Directive, as set out in the consultation Impact Assessment, is thoroughly considered? If not, please provide any additional evidence that you think needs to be considered.

6. The Scottish Government Consultation Process

6.1. Consultation is an essential and important aspect of Scottish Government working methods. Given the wide-ranging areas of work of the Scottish Government, there are many varied types of consultation. However, in general, Scottish Government consultation exercises aim to provide opportunities for all those who wish to express their opinions on a proposed area of work to do so in ways which will inform and enhance that work.

6.2. The Scottish Government encourages consultation that is thorough, effective and appropriate to the issue under consideration and the nature of the target audience. Consultation exercises take account of a wide range of factors, and no two exercises are likely to be the same.

6.3. Typically Scottish Government consultations involve a written paper inviting answers to specific questions or more general views about the material presented. Written papers are distributed to organisations and individuals with an interest in the issue, and they are also placed on the Scottish Government web site enabling a wider audience to access the paper and submit their responses. Consultation exercises may also involve seeking views in a number of different ways, such as through public meetings, focus groups or questionnaire exercises. Copies of all the written responses received to a consultation exercise (except those where the individual or organisation requested confidentiality) are placed in the Scottish Government library at Saughton House, Edinburgh (K Spur, Saughton House, Broomhouse Drive, Edinburgh, EH11 3XD, telephone 0131 244 4565).

6.4. All Scottish Government consultation papers and related publications (eg, analysis of response reports) can be accessed at: [Scottish Government consultations \(http://www.scotland.gov.uk/consultations\)](http://www.scotland.gov.uk/consultations). The views and suggestions detailed in consultation responses are analysed and used as part of the decision making process, along with a range of other available information and evidence. Depending on the nature of the consultation exercise the responses received may:

- indicate the need for policy development or review
- inform the development of a particular policy
- help decisions to be made between alternative policy proposals
- be used to finalise legislation before it is implemented

6.5. Final decisions on the issues under consideration will also take account of a range of other factors, including other available information and research evidence. While details of particular circumstances described in a response to a consultation exercise may usefully inform the policy process, consultation exercises cannot address individual concerns and comments, which should be directed to the relevant public body.

I

(Acts adopted under the EC Treaty/Euratom Treaty whose publication is obligatory)

DIRECTIVES

DIRECTIVE 2008/50/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of 21 May 2008

on ambient air quality and cleaner air for Europe

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty establishing the European Community, and in particular Article 175 thereof,

Having regard to the proposal from the Commission,

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

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

Acting in accordance with the procedure laid down in Article 251 of the Treaty ⁽³⁾,

Whereas:

(1) The Sixth Community Environment Action Programme adopted by Decision No 1600/2002/EC of the European Parliament and of the Council of 22 July 2002 ⁽⁴⁾ establishes the need to reduce pollution to levels which minimise harmful effects on human health, paying particular attention to sensitive populations, and the environment as a whole, to improve the monitoring and assessment of air quality including the deposition of pollutants and to provide information to the public.

(2) In order to protect human health and the environment as a whole, it is particularly important to combat emissions of pollutants at source and to identify and implement the most effective emission reduction measures at local, national and Community level. Therefore, emissions of harmful air pollutants should be avoided, prevented or reduced and appropriate objectives set for ambient air quality taking into account relevant World Health Organisation standards, guidelines and programmes.

(3) Council Directive 96/62/EC of 27 September 1996 on ambient air quality assessment and management ⁽⁵⁾, Council Directive 1999/30/EC of 22 April 1999 relating to limit values for sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air ⁽⁶⁾, Directive 2000/69/EC of the European Parliament and of the Council of 16 November 2000 relating to limit values for benzene and carbon monoxide in ambient air ⁽⁷⁾, Directive 2002/3/EC of the European Parliament and of the Council of 12 February 2002 relating to ozone in ambient air ⁽⁸⁾ and Council Decision 97/101/EC of 27 January 1997 establishing a reciprocal exchange of information and data from networks and individual stations measuring ambient air pollution within the Member States ⁽⁹⁾ need to be substantially revised in order to incorporate the latest health and scientific developments and the experience of the Member States. In the interests of clarity, simplification and administrative efficiency it is therefore appropriate that those five acts be replaced by a single Directive and, where appropriate, by implementing measures.

⁽¹⁾ OJ C 195, 18.8.2006, p. 84.

⁽²⁾ OJ C 206, 29.8.2006, p. 1.

⁽³⁾ Opinion of the European Parliament of 26 September 2006 (OJ C 306 E, 15.12.2006, p. 102), Council Common Position of 25 June 2007 (OJ C 236 E, 6.11.2007, p. 1) and Position of the European Parliament of 11 December 2007. Council Decision of 14 April 2008.

⁽⁴⁾ OJ L 242, 10.9.2002, p. 1.

⁽⁵⁾ OJ L 296, 21.11.1996, p. 55. Directive as amended by Regulation (EC) No 1882/2003 of the European Parliament and of the Council (OJ L 284, 31.10.2003, p. 1).

⁽⁶⁾ OJ L 163, 29.6.1999, p. 41. Directive as amended by Commission Decision 2001/744/EC (OJ L 278, 23.10.2001, p. 35).

⁽⁷⁾ OJ L 313, 13.12.2000, p. 12.

⁽⁸⁾ OJ L 67, 9.3.2002, p. 14.

⁽⁹⁾ OJ L 35, 5.2.1997, p. 14. Decision as amended by Commission Decision 2001/752/EC (OJ L 282, 26.10.2001, p. 69).

- (4) Once sufficient experience has been gained in relation to the implementation of Directive 2004/107/EC of the European Parliament and of the Council of 15 December 2004 relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air ⁽¹⁾ consideration may be given to the possibility of merging its provisions with those of this Directive.
- (5) A common approach to the assessment of ambient air quality should be followed according to common assessment criteria. When assessing ambient air quality, account should be taken of the size of populations and ecosystems exposed to air pollution. It is therefore appropriate to classify the territory of each Member State into zones or agglomerations reflecting the population density.
- (6) Where possible modelling techniques should be applied to enable point data to be interpreted in terms of geographical distribution of concentration. This could serve as a basis for calculating the collective exposure of the population living in the area.
- (7) In order to ensure that the information collected on air pollution is sufficiently representative and comparable across the Community, it is important that standardised measurement techniques and common criteria for the number and location of measuring stations are used for the assessment of ambient air quality. Techniques other than measurements can be used to assess ambient air quality and it is therefore necessary to define criteria for the use and required accuracy of such techniques.
- (8) Detailed measurements of fine particulate matter at rural background locations should be made in order to understand better the impacts of this pollutant and to develop appropriate policies. Such measurements should be made in a manner consistent with those of the cooperative programme for monitoring and evaluation of the long range transmission of air pollutants in Europe (EMEP) set up under the 1979 Convention on Long-range Transboundary Air Pollution approved by Council Decision 81/462/EEC of 11 June 1981 ⁽²⁾.
- (9) Air quality status should be maintained where it is already good, or improved. Where the objectives for ambient air quality laid down in this Directive are not met, Member States should take action in order to comply with the limit values and critical levels, and where possible, to attain the target values and long-term objectives.
- (10) The risk posed by air pollution to vegetation and natural ecosystems is most important in places away from urban areas. The assessment of such risks and the compliance with critical levels for the protection of vegetation should therefore focus on places away from built-up areas.
- (11) Fine particulate matter (PM_{2,5}) is responsible for significant negative impacts on human health. Further, there is as yet no identifiable threshold below which PM_{2,5} would not pose a risk. As such, this pollutant should not be regulated in the same way as other air pollutants. The approach should aim at a general reduction of concentrations in the urban background to ensure that large sections of the population benefit from improved air quality. However, to ensure a minimum degree of health protection everywhere, that approach should be combined with a limit value, which is to be preceded in a first stage by a target value.
- (12) The existing target values and long-term objectives of ensuring effective protection against harmful effects on human health and vegetation and ecosystems from exposure to ozone should remain unchanged. An alert threshold and an information threshold for ozone should be set for the protection of the general population and sensitive sections, respectively, from brief exposures to elevated ozone concentrations. Those thresholds should trigger the dissemination of information to the public on the risks of exposure and the implementation, if appropriate, of short-term measures to reduce ozone levels where the alert threshold is exceeded.
- (13) Ozone is a transboundary pollutant formed in the atmosphere from the emission of primary pollutants addressed by Directive 2001/81/EC of the European Parliament and of the Council of 23 October 2001 on national emission ceilings for certain atmospheric pollutants ⁽³⁾. Progress towards the air quality targets and long term objectives for ozone set in this Directive should be determined by the targets and emission ceilings provided for in Directive 2001/81/EC and, if appropriate, by implementing air quality plans as provided for in this Directive.
- (14) Fixed measurements should be mandatory in zones and agglomerations where the long-term objectives for ozone or the assessment thresholds for other pollutants are exceeded. Information from fixed measurements may be supplemented by modelling techniques and/or indicative measurements to enable point data to be interpreted in terms of geographical distribution of concentrations. The use of supplementary techniques of assessment should also allow for reduction of the required minimum number of fixed sampling points.
- (15) Contributions from natural sources can be assessed but cannot be controlled. Therefore, where natural contributions to pollutants in ambient air can be determined with sufficient certainty, and where exceedances are due in whole or in part to these natural contributions, these may, under the conditions laid down in this Directive, be subtracted when assessing compliance with air quality limit values. Contributions to exceedances of particulate matter PM₁₀ limit values attributable to winter-sanding or -salting of roads may also be subtracted when assessing compliance with air quality limit values provided that reasonable measures have been taken to lower concentrations.

⁽¹⁾ OJ L 23, 26.1.2005, p. 3.

⁽²⁾ OJ L 171, 27.6.1981, p. 11.

⁽³⁾ OJ L 309, 27.11.2001, p. 22. Directive as last amended by Council Directive 2006/105/EC (OJ L 363, 20.12.2006, p. 368).

- (16) For zones and agglomerations where conditions are particularly difficult, it should be possible to postpone the deadline for compliance with the air quality limit values in cases where, notwithstanding the implementation of appropriate pollution abatement measures, acute compliance problems exist in specific zones and agglomerations. Any postponement for a given zone or agglomeration should be accompanied by a comprehensive plan to be assessed by the Commission to ensure compliance by the revised deadline. The availability of necessary Community measures reflecting the chosen ambition level in the Thematic Strategy on air pollution to reduce emissions at source will be important for an effective emission reduction by the timeframe established in this Directive for compliance with the limit values and should be taken into account when assessing requests to postpone deadlines for compliance.
- (17) The necessary Community measures to reduce emissions at source, in particular measures to improve the effectiveness of Community legislation on industrial emissions, to limit the exhaust emissions of engines installed in heavy duty vehicles, to further reduce the Member States' permitted national emissions of key pollutants and the emissions associated with refuelling of petrol cars at service stations, and to address the sulphur content of fuels including marine fuels should be duly examined as a priority by all institutions involved.
- (18) Air quality plans should be developed for zones and agglomerations within which concentrations of pollutants in ambient air exceed the relevant air quality target values or limit values, plus any temporary margins of tolerance, where applicable. Air pollutants are emitted from many different sources and activities. To ensure coherence between different policies, such air quality plans should where feasible be consistent, and integrated with plans and programmes prepared pursuant to Directive 2001/80/EC of the European Parliament and of the Council of 23 October 2001 on the limitation of emissions of certain pollutants into the air from large combustion plants ⁽¹⁾, Directive 2001/81/EC, and Directive 2002/49/EC of the European Parliament and of the Council of 25 June 2002 relating to the assessment and management of environmental noise ⁽²⁾. Full account will also be taken of the ambient air quality objectives provided for in this Directive, where permits are granted for industrial activities pursuant to Directive 2008/1/EC of the European Parliament and of the Council of 15 January 2008 concerning integrated pollution prevention and control ⁽³⁾.
- (19) Action plans should be drawn up indicating the measures to be taken in the short term where there is a risk of an exceedance of one or more alert thresholds in order to reduce that risk and to limit its duration. When the risk applies to one or more limit values or target values, Member States may, where appropriate, draw up such short-term action plans. In respect of ozone, such short-term action plans should take into account the provisions of Commission Decision 2004/279/EC of 19 March 2004 concerning guidance for implementation of Directive 2002/3/EC of the European Parliament and of the Council relating to ozone in ambient air ⁽⁴⁾.
- (20) Member States should consult with one another if, following significant pollution originating in another Member State, the level of a pollutant exceeds, or is likely to exceed, the relevant air quality objectives plus the margin of tolerance where applicable or, as the case may be, the alert threshold. The transboundary nature of specific pollutants, such as ozone and particulate matter, may require coordination between neighbouring Member States in drawing up and implementing air quality plans and short-term action plans and in informing the public. Where appropriate, Member States should pursue cooperation with third countries, with particular emphasis on the early involvement of candidate countries.
- (21) It is necessary for the Member States and the Commission to collect, exchange and disseminate air quality information in order to understand better the impacts of air pollution and develop appropriate policies. Up-to-date information on concentrations of all regulated pollutants in ambient air should also be readily available to the public.
- (22) In order to facilitate the handling and comparison of air quality information, data should be made available to the Commission in a standardised form.
- (23) It is necessary to adapt procedures for data provision, assessment and reporting of air quality to enable electronic means and the Internet to be used as the main tools to make information available, and so that such procedures are compatible with Directive 2007/2/EC of the European Parliament and the Council of 14 March 2007 establishing an infrastructure for spatial information in the European Community (INSPIRE) ⁽⁵⁾.
- (24) It is appropriate to provide for the possibility of adapting the criteria and techniques used for the assessment of the ambient air quality to scientific and technical progress and adapting thereto the information to be provided.
- (25) Since the objectives of this Directive cannot be sufficiently achieved by the Member States by reason of the transboundary nature of air pollutants and can therefore be better achieved at Community level, the Community may adopt measures, in accordance with the principle of subsidiarity as set out in Article 5 of the Treaty. In accordance with the principle of proportionality, as set out in that Article, this Directive does not go beyond what is necessary in order to achieve those objectives.

⁽¹⁾ OJ L 309, 27.11.2001, p. 1. Directive as last amended by Directive 2006/105/EC.

⁽²⁾ OJ L 189, 18.7.2002, p. 12.

⁽³⁾ OJ L 24, 29.1.2008, p. 8.

⁽⁴⁾ OJ L 87, 25.3.2004, p. 50.

⁽⁵⁾ OJ L 108, 25.4.2007, p. 1.

- (26) Member States should lay down rules on penalties applicable to infringements of the provisions of this Directive and ensure that they are implemented. The penalties should be effective, proportionate and dissuasive.
- (27) Certain provisions of the acts repealed by this Directive should remain in force in order to ensure the continuance of existing air quality limits for nitrogen dioxide until they are replaced from 1 January 2010, the continuance of air quality reporting provisions until new implementing measures are adopted, and the continuance of obligations relating to the preliminary assessments of air quality required under Directive 2004/107/EC.
- (28) The obligation to transpose this Directive into national law should be confined to those provisions which represent a substantive change as compared with the earlier Directives.
- (29) In accordance with point 34 of the Interinstitutional Agreement on better lawmaking ⁽¹⁾, Member States are encouraged to draw up, for themselves and in the interest of the Community, their own tables illustrating, as far as possible, the correlation between the Directive and the transposition measures, and to make them public.
- (30) This Directive respects the fundamental rights and observes the principles recognised in particular by the Charter of Fundamental Rights of the European Union. In particular, this Directive seeks to promote the integration into the policies of the Union of a high level of environmental protection and the improvement of the quality of the environment in accordance with the principle of sustainable development as laid down in Article 37 of the Charter of Fundamental Rights of the European Union.
- (31) The measures necessary for the implementation of this Directive should be adopted in accordance with Council Decision 1999/468/EC of 28 June 1999 laying down the procedures for the exercise of implementing powers conferred on the Commission ⁽²⁾.
- (32) The Commission should be empowered to amend Annexes I to VI, Annexes VIII to X and Annex XV. Since those measures are of general scope and are designed to amend non-essential elements of this Directive, they must be adopted in accordance with the regulatory procedure with scrutiny provided for in Article 5a of Decision 1999/468/EC.
- (33) The transposition clause requires Member States to ensure that the necessary urban background measurements are in place well in time to define the Average Exposure Indicator, in order to guarantee that the requirements related to the assessment of the National Exposure Reduction Target and to the calculation of the Average Exposure Indicator are met,

HAVE ADOPTED THIS DIRECTIVE:

CHAPTER I

GENERAL PROVISIONS

Article 1

Subject matter

This Directive lays down measures aimed at the following:

1. defining and establishing objectives for ambient air quality designed to avoid, prevent or reduce harmful effects on human health and the environment as a whole;
2. assessing the ambient air quality in Member States on the basis of common methods and criteria;
3. obtaining information on ambient air quality in order to help combat air pollution and nuisance and to monitor long-term trends and improvements resulting from national and Community measures;
4. ensuring that such information on ambient air quality is made available to the public;
5. maintaining air quality where it is good and improving it in other cases;
6. promoting increased cooperation between the Member States in reducing air pollution.

Article 2

Definitions

For the purposes of this Directive:

1. 'ambient air' shall mean outdoor air in the troposphere, excluding workplaces as defined by Directive 89/654/EEC ⁽³⁾ where provisions concerning health and safety at work apply and to which members of the public do not have regular access;
2. 'pollutant' shall mean any substance present in ambient air and likely to have harmful effects on human health and/or the environment as a whole;
3. 'level' shall mean the concentration of a pollutant in ambient air or the deposition thereof on surfaces in a given time;

⁽¹⁾ OJ C 321, 31.12.2003, p. 1.

⁽²⁾ OJ L 184, 17.7.1999, p. 23. Decision as amended by Decision 2006/512/EC (OJ L 200, 22.7.2006, p. 11).

⁽³⁾ Council Directive 89/654/EEC of 30 November 1989 concerning the minimum safety and health requirements for the workplace (OJ L 393, 30.12.1989, p. 1). Directive as amended by Directive 2007/30/EC of the European Parliament and of the Council (OJ L 165, 27.6.2007, p. 21).

4. 'assessment' shall mean any method used to measure, calculate, predict or estimate levels;
5. 'limit value' shall mean a level fixed on the basis of scientific knowledge, with the aim of avoiding, preventing or reducing harmful effects on human health and/or the environment as a whole, to be attained within a given period and not to be exceeded once attained;
6. 'critical level' shall mean a level fixed on the basis of scientific knowledge, above which direct adverse effects may occur on some receptors, such as trees, other plants or natural ecosystems but not on humans;
7. 'margin of tolerance' shall mean the percentage of the limit value by which that value may be exceeded subject to the conditions laid down in this Directive;
8. 'air quality plans' shall mean plans that set out measures in order to attain the limit values or target values;
9. 'target value' shall mean a level fixed with the aim of avoiding, preventing or reducing harmful effects on human health and/or the environment as a whole, to be attained where possible over a given period;
10. 'alert threshold' shall mean a level beyond which there is a risk to human health from brief exposure for the population as a whole and at which immediate steps are to be taken by the Member States;
11. 'information threshold' shall mean a level beyond which there is a risk to human health from brief exposure for particularly sensitive sections of the population and for which immediate and appropriate information is necessary;
12. 'upper assessment threshold' shall mean a level below which a combination of fixed measurements and modelling techniques and/or indicative measurements may be used to assess ambient air quality;
13. 'lower assessment threshold' shall mean a level below which modelling or objective-estimation techniques alone may be used to assess ambient air quality;
14. 'long-term objective' shall mean a level to be attained in the long term, save where not achievable through proportionate measures, with the aim of providing effective protection of human health and the environment;
15. 'contributions from natural sources' shall mean emissions of pollutants not caused directly or indirectly by human activities, including natural events such as volcanic eruptions, seismic activities, geothermal activities, wild-land fires, high-wind events, sea sprays or the atmospheric re-suspension or transport of natural particles from dry regions;
16. 'zone' shall mean part of the territory of a Member State, as delimited by that Member State for the purposes of air quality assessment and management;
17. 'agglomeration' shall mean a zone that is a conurbation with a population in excess of 250 000 inhabitants or, where the population is 250 000 inhabitants or less, with a given population density per km² to be established by the Member States;
18. 'PM₁₀' shall mean particulate matter which passes through a size-selective inlet as defined in the reference method for the sampling and measurement of PM₁₀, EN 12341, with a 50 % efficiency cut-off at 10 µm aerodynamic diameter;
19. 'PM_{2,5}' shall mean particulate matter which passes through a size-selective inlet as defined in the reference method for the sampling and measurement of PM_{2,5}, EN 14907, with a 50 % efficiency cut-off at 2,5 µm aerodynamic diameter;
20. 'average exposure indicator' shall mean an average level determined on the basis of measurements at urban background locations throughout the territory of a Member State and which reflects population exposure. It is used to calculate the national exposure reduction target and the exposure concentration obligation;
21. 'exposure concentration obligation' shall mean a level fixed on the basis of the average exposure indicator with the aim of reducing harmful effects on human health, to be attained over a given period;
22. 'national exposure reduction target' shall mean a percentage reduction of the average exposure of the population of a Member State set for the reference year with the aim of reducing harmful effects on human health, to be attained where possible over a given period;
23. 'urban background locations' shall mean places in urban areas where levels are representative of the exposure of the general urban population;
24. 'oxides of nitrogen' shall mean the sum of the volume mixing ratio (ppbv) of nitrogen monoxide (nitric oxide) and nitrogen dioxide expressed in units of mass concentration of nitrogen dioxide (µg/m³);
25. 'fixed measurements' shall mean measurements taken at fixed sites, either continuously or by random sampling, to determine the levels in accordance with the relevant data quality objectives;
26. 'indicative measurements' shall mean measurements which meet data quality objectives that are less strict than those required for fixed measurements;

27. 'volatile organic compounds' (VOC) shall mean organic compounds from anthropogenic and biogenic sources, other than methane, that are capable of producing photochemical oxidants by reactions with nitrogen oxides in the presence of sunlight;
28. 'ozone precursor substances' means substances which contribute to the formation of ground-level ozone, some of which are listed in Annex X.

Article 3

Responsibilities

Member States shall designate at the appropriate levels the competent authorities and bodies responsible for the following:

- (a) assessment of ambient air quality;
- (b) approval of measurement systems (methods, equipment, networks and laboratories);
- (c) ensuring the accuracy of measurements;
- (d) analysis of assessment methods;
- (e) coordination on their territory if Community-wide quality assurance programmes are being organised by the Commission;
- (f) cooperation with the other Member States and the Commission.

Where relevant, the competent authorities and bodies shall comply with Section C of Annex I.

Article 4

Establishment of zones and agglomerations

Member States shall establish zones and agglomerations throughout their territory. Air quality assessment and air quality management shall be carried out in all zones and agglomerations.

CHAPTER II

ASSESSMENT OF AMBIENT AIR QUALITY

SECTION 1

Assessment of ambient air quality in relation to sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter, lead, benzene and carbon monoxide

Article 5

Assessment regime

1. The upper and lower assessment thresholds specified in Section A of Annex II shall apply to sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter (PM₁₀ and PM_{2,5}), lead, benzene and carbon monoxide.

Each zone and agglomeration shall be classified in relation to those assessment thresholds.

2. The classification referred to in paragraph 1 shall be reviewed at least every five years in accordance with the procedure laid down in Section B of Annex II.

However, classifications shall be reviewed more frequently in the event of significant changes in activities relevant to the ambient concentrations of sulphur dioxide, nitrogen dioxide or, where relevant, oxides of nitrogen, particulate matter (PM₁₀, PM_{2,5}), lead, benzene or carbon monoxide.

Article 6

Assessment criteria

1. Member States shall assess ambient air quality with respect to the pollutants referred to in Article 5 in all their zones and agglomerations, in accordance with the criteria laid down in paragraphs 2, 3 and 4 of this Article and in accordance with the criteria laid down in Annex III.

2. In all zones and agglomerations where the level of pollutants referred to in paragraph 1 exceeds the upper assessment threshold established for those pollutants, fixed measurements shall be used to assess the ambient air quality. Those fixed measurements may be supplemented by modelling techniques and/or indicative measurements to provide adequate information on the spatial distribution of the ambient air quality.

3. In all zones and agglomerations where the level of pollutants referred to in paragraph 1 is below the upper assessment threshold established for those pollutants, a combination of fixed measurements and modelling techniques and/or indicative measurements may be used to assess the ambient air quality.

4. In all zones and agglomerations where the level of pollutants referred to in paragraph 1 is below the lower assessment threshold established for those pollutants, modelling techniques or objective-estimation techniques or both shall be sufficient for the assessment of the ambient air quality.

5. In addition to the assessments referred to in paragraphs 2, 3 and 4, measurements shall be made, at rural background locations away from significant sources of air pollution, for the purposes of providing, as a minimum, information on the total mass concentration and the chemical speciation concentrations of fine particulate matter (PM_{2,5}) on an annual average basis and shall be conducted using the following criteria:

- (a) one sampling point shall be installed every 100 000 km²;
- (b) each Member State shall set up at least one measuring station or may, by agreement with adjoining Member States, set up one or several common measuring stations, covering the relevant neighbouring zones, to achieve the necessary spatial resolution;

- (c) where appropriate, monitoring shall be coordinated with the monitoring strategy and measurement programme of the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP);
- (d) Sections A and C of Annex I shall apply in relation to the data quality objectives for mass concentration measurements of particulate matter and Annex IV shall apply in its entirety.

Member States shall inform the Commission of the measurement methods used in the measurement of the chemical composition of fine particulate matter (PM_{2,5}).

Article 7

Sampling points

1. The location of sampling points for the measurement of sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter (PM₁₀, PM_{2,5}), lead, benzene and carbon monoxide in ambient air shall be determined using the criteria listed in Annex III.
2. In each zone or agglomeration where fixed measurements are the sole source of information for assessing air quality, the number of sampling points for each relevant pollutant shall not be less than the minimum number of sampling points specified in Section A of Annex V.
3. For zones and agglomerations within which information from fixed measurement sampling points is supplemented by information from modelling and/or indicative measurement, the total number of sampling points specified in Section A of Annex V may be reduced by up to 50 %, provided that the following conditions are met:
 - (a) the supplementary methods provide sufficient information for the assessment of air quality with regard to limit values or alert thresholds, as well as adequate information for the public;
 - (b) the number of sampling points to be installed and the spatial resolution of other techniques are sufficient for the concentration of the relevant pollutant to be established in accordance with the data quality objectives specified in Section A of Annex I and enable assessment results to meet the criteria specified in Section B of Annex I.

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.

4. The application in Member States of the criteria for selecting sampling points shall be monitored by the Commission so as to facilitate the harmonised application of those criteria throughout the European Union.

Article 8

Reference measurement methods

1. Member States shall apply the reference measurement methods and criteria specified in Section A and Section C of Annex VI.

2. Other measurement methods may be used subject to the conditions set out in Section B of Annex VI.

SECTION 2

Assessment of ambient air quality in relation to ozone

Article 9

Assessment criteria

1. Where, in a zone or agglomeration, concentrations of ozone have exceeded the long-term objectives specified in Section C of Annex VII during any of the previous five years of measurement, fixed measurements shall be taken.
2. Where fewer than five years' data are available, Member States may, for the purposes of determining whether the long-term objectives referred to in paragraph 1 have been exceeded during those five years, combine the results from measurement campaigns of short duration carried out when and where levels are likely to be at their highest, with the results obtained from emission inventories and modelling.

Article 10

Sampling points

1. The siting of sampling points for the measurement of ozone shall be determined using the criteria set out in Annex VIII.
2. The sampling points for fixed measurements of ozone in each zone or agglomeration within which measurement is the sole source of information for assessing air quality shall not be less than the minimum number of sampling points specified in Section A of Annex IX.
3. For zones and agglomerations within which information from sampling points for fixed measurements is supplemented by information from modelling and/or indicative measurements, the number of sampling points specified in Section A of Annex IX may be reduced provided that the following conditions are met:
 - (a) the supplementary methods provide sufficient information for the assessment of air quality with regard to target values, long-term objectives, information and alert thresholds;
 - (b) the number of sampling points to be installed and the spatial resolution of other techniques are sufficient for the concentration of ozone to be established in accordance with the data quality objectives specified in Section A of Annex I and enable assessment results to meet the criteria specified in Section B of Annex I;
 - (c) the number of sampling points in each zone or agglomeration amounts to at least one sampling point per two million inhabitants or one sampling point per 50 000 km², whichever produces the greater number of sampling points, but must not be less than one sampling point in each zone or agglomeration;

- (d) nitrogen dioxide is measured at all remaining sampling points except at rural background stations as referred to in Section A of Annex VIII.

The results of modelling and/or indicative measurement shall be taken into account for the assessment of air quality with respect to the target values.

4. Nitrogen dioxide shall be measured at a minimum of 50 % of the ozone sampling points required under Section A of Annex IX. That measurement shall be continuous except at rural background stations, as referred to in Section A of Annex VIII, where other measurement methods may be used.

5. In zones and agglomerations where, during each of the previous five years of measurement, concentrations are below the long-term objectives, the number of sampling points for fixed measurements shall be determined in accordance with Section B of Annex IX.

6. Each Member State shall ensure that at least one sampling point is installed and operated in its territory to supply data on concentrations of the ozone precursor substances listed in Annex X. Each Member State shall choose the number and siting of the stations at which ozone precursor substances are to be measured, taking into account the objectives and methods laid down in Annex X.

Article 11

Reference measurement methods

1. Member States shall apply the reference method for measurement of ozone, set out in point 8 of Section A of Annex VI. Other measuring methods may be used subject to the conditions set out in Section B of Annex VI.
2. Each Member State shall inform the Commission of the methods it uses to sample and measure VOC, as listed in Annex X.

CHAPTER III

AMBIENT AIR QUALITY MANAGEMENT

Article 12

Requirements where levels are lower than the limit values

In zones and agglomerations where the levels of sulphur dioxide, nitrogen dioxide, PM₁₀, PM_{2,5}, lead, benzene and carbon monoxide in ambient air are below the respective limit values specified in Annexes XI and XIV, Member States shall maintain the levels of those pollutants below the limit values and shall endeavour to preserve the best ambient air quality, compatible with sustainable development.

Article 13

Limit values and alert thresholds for the protection of human health

1. Member States shall ensure that, throughout their zones and agglomerations, levels of sulphur dioxide, PM₁₀, lead,

and carbon monoxide in ambient air do not exceed the limit values laid down in Annex XI.

In respect of nitrogen dioxide and benzene, the limit values specified in Annex XI may not be exceeded from the dates specified therein.

Compliance with these requirements shall be assessed in accordance with Annex III.

The margins of tolerance laid down in Annex XI shall apply in accordance with Article 22(3) and Article 23(1).

2. The alert thresholds for concentrations of sulphur dioxide and nitrogen dioxide in ambient air shall be those laid down in Section A of Annex XII.

Article 14

Critical levels

1. Member States shall ensure compliance with the critical levels specified in Annex XIII as assessed in accordance with Section A of Annex III.
2. Where fixed measurements are the sole source of information for assessing air quality, the number of sampling points shall not be less than the minimum number specified in Section C of Annex V. Where that information is supplemented by indicative measurements or modelling, the minimum number of sampling points may be reduced by up to 50 % so long as the assessed concentrations of the relevant pollutant can be established in accordance with the data quality objectives specified in Section A of Annex I.

Article 15

National PM_{2,5} exposure reduction target for the protection of human health

1. Member States shall take all necessary measures not entailing disproportionate costs to reduce exposure to PM_{2,5} with a view to attaining the national exposure reduction target laid down in Section B of Annex XIV by the year specified therein.
2. Member States shall ensure that the average exposure indicator for the year 2015 established in accordance with Section A of Annex XIV does not exceed the exposure concentration obligation laid down in Section C of that Annex.
3. The average exposure indicator for PM_{2,5} shall be assessed in accordance with Section A of Annex XIV.
4. Each Member State shall, in accordance with Annex III, ensure that the distribution and the number of sampling points on which the average exposure indicator for PM_{2,5} is based reflect the general population exposure adequately. The number of sampling points shall be no less than that determined by application of Section B of Annex V.

*Article 16***PM_{2,5} target value and limit value for the protection of human health**

1. Member States shall take all necessary measures not entailing disproportionate costs to ensure that concentrations of PM_{2,5} in ambient air do not exceed the target value laid down in Section D of Annex XIV as from the date specified therein.
2. Member States shall ensure that concentrations of PM_{2,5} in ambient air do not exceed the limit value laid down in Section E of Annex XIV throughout their zones and agglomerations as from the date specified therein. Compliance with this requirement shall be assessed in accordance with Annex III.
3. The margin of tolerance laid down in Section E of Annex XIV shall apply in accordance with Article 23(1).

*Article 17***Requirements in zones and agglomerations where ozone concentrations exceed the target values and long-term objectives**

1. Member States shall take all necessary measures not entailing disproportionate costs to ensure that the target values and long-term objectives are attained.
2. For zones and agglomerations in which a target value is exceeded, Member States shall ensure that the programme prepared pursuant to Article 6 of Directive 2001/81/EC and, if appropriate, an air quality plan is implemented in order to attain the target values, save where not achievable through measures not entailing disproportionate costs, as from the date specified in Section B of Annex VII to this Directive.
3. For zones and agglomerations in which the levels of ozone in ambient air are higher than the long-term objectives but below, or equal to, the target values, Member States shall prepare and implement cost-effective measures with the aim of achieving the long-term objectives. Those measures shall, at least, be consistent with all the air quality plans and the programme referred to in paragraph 2.

*Article 18***Requirements in zones and agglomerations where ozone concentrations meet the long-term objectives**

In zones and agglomerations in which ozone levels meet the long-term objectives, Member States shall, in so far as factors including the transboundary nature of ozone pollution and meteorological conditions permit, maintain those levels below the long-term objectives and shall preserve through proportionate measures the best ambient air quality compatible with sustainable development and a high level of environmental and human health protection.

*Article 19***Measures required in the event of information or alert thresholds being exceeded**

Where the information threshold specified in Annex XII or any of the alert thresholds laid down therein is exceeded, Member States shall take the necessary steps to inform the public by means of radio, television, newspapers or the Internet.

Member States shall also forward to the Commission, on a provisional basis, information concerning the levels recorded and the duration of the periods during which the alert threshold or information threshold was exceeded.

*Article 20***Contributions from natural sources**

1. Member States shall transmit to the Commission, for a given year, lists of zones and agglomerations where exceedances of limit values for a given pollutant are attributable to natural sources. Member States shall provide information on concentrations and sources and the evidence demonstrating that the exceedances are attributable to natural sources.
2. Where the Commission has been informed of an exceedance attributable to natural sources in accordance with paragraph 1, that exceedance shall not be considered as an exceedance for the purposes of this Directive.
3. The Commission shall by 11 June 2010 publish guidelines for demonstration and subtraction of exceedances attributable to natural sources.

*Article 21***Exceedances attributable to winter-sanding or -salting of roads**

1. Member States may designate zones or agglomerations within which limit values for PM₁₀ are exceeded in ambient air due to the re-suspension of particulates following winter-sanding or -salting of roads.
2. Member States shall send the Commission lists of any such zones or agglomerations together with information on concentrations and sources of PM₁₀ therein.
3. When informing the Commission in accordance with Article 27, Member States shall provide the necessary evidence to demonstrate that any exceedances are due to re-suspended particulates and that reasonable measures have been taken to lower the concentrations.
4. Without prejudice to Article 20, in the case of zones and agglomerations referred to in paragraph 1 of this Article, Member States need to establish the air quality plan provided for in Article 23 only in so far as exceedances are attributable to PM₁₀ sources other than winter-sanding or -salting of roads.

5. The Commission shall by 11 June 2010 publish guidelines for determination of contributions from the re-suspension of particulates following winter-sanding or -salting of roads.

Article 22

Postponement of attainment deadlines and exemption from the obligation to apply certain limit values

1. Where, in a given zone or agglomeration, conformity with the limit values for nitrogen dioxide or benzene cannot be achieved by the deadlines specified in Annex XI, a Member State may postpone those deadlines by a maximum of five years for that particular zone or agglomeration, on condition that an air quality plan is established in accordance with Article 23 for the zone or agglomeration to which the postponement would apply; such air quality plan shall be supplemented by the information listed in Section B of Annex XV related to the pollutants concerned and shall demonstrate how conformity will be achieved with the limit values before the new deadline.

2. Where, in a given zone or agglomeration, conformity with the limit values for PM₁₀ as specified in Annex XI cannot be achieved because of site-specific dispersion characteristics, adverse climatic conditions or transboundary contributions, a Member State shall be exempt from the obligation to apply those limit values until 11 June 2011 provided that the conditions laid down in paragraph 1 are fulfilled and that the Member State shows that all appropriate measures have been taken at national, regional and local level to meet the deadlines.

3. Where a Member State applies paragraphs 1 or 2, it shall ensure that the limit value for each pollutant is not exceeded by more than the maximum margin of tolerance specified in Annex XI for each of the pollutants concerned.

4. Member States shall notify the Commission where, in their view, paragraphs 1 or 2 are applicable, and shall communicate the air quality plan referred to in paragraph 1 including all relevant information necessary for the Commission to assess whether or not the relevant conditions are satisfied. In its assessment, the Commission shall take into account estimated effects on ambient air quality in the Member States, at present and in the future, of measures that have been taken by the Member States as well as estimated effects on ambient air quality of current Community measures and planned Community measures to be proposed by the Commission.

Where the Commission has raised no objections within nine months of receipt of that notification, the relevant conditions for the application of paragraphs 1 or 2 shall be deemed to be satisfied.

If objections are raised, the Commission may require Member States to adjust or provide new air quality plans.

CHAPTER IV

PLANS

Article 23

Air quality plans

1. Where, in given zones or agglomerations, the levels of pollutants in ambient air exceed any limit value or target value, plus any relevant margin of tolerance in each case, Member States shall ensure that air quality plans are established for those zones and agglomerations in order to achieve the related limit value or target value specified in Annexes XI and XIV.

In the event of exceedances of those limit values for which the attainment deadline is already expired, the air quality plans shall set out appropriate measures, so that the exceedance period can be kept as short as possible. The air quality plans may additionally include specific measures aiming at the protection of sensitive population groups, including children.

Those air quality plans shall incorporate at least the information listed in Section A of Annex XV and may include measures pursuant to Article 24. Those plans shall be communicated to the Commission without delay, but no later than two years after the end of the year the first exceedance was observed.

Where air quality plans must be prepared or implemented in respect of several pollutants, Member States shall, where appropriate, prepare and implement integrated air quality plans covering all pollutants concerned.

2. Member States shall, to the extent feasible, ensure consistency with other plans required under Directive 2001/80/EC, Directive 2001/81/EC or Directive 2002/49/EC in order to achieve the relevant environmental objectives.

Article 24

Short-term action plans

1. Where, in a given zone or agglomeration, there is a risk that the levels of pollutants will exceed one or more of the alert thresholds specified in Annex XII, Member States shall draw up action plans indicating the measures to be taken in the short term in order to reduce the risk or duration of such an exceedance. Where this risk applies to one or more limit values or target values specified in Annexes VII, XI and XIV, Member States may, where appropriate, draw up such short-term action plans.

However, where there is a risk that the alert threshold for ozone specified in Section B of Annex XII will be exceeded, Member States shall only draw up such short-term action plans when in their opinion there is a significant potential, taking into account national geographical, meteorological and economic conditions, to reduce the risk, duration or severity of such an exceedance. When drawing up such a short-term action plan Member States shall take account of Decision 2004/279/EC.

2. The short-term action plans referred to in paragraph 1 may, depending on the individual case, provide for effective measures to control and, where necessary, suspend activities which contribute to the risk of the respective limit values or target values or alert threshold being exceeded. Those action plans may include measures in relation to motor-vehicle traffic, construction works, ships at berth, and the use of industrial plants or products and domestic heating. Specific actions aiming at the protection of sensitive population groups, including children, may also be considered in the framework of those plans.

3. When Member States have drawn up a short-term action plan, they shall make available to the public and to appropriate organisations such as environmental organisations, consumer organisations, organisations representing the interests of sensitive population groups, other relevant health-care bodies and the relevant industrial federations both the results of their investigations on the feasibility and the content of specific short-term action plans as well as information on the implementation of these plans.

4. For the first time before 11 June 2010 and at regular intervals thereafter, the Commission shall publish examples of best practices for the drawing-up of short-term action plans, including examples of best practices for the protection of sensitive population groups, including children.

Article 25

Transboundary air pollution

1. Where any alert threshold, limit value or target value plus any relevant margin of tolerance or long-term objective is exceeded due to significant transboundary transport of air pollutants or their precursors, the Member States concerned shall cooperate and, where appropriate, draw up joint activities, such as the preparation of joint or coordinated air quality plans pursuant to Article 23 in order to remove such exceedances through the application of appropriate but proportionate measures.

2. The Commission shall be invited to be present and to assist in any cooperation referred to in paragraph 1. Where appropriate, the Commission shall, taking into account the reports established pursuant to Article 9 of Directive 2001/81/EC, consider whether further action should be taken at Community level in order to reduce precursor emissions responsible for transboundary pollution.

3. Member States shall, if appropriate pursuant to Article 24, prepare and implement joint short-term action plans covering neighbouring zones in other Member States. Member States shall ensure that neighbouring zones in other Member States which have developed short-term action plans receive all appropriate information.

4. Where the information threshold or alert thresholds are exceeded in zones or agglomerations close to national borders,

information shall be provided as soon as possible to the competent authorities in the neighbouring Member States concerned. That information shall also be made available to the public.

5. In drawing up plans as provided for in paragraphs 1 and 3 and in informing the public as referred to in paragraph 4, Member States shall, where appropriate, endeavour to pursue cooperation with third countries, and in particular with candidate countries.

CHAPTER V

INFORMATION AND REPORTING

Article 26

Public information

1. Member States shall ensure that the public as well as appropriate organisations such as environmental organisations, consumer organisations, organisations representing the interests of sensitive populations, other relevant health-care bodies and the relevant industrial federations are informed, adequately and in good time, of the following:

- (a) ambient air quality in accordance with Annex XVI;
- (b) any postponement decisions pursuant to Article 22(1);
- (c) any exemptions pursuant to Article 22(2);
- (d) air quality plans as provided for in Article 22(1) and Article 23 and programmes referred to in Article 17(2).

The information shall be made available free of charge by means of any easily accessible media including the Internet or any other appropriate means of telecommunication, and shall take into account the provisions laid down in Directive 2007/2/EC.

2. Member States shall make available to the public annual reports for all pollutants covered by this Directive.

Those reports shall summarise the levels exceeding limit values, target values, long-term objectives, information thresholds and alert thresholds, for the relevant averaging periods. That information shall be combined with a summary assessment of the effects of those exceedances. The reports may include, where appropriate, further information and assessments on forest protection as well as information on other pollutants for which monitoring provisions are specified in this Directive, such as, *inter alia*, selected non-regulated ozone precursor substances as listed in Section B of Annex X.

3. Member States shall inform the public of the competent authority or body designated in relation to the tasks referred to in Article 3.

Article 27

Transmission of information and reporting

1. Member States shall ensure that information on ambient air quality is made available to the Commission within the required timescale as determined by the implementing measures referred to in Article 28(2).

2. In any event, for the specific purpose of assessing compliance with the limit values and critical levels and the attainment of target values, such information shall be made available to the Commission no later than nine months after the end of each year and shall include:

- (a) the changes made in that year to the list and delimitation of zones and agglomerations established under Article 4;
- (b) the list of zones and agglomerations in which the levels of one or more pollutants are higher than the limit values plus the margin of tolerance where applicable or higher than target values or critical levels; and for these zones and agglomerations:
 - (i) levels assessed and, if relevant, the dates and periods when such levels were observed;
 - (ii) if appropriate, an assessment on contributions from natural sources and from re-suspension of particulates following winter-sanding or -salting of roads to the levels assessed, as declared to the Commission under Articles 20 and 21.

3. Paragraphs 1 and 2 shall apply to information collected as from the beginning of the second calendar year after the entry into force of the implementing measures referred to in Article 28(2).

Article 28

Implementing measures

1. Measures designed to amend the non-essential elements of this Directive, namely Annexes I to VI, Annexes VIII to X and Annex XV, shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 29(3).

However, the amendments may not have the effect of directly or indirectly modifying either of the following:

- (a) the limit values, exposure reduction targets, critical levels, target values, information or alert thresholds or long-term objectives specified in Annex VII and Annexes XI to XIV;
- (b) the dates for compliance with any of the parameters referred to in point (a).

2. The Commission shall, in accordance with the regulatory procedure referred to in Article 29(2), determine the additional information to be made available by Member States pursuant to Article 27 as well as the timescales in which such information is to be communicated.

The Commission shall also identify ways of streamlining the way data are reported and the reciprocal exchange of information and data from networks and individual stations measuring ambient air pollution within the Member States, in accordance with the regulatory procedure referred to in Article 29(2).

3. The Commission shall draw up guidelines for the agreements on setting up common measuring stations as referred to in Article 6(5).

4. The Commission shall publish guidance on the demonstration of equivalence referred to in Section B of Annex VI.

CHAPTER VI

COMMITTEE, TRANSITIONAL AND FINAL PROVISIONS

Article 29

Committee

1. The Commission shall be assisted by a committee, 'the Ambient Air Quality Committee'.

2. Where reference is made to this paragraph, Articles 5 and 7 of Decision 1999/468/EC shall apply, having regard to the provisions of Article 8 thereof.

The period laid down in Article 5(6) of Decision 1999/468/EC shall be set at three months.

3. Where reference is made to this paragraph, Article 5a(1) to (4) and Article 7 of Decision 1999/468/EC shall apply, having regard to the provisions of Article 8 thereof.

Article 30

Penalties

Member States shall lay down the rules on penalties applicable to infringements of the national provisions adopted pursuant to this Directive and shall take all measures necessary to ensure that they are implemented. The penalties provided for must be effective, proportionate and dissuasive.

Article 31

Repeal and transitional provisions

1. Directives 96/62/EC, 1999/30/EC, 2000/69/EC and 2002/3/EC shall be repealed as from 11 June 2010, without prejudice to the obligations on the Member States relating to time-limits for transposition or application of those Directives.

However, from 11 June 2008, the following shall apply:

- (a) in Directive 96/62/EC, paragraph 1 of Article 12 shall be replaced by the following:

'1. The detailed arrangements for forwarding the information to be provided under Article 11 shall be adopted in accordance with the procedure referred to in paragraph 3.;

- (b) in Directive 1999/30/EC, Article 7(7), footnote 1 in point I of Annex VIII and point VI of Annex IX shall be deleted;

- (c) in Directive 2000/69/EC, Article 5(7) and point III in Annex VII shall be deleted;

- (d) in Directive 2002/3/EC, Article 9(5) and point II of Annex VIII shall be deleted.

2. Notwithstanding the first subparagraph of paragraph 1, the following Articles shall remain in force:

- (a) Article 5 of Directive 96/62/EC until 31 December 2010;
- (b) Article 11(1) of Directive 96/62/EC and Article 10(1), (2) and (3) of Directive 2002/3/EC until the end of the second calendar year following the entry into force of the implementing measures referred to in Article 28(2) of this Directive;
- (c) Article 9(3) and (4) of Directive 1999/30/EC until 31 December 2009.

3. References made to the repealed Directives shall be construed as being made to this Directive and should be read in accordance with the correlation table in Annex XVII.

4. Decision 97/101/EC shall be repealed with effect from the end of the second calendar year following the entry into force of the implementing measures referred to in Article 28(2) of this Directive.

However, the third, fourth and fifth indents of Article 7 of Decision 97/101/EC shall be deleted with effect from 11 June 2008.

Article 32

Review

1. In 2013 the Commission shall review the provisions related to PM_{2,5} and, as appropriate, other pollutants, and shall present a proposal to the European Parliament and the Council.

As regards PM_{2,5}, the review shall be undertaken with a view to establishing a legally binding national exposure reduction obligation in order to replace the national exposure reduction target and to review the exposure concentration obligation laid down in Article 15, taking into account, *inter alia*, the following elements:

- latest scientific information from WHO and other relevant organisations,
- air quality situations and reduction potentials in the Member States,
- the revision of Directive 2001/81/EC,
- progress made in implementing Community reduction measures for air pollutants,

2. The Commission shall take into account the feasibility of adopting a more ambitious limit value for PM_{2,5}, shall review the indicative limit value of the second stage for PM_{2,5} and consider confirming or altering that value.

3. As part of the review, the Commission shall also prepare a report on the experience and on the necessity of monitoring of PM₁₀ and PM_{2,5}, taking into account technical progress in automatic measuring techniques. If appropriate, new reference methods for the measurement of PM₁₀ and PM_{2,5} shall be proposed.

Article 33

Transposition

1. Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive before 11 June 2010. They shall forthwith communicate to the Commission the text of those measures.

When Member States adopt these measures, they shall contain a reference to this Directive or shall be accompanied by such reference on the occasion of their official publication. The methods of making such reference shall be laid down by Member States.

2. However, Member States shall ensure that a sufficient number of urban background measurement stations of PM_{2,5} necessary for the calculation of the Average Exposure Indicator, in accordance with Section B of Annex V, is established at the latest by 1 January 2009, in order to comply with the timeframe and the conditions indicated in Section A of Annex XIV.

3. Member States shall communicate to the Commission the text of the main provisions of national law which they adopt in the field covered by this Directive.

Article 34

Entry into force

This Directive shall enter into force on the day of its publication in the *Official Journal of the European Union*.

Article 35

Addressees

This Directive is addressed to the Member States.

Done at Strasbourg, 21 May 2008.

For the European Parliament
The President
H.-G. PÖTTERING

For the Council
The President
J. LENARČIČ

ANNEX I

DATA QUALITY OBJECTIVES

A. Data quality objectives for ambient air quality assessment

	Sulphur dioxide, nitrogen dioxide and oxides of nitrogen and carbon monoxide	Benzene	Particulate matter (PM ₁₀ /PM _{2,5}) and lead	Ozone and related NO and NO ₂
Fixed measurements ⁽¹⁾				
Uncertainty	15 %	25 %	25 %	15 %
Minimum data capture	90 %	90 %	90 %	90 % during summer 75 % during winter
Minimum time coverage:				
— urban background and traffic	—	35 % ⁽²⁾	—	—
— industrial sites	—	90 %	—	—
Indicative measurements				
Uncertainty	25 %	30 %	50 %	30 %
Minimum data capture	90 %	90 %	90 %	90 %
Minimum time coverage	14 % ⁽⁴⁾	14 % ⁽³⁾	14 % ⁽⁴⁾	> 10 % during summer
Modelling uncertainty:				
Hourly	50 %	—	—	50 %
Eight-hour averages	50 %	—	—	50 %
Daily averages	50 %	—	not yet defined	—
Annual averages	30 %	50 %	50 %	—
Objective estimation				
Uncertainty	75 %	100 %	100 %	75 %

⁽¹⁾ Member States may apply random measurements instead of continuous measurements for benzene, lead and particulate matter if they can demonstrate to the Commission that the uncertainty, including the uncertainty due to random sampling, meets the quality objective of 25 % and the time coverage is still larger than the minimum time coverage for indicative measurements. Random sampling must be evenly distributed over the year in order to avoid skewing of results. The uncertainty due to random sampling may be determined by the procedure laid down in ISO 11222 (2002) 'Air Quality — Determination of the Uncertainty of the Time Average of Air Quality Measurements'. If random measurements are used to assess the requirements of the PM₁₀ limit value, the 90,4 percentile (to be lower than or equal to 50 µg/m³) should be evaluated instead of the number of exceedances, which is highly influenced by data coverage.

⁽²⁾ Distributed over the year to be representative of various conditions for climate and traffic.

⁽³⁾ One day's measurement a week at random, evenly distributed over the year, or eight weeks evenly distributed over the year.

⁽⁴⁾ One measurement a week at random, evenly distributed over the year, or eight weeks evenly distributed over the year.

The uncertainty (expressed at a 95 % confidence level) of the assessment methods will be evaluated in accordance with the principles of the CEN Guide to the Expression of Uncertainty in Measurement (ENV 13005-1999), the methodology of ISO 5725:1994 and the guidance provided in the CEN report 'Air Quality — Approach to Uncertainty Estimation for Ambient Air Reference Measurement Methods' (CR 14377:2002E). The percentages for uncertainty in the above table are given for individual measurements averaged over the period considered by the limit value (or target value in the case of ozone), for a 95 % confidence interval. The uncertainty for the fixed measurements shall be interpreted as being applicable in the region of the appropriate limit value (or target value in the case of ozone).

The uncertainty for modelling is defined as the maximum deviation of the measured and calculated concentration levels for 90 % of individual monitoring points, over the period considered, by the limit value (or target value in the case of ozone), without taking into account the timing of the events. The uncertainty for modelling shall be interpreted as being applicable in the region of the appropriate limit value (or target value in the case of ozone). The fixed measurements that have to be selected for comparison with modelling results shall be representative of the scale covered by the model.

The uncertainty for objective estimation is defined as the maximum deviation of the measured and calculated concentration levels, over the period considered, by the limit value (or target value in the case of ozone), without taking into account the timing of the events.

The requirements for minimum data capture and time coverage do not include losses of data due to the regular calibration or the normal maintenance of the instrumentation.

B. Results of air quality assessment

The following information shall be compiled for zones or agglomerations within which sources other than measurement are employed to supplement information from measurement or as the sole means of air quality assessment:

- a description of assessment activities carried out,
- the specific methods used, with references to descriptions of the method,
- the sources of data and information,
- a description of results, including uncertainties and, in particular, the extent of any area or, if relevant, the length of road within the zone or agglomeration over which concentrations exceed any limit value, target value or long-term objective plus margin of tolerance, if applicable, and of any area within which concentrations exceed the upper assessment threshold or the lower assessment threshold,
- the population potentially exposed to levels in excess of any limit value for protection of human health.

C. Quality assurance for ambient air quality assessment: data validation

1. To ensure accuracy of measurements and compliance with the data quality objectives laid down in Section A, the appropriate competent authorities and bodies designated pursuant to Article 3 shall ensure the following:
 - that all measurements undertaken in relation to the assessment of ambient air quality pursuant to Articles 6 and 9 are traceable in accordance with the requirements set out in Section 5.6.2.2 of the ISO/IEC 17025:2005,
 - that institutions operating networks and individual stations have an established quality assurance and quality control system which provides for regular maintenance to assure the accuracy of measuring devices,
 - that a quality assurance/quality control process is established for the process of data collection and reporting and that institutions appointed for this task actively participate in the related Community-wide quality assurance programmes,
 - that the national laboratories, when appointed by the appropriate competent authority or body designated pursuant to Article 3, that are taking part in Community-wide intercomparisons covering pollutants regulated in this Directive, are accredited according to EN/ISO 17025 by 2010 for the reference methods referred to in Annex VI. These laboratories shall be involved in the coordination on Member States territory of the Community wide quality assurance programmes to be organised by the Commission and shall also coordinate, on the national level, the appropriate realisation of reference methods and the demonstration of equivalence of non-reference methods.
2. All reported data under Article 27 shall be deemed to be valid except data flagged as provisional.

ANNEX II

Determination of requirements for assessment of concentrations of sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter (PM₁₀ and PM_{2,5}), lead, benzene and carbon monoxide in ambient air within a zone or agglomeration

A. Upper and lower assessment thresholds

The following upper and lower assessment thresholds will apply:

1. *Sulphur dioxide*

	Health protection	Vegetation protection
Upper assessment threshold	60 % of 24-hour limit value (75 µg/m ³ , not to be exceeded more than 3 times in any calendar year)	60 % of winter critical level (12 µg/m ³)
Lower assessment threshold	40 % of 24-hour limit value (50 µg/m ³ , not to be exceeded more than three times in any calendar year)	40 % of winter critical level (8 µg/m ³)

2. *Nitrogen dioxide and oxides of nitrogen*

	Hourly limit value for the protection of human health (NO ₂)	Annual limit value for the protection of human health (NO ₂)	Annual critical level for the protection of vegetation and natural ecosystems (NO _x)
Upper assessment threshold	70 % of limit value (140 µg/m ³ , not to be exceeded more than 18 times in any calendar year)	80 % of limit value (32 µg/m ³)	80 % of critical level (24 µg/m ³)
Lower assessment threshold	50 % of limit value (100 µg/m ³ , not to be exceeded more than 18 times in any calendar year)	65 % of limit value (26 µg/m ³)	65 % of critical level (19,5 µg/m ³)

3. *Particulate matter (PM₁₀/PM_{2,5})*

	24-hour average PM ₁₀	Annual average PM ₁₀	Annual average PM _{2,5} ⁽¹⁾
Upper assessment threshold	70 % of limit value (35 µg/m ³ , not to be exceeded more than 35 times in any calendar year)	70 % of limit value (28 µg/m ³)	70 % of limit value (17 µg/m ³)
Lower assessment threshold	50 % of limit value (25 µg/m ³ , not to be exceeded more than 35 times in any calendar year)	50 % of limit value (20 µg/m ³)	50 % of limit value (12 µg/m ³)

⁽¹⁾ The upper assessment threshold and the lower assessment threshold for PM_{2,5} do not apply to the measurements to assess compliance with the PM_{2,5} exposure reduction target for the protection of human health.

4. *Lead*

	Annual average
Upper assessment threshold	70 % of limit value (0,35 µg/m ³)
Lower assessment threshold	50 % of limit value (0,25 µg/m ³)

5. Benzene

	Annual average
Upper assessment threshold	70 % of limit value (3,5 µg/m ³)
Lower assessment threshold	40 % of limit value (2 µg/m ³)

6. Carbon monoxide

	Eight-hour average
Upper assessment threshold	70 % of limit value (7 mg/m ³)
Lower assessment threshold	50 % of limit value (5 mg/m ³)

B. Determination of exceedances of upper and lower assessment thresholds

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. An assessment threshold shall be deemed to have been exceeded if it has been exceeded during at least three separate years out of those previous five years.

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.

ANNEX III

Assessment of ambient air quality and location of sampling points for the measurement of sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter (PM₁₀ and PM_{2,5}), lead, benzene and carbon monoxide in ambient air**A. General**

Ambient air quality shall be assessed in all zones and agglomerations in accordance with the following criteria:

1. Ambient air quality shall be assessed at all locations except those listed in paragraph 2, in accordance with the criteria established by Sections B and C for the location of sampling points for fixed measurement. The principles established by Sections B and C shall also apply in so far as they are relevant in identifying the specific locations in which concentration of the relevant pollutants are established where ambient air quality is assessed by indicative measurement or modelling.
2. Compliance with the limit values directed at the protection of human health shall not be assessed at the following locations:
 - (a) any locations situated within areas where members of the public do not have access and there is no fixed habitation;
 - (b) in accordance with Article 2(1), on factory premises or at industrial installations to which all relevant provisions concerning health and safety at work apply;
 - (c) on the carriageway of roads; and on the central reservations of roads except where there is normally pedestrian access to the central reservation.

B. Macroscale siting of sampling points

1. Protection of human health
 - (a) Sampling points directed at the protection of human health shall be sited in such a way as to provide data on the following:
 - 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),
 - levels in other areas within the zones and agglomerations which are representative of the exposure of the general population,
 - (b) Sampling points shall in general be sited in such a way as to avoid measuring very small micro-environments in their immediate vicinity, which means that a sampling point must be sited in such a way that the air sampled is representative of air quality for a street segment no less than 100 m length at traffic-orientated sites and at least 250 m × 250 m at industrial sites, where feasible;
 - (c) Urban background locations shall be located so that their pollution level is influenced by the integrated contribution from all sources upwind of the station. The pollution level should not be dominated by a single source unless such a situation is typical for a larger urban area. Those sampling points shall, as a general rule, be representative for several square kilometres;
 - (d) Where the objective is to assess rural background levels, the sampling point shall not be influenced by agglomerations or industrial sites in its vicinity, i.e. sites closer than five kilometres;
 - (e) Where contributions from industrial sources are to be assessed, at least one sampling point shall be installed downwind of the source in the nearest residential area. Where the background concentration is not known, an additional sampling point shall be situated within the main wind direction;
 - (f) Sampling points shall, where possible, also be representative of similar locations not in their immediate vicinity;
 - (g) Account shall be taken of the need to locate sampling points on islands where that is necessary for the protection of human health.

2. Protection of vegetation and natural ecosystems

Sampling points targeted at the protection of vegetation and natural ecosystems shall be sited more than 20 km away from agglomerations or more than 5 km away from other built-up areas, industrial installations or motorways or major roads with traffic counts of more than 50 000 vehicles per day, which means that a sampling point must be sited in such a way that the air sampled is representative of air quality in a surrounding area of at least 1 000 km². A Member State may provide for a sampling point to be sited at a lesser distance or to be representative of air quality in a less extended area, taking account of geographical conditions or of the opportunities to protect particularly vulnerable areas.

Account shall be taken of the need to assess air quality on islands.

C. Microscale siting of sampling points

In so far as is practicable, the following shall apply:

- the flow around the inlet sampling probe shall be unrestricted (free in an arc of at least 270°) without any obstructions affecting the airflow in the vicinity of the sampler (normally some metres away from buildings, balconies, trees and other obstacles and at least 0,5 m from the nearest building in the case of sampling points representing air quality at the building line),
- in general, the inlet sampling point shall be between 1,5 m (the breathing zone) and 4 m above the ground. Higher positions (up to 8 m) may be necessary in some circumstances. Higher siting may also be appropriate if the station is representative of a large area,
- the inlet probe shall not be positioned in the immediate vicinity of sources in order to avoid the direct intake of emissions unmixed with ambient air,
- the sampler's exhaust outlet shall be positioned so that recirculation of exhaust air to the sampler inlet is avoided,
- for all pollutants, traffic-orientated sampling probes shall be at least 25 m from the edge of major junctions and no more than 10 m from the kerbside.,

The following factors may also be taken into account:

- interfering sources,
- security,
- access,
- availability of electrical power and telephone communications,
- visibility of the site in relation to its surroundings,
- safety of the public and operators,
- the desirability of co-locating sampling points for different pollutants,
- planning requirements.,

D. Documentation and review of site selection

The site-selection procedures shall be fully documented at the classification stage by such means as compass-point photographs of the surrounding area and a detailed map. Sites shall be reviewed at regular intervals with repeated documentation to ensure that selection criteria remain valid over time.

ANNEX IV

MEASUREMENTS AT RURAL BACKGROUND LOCATIONS IRRESPECTIVE OF CONCENTRATION**A. Objectives**

The main objectives of such measurements are to ensure that adequate information is made available on levels in the background. This information is essential to judge the enhanced levels in more polluted areas (such as urban background, industry related locations, traffic related locations), assess the possible contribution from long-range transport of air pollutants, support source apportionment analysis and for the understanding of specific pollutants such as particulate matter. It is also essential for the increased use of modelling also in urban areas.

B. Substances

Measurement of $PM_{2,5}$ must include at least the total mass concentration and concentrations of appropriate compounds to characterise its chemical composition. At least the list of chemical species given below shall be included.

SO_4^{2-}	Na^+	NH_4^+	Ca^{2+}	elemental carbon (EC)
NO_3^-	K^+	Cl^-	Mg^{2+}	organic carbon (OC)

C. Siting

Measurements should be taken in particular in rural background areas in accordance with parts A, B and C of Annex III.

ANNEX V

Criteria for determining minimum numbers of sampling points for fixed measurement of concentrations of sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter (PM₁₀, PM_{2,5}), lead, benzene and carbon monoxide in ambient air

- A. Minimum number of sampling points for fixed measurement to assess compliance with limit values for the protection of human health and alert thresholds in zones and agglomerations where fixed measurement is the sole source of information

1. *Diffuse sources*

Population of agglomeration or zone (thousands)	If maximum concentrations exceed the upper assessment threshold ⁽¹⁾		If maximum concentrations are between the upper and lower assessment thresholds	
	Pollutants except PM	PM ⁽²⁾ (sum of PM ₁₀ and PM _{2,5})	Pollutants except PM	PM ⁽²⁾ (sum of PM ₁₀ and PM _{2,5})
0-249	1	2	1	1
250-499	2	3	1	2
500-749	2	3	1	2
750-999	3	4	1	2
1 000-1 499	4	6	2	3
1 500-1 999	5	7	2	3
2 000-2 749	6	8	3	4
2 750-3 749	7	10	3	4
3 750-4 749	8	11	3	6
4 750-5 999	9	13	4	6
≥ 6 000	10	15	4	7

⁽¹⁾ For nitrogen dioxide, particulate matter, benzene and carbon monoxide: to include at least one urban background monitoring station and one traffic-orientated station provided this does not increase the number of sampling points. For these pollutants, the total number of urban-background stations and the total number of traffic oriented stations in a Member State required under Section A(1) shall not differ by more than a factor of 2. 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.

⁽²⁾ Where PM_{2,5} and PM₁₀ are measured in accordance with Article 8 at the same monitoring station, these shall count as two separate sampling points. The total number of PM_{2,5} and PM₁₀ sampling points in a Member State required under Section A(1) shall not differ by more than a factor of 2, and the number of PM_{2,5} sampling points in the urban background of agglomerations and urban areas shall meet the requirements under Section B of Annex V.

2. *Point sources*

For the assessment of pollution in the vicinity of point sources, the number of sampling points for fixed measurement shall be calculated taking into account emission densities, the likely distribution patterns of ambient-air pollution and the potential exposure of the population.

- B. Minimum number of sampling points for fixed measurement to assess compliance with the PM_{2,5} exposure reduction target for the protection of human health

One sampling point per million inhabitants summed over agglomerations and additional urban areas in excess of 100 000 inhabitants shall be operated for this purpose. Those sampling points may coincide with sampling points under Section A.

- C. Minimum number of sampling points for fixed measurements to assess compliance with critical levels for the protection of vegetation in zones other than agglomerations

If maximum concentrations exceed the upper assessment threshold	If maximum concentrations are between upper and lower assessment threshold
1 station every 20 000 km ²	1 station every 40 000 km ²

In island zones the number of sampling points for fixed measurement should be calculated taking into account the likely distribution patterns of ambient-air pollution and the potential exposure of vegetation.

ANNEX VI

Reference methods for assessment of concentrations of sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter (PM₁₀ and PM_{2,5}), lead, benzene, carbon monoxide, and ozone**A. Reference measurement methods**1. *Reference method for the measurement of sulphur dioxide*

The reference method for the measurement of sulphur dioxide is that described in EN 14212:2005 'Ambient air quality — Standard method for the measurement of the concentration of sulphur dioxide by ultraviolet fluorescence'.

2. *Reference method for the measurement of nitrogen dioxide and oxides of nitrogen*

The reference method for the measurement of nitrogen dioxide and oxides of nitrogen is that described in EN 14211:2005 'Ambient air quality — Standard method for the measurement of the concentration of nitrogen dioxide and nitrogen monoxide by chemiluminescence'.

3. *Reference method for the sampling and measurement of lead*

The reference method for the sampling of lead is that described in Section A(4) of this Annex. The reference method for the measurement of lead is that described in EN 14902:2005 'Standard method for measurement of Pb/Cd/As/Ni in the PM₁₀ fraction of suspended particulate matter'.

4. *Reference method for the sampling and measurement of PM₁₀*

The reference method for the sampling and measurement of PM₁₀ is that described in EN 12341:1999 'Air Quality — Determination of the PM₁₀ fraction of suspended particulate matter — Reference method and field test procedure to demonstrate reference equivalence of measurement methods'.

5. *Reference method for the sampling and measurement of PM_{2,5}*

The reference method for the sampling and measurement of PM_{2,5} is that described in EN 14907:2005 'Standard gravimetric measurement method for the determination of the PM_{2,5} mass fraction of suspended particulate matter'.

6. *Reference method for the sampling and measurement of benzene*

The reference method for the measurement of benzene is that described in EN 14662:2005, parts 1, 2 and 3 'Ambient air quality — Standard method for measurement of benzene concentrations'.

7. *Reference method for the measurement of carbon monoxide*

The reference method for the measurement of carbon monoxide is that described in EN 14626:2005 'Ambient air quality — Standard method for the measurement of the concentration of carbon monoxide by non-dispersive infrared spectroscopy'.

8. *Reference method for measurement of ozone*

The reference method for the measurement of ozone is that described in EN 14625:2005 'Ambient air quality — Standard method for the measurement of the concentration of ozone by ultraviolet photometry'.

B. Demonstration of equivalence

1. A Member State may use any other method which it can demonstrate gives results equivalent to any of the methods referred to in Section A or, in the case of particulate matter, any other method which the Member State concerned can demonstrate displays a consistent relationship to the reference method. In that event the results achieved by that method must be corrected to produce results equivalent to those that would have been achieved by using the reference method.

2. The Commission may require the Member States to prepare and submit a report on the demonstration of equivalence in accordance with paragraph 1.
3. When assessing the acceptability of the report mentioned in paragraph 2, the Commission will make reference to its guidance on the demonstration of equivalence (to be published). Where Member States have been using interim factors to approximate equivalence, the latter shall be confirmed and/or amended with reference to the Commission's guidance.
4. Member States should ensure that whenever appropriate, the correction is also applied retroactively to past measurement data in order to achieve better data comparability.

C. **Standardisation**

For gaseous pollutants the volume must be standardised at a temperature of 293 K and an atmospheric pressure of 101,3 kPa. For particulate matter and substances to be analysed in particulate matter (e.g. lead) the sampling volume refers to ambient conditions in terms of temperature and atmospheric pressure at the date of measurements.

D. **Introduction of new equipment**

All new equipment purchased for implementation of this Directive must comply with the reference method or equivalent by 11 June 2010.

All equipment used in fixed measurements must comply with the reference method or equivalent by 11 June 2013.

E. **Mutual recognition of data**

In carrying out the type approval to demonstrate that equipment meets the performance requirements of the reference methods listed in Section A, competent authorities and bodies designated pursuant to Article 3 shall accept test reports issued in other Member States by laboratories accredited to EN ISO 17025 for carrying out such testing.

ANNEX VII

OZONE TARGET VALUES AND LONG-TERM OBJECTIVES

A. Definitions and criteria

1. Definitions

AOT40 (expressed in $(\mu\text{g}/\text{m}^3) \cdot \text{hours}$) means the sum of the difference between hourly concentrations greater than $80 \mu\text{g}/\text{m}^3$ (= 40 parts per billion) and $80 \mu\text{g}/\text{m}^3$ over a given period using only the one-hour values measured between 8.00 and 20.00 Central European Time (CET) each day.

2. Criteria

The following criteria shall be used for checking validity when aggregating data and calculating statistical parameters:

Parameter	Required proportion of valid data
One hour values	75 % (i.e. 45 minutes)
Eight hours values	75 % of values (i.e. six hours)
Maximum daily 8 hours mean from hourly running 8 hours	75 % of the hourly running eight hours averages (i.e. 18 eight-hourly averages per day)
AOT40	90 % of the one hour values over the time period defined for calculating the AOT40 value ⁽¹⁾
Annual mean	75 % of the one hour values over summer (April to September) and 75 % over winter (January to March, October to December) seasons separately
Number of exceedances and maximum values per month	90 % of the daily maximum eight hours mean values (27 available daily values per month) 90 % of the one hour values between 8.00 and 20.00 CET
Number of exceedances and maximum values per year	five out of six months over the summer season (April to September)

⁽¹⁾ In cases where all possible measured data are not available, the following factor shall be used to calculate AOT40 values:

$$\text{AOT40}_{\text{estimate}} = \text{AOT40}_{\text{measured}} \times \frac{\text{total possible number of hours } (*)}{\text{number of measured hourly values}}$$

^(*) being the number of hours within the time period of AOT40 definition, (i.e. 08:00 to 20:00 CET from 1 May to 31 July each year, for vegetation protection and from 1 April to 30 September each year for forest protection).

B. Target values

Objective	Averaging period	Target value	Date by which target value should be met ⁽¹⁾
Protection of human health	Maximum daily eight-hour mean ⁽²⁾	$120 \mu\text{g}/\text{m}^3$ not to be exceeded on more than 25 days per calendar year averaged over three years ⁽³⁾	1.1.2010
Protection of vegetation	May to July	AOT40 (calculated from 1 h values) $18\,000 \mu\text{g}/\text{m}^3 \cdot \text{h}$ averaged over five years ⁽³⁾	1.1.2010

⁽¹⁾ Compliance with target values will be assessed as of this date. That is, 2010 will be the first year the data for which is used in calculating compliance over the following three or five years, as appropriate.

⁽²⁾ The maximum daily eight-hour mean concentration shall be selected by examining eight-hour running averages, calculated from hourly data and updated each hour. Each eight-hour average so calculated shall be assigned to the day on which it ends, i.e. the first calculation period for any one day will be the period from 17:00 on the previous day to 01:00 on that day; the last calculation period for any one day will be the period from 16:00 to 24:00 on the day.

⁽³⁾ If the three or five year averages cannot be determined on the basis of a full and consecutive set of annual data, the minimum annual data required for checking compliance with the target values will be as follows:

- for the target value for the protection of human health: valid data for one year,
- for the target value for the protection of vegetation: valid data for three years.

C. Long-term objectives

Objective	Averaging period	Longterm objective	Date by which the longterm objective should be met
Protection of human health	Maximum daily eight-hour mean within a calendar year	120 $\mu\text{g}/\text{m}^3$	not defined
Protection of vegetation	May to July	AOT40 (calculated from 1 h values) 6 000 $\mu\text{g}/\text{m}^3 \cdot \text{h}$	not defined

ANNEX VIII

Criteria for classifying and locating sampling points for assessments of ozone concentrations

The following apply to fixed measurements:

A. Macroscale siting

Type of station	Objectives of measurement	Representativeness ⁽¹⁾	Macroscale siting criteria
Urban	Protection of human health: to assess the exposure of the urban population to ozone, i.e. where population density and ozone concentration are relatively high and representative of the exposure of the general population	A few km ²	Away from the influence of local emissions such as traffic, petrol stations, etc.; vented locations where well mixed levels can be measured; locations such as residential and commercial areas of cities, parks (away from the trees), big streets or squares with very little or no traffic, open areas characteristic of educational, sports or recreation facilities
Suburban	Protection of human health and vegetation: to assess the exposure of the population and vegetation located in the outskirts of the agglomeration, where the highest ozone levels, to which the population and vegetation are likely to be directly or indirectly exposed occur	Some tens of km ²	At a certain distance from the area of maximum emissions, downwind following the main wind direction/directions during conditions favourable to ozone formation; where population, sensitive crops or natural ecosystems located in the outer fringe of an agglomeration are exposed to high ozone levels; where appropriate, some suburban stations also upwind of the area of maximum emissions, in order to determine the regional background levels of ozone
Rural	Protection of human health and vegetation: to assess the exposure of population, crops and natural ecosystems to sub-regional scale ozone concentrations	Sub-regional levels (some hundreds of km ²)	Stations can be located in small settlements and/or areas with natural ecosystems, forests or crops; representative for ozone away from the influence of immediate local emissions such as industrial installations and roads; at open area sites, but not on summits of higher mountains
Rural background	Protection of vegetation and human health: to assess the exposure of crops and natural ecosystems to regional-scale ozone concentrations as well as exposure of the population	Regional/national/continental levels (1 000 to 10 000 km ²)	Station located in areas with lower population density, e.g. with natural ecosystems, forests, at a distance of at least 20 km from urban and industrial areas and away from local emissions; avoid locations which are subject to locally enhanced formation of ground-near inversion conditions, also summits of higher mountains; coastal sites with pronounced diurnal wind cycles of local character are not recommended.

⁽¹⁾ Sampling points should, where possible, be representative of similar locations not in their immediate vicinity.

For rural and rural background stations the location shall, where appropriate, be coordinated with the monitoring requirements of Commission Regulation (EC) No 1737/2006 of 7 November 2006 laying down detailed rules for the implementation of Regulation (EC) No 2152/2003 of the European Parliament and of the Council concerning monitoring of forests and environmental interactions in the Community⁽¹⁾.

⁽¹⁾ OJ L 334, 30.11.2006, p. 1.

B. Microscale siting

In so far as is practicable the procedure on microscale siting in Section C of Annex III shall be followed, ensuring also that the inlet probe is positioned well away from such sources as furnaces and incineration flues and more than 10 m from the nearest road, with distance increasing as a function of traffic intensity.

C. Documentation and review of site selection

The procedures in Section D of Annex III shall be followed, applying proper screening and interpretation of the monitoring data in the context of the meteorological and photochemical processes affecting the ozone concentrations measured at the respective sites.

ANNEX IX

Criteria for determining the minimum number of sampling points for fixed measurement of concentrations of ozone

A. Minimum number of sampling points for fixed continuous measurements to assess compliance with target values, long-term objectives and information and alert thresholds where such measurements are the sole source of information

Population (× 1 000)	Agglomerations (urban and suburban) ⁽¹⁾	Other zones (suburban and rural) ⁽¹⁾	Rural background
< 250		1	1 station/50 000 km ² as an average density over all zones per country ⁽²⁾
< 500	1	2	
< 1 000	2	2	
< 1 500	3	3	
< 2 000	3	4	
< 2 750	4	5	
< 3 750	5	6	
> 3 750	One additional station per 2 million inhabitants	One additional station per 2 million inhabitants	

⁽¹⁾ At least 1 station in suburban areas, where the highest exposure of the population is likely to occur. In agglomerations at least 50 % of the stations shall be located in suburban areas.

⁽²⁾ 1 station per 25 000 km² for complex terrain is recommended.

B. Minimum number of sampling points for fixed measurements for zones and agglomerations attaining the long-term objectives

The number of sampling points for ozone shall, in combination with other means of supplementary assessment such as air quality modelling and collocated nitrogen dioxide measurements, be sufficient to examine the trend of ozone pollution and check compliance with the long-term objectives. The number of stations located in agglomerations and other zones may be reduced to one-third of the number specified in Section A. Where information from fixed measurement stations is the sole source of information, at least one monitoring station shall be kept. If, in zones where there is supplementary assessment, the result of this is that a zone has no remaining station, coordination with the number of stations in neighbouring zones shall ensure adequate assessment of ozone concentrations against long-term objectives. The number of rural background stations shall be one per 100 000 km².

ANNEX X

MEASUREMENTS OF OZONE PRECURSOR SUBSTANCES

A. Objectives

The main objectives of such measurements are to analyse any trend in ozone precursors, to check the efficiency of emission reduction strategies, to check the consistency of emission inventories and to help attribute emission sources to observed pollution concentrations.

An additional aim is to support the understanding of ozone formation and precursor dispersion processes, as well as the application of photochemical models.

B. Substances

Measurement of ozone precursor substances shall include at least nitrogen oxides (NO and NO₂), and appropriate volatile organic compounds (VOC). A list of volatile organic compounds recommended for measurement is given below:

	1-Butene	Isoprene	Ethyl benzene
Ethane	Trans-2-Butene	n-Hexane	m + p-Xylene
Ethylene	cis-2-Butene	i-Hexane	o-Xylene
Acetylene	1,3-Butadiene	n-Heptane	1,2,4-Trimethylebenzene
Propane	n-Pentane	n-Octane	1,2,3-Trimethylebenzene
Propene	i-Pentane	i-Octane	1,3,5-Trimethylebenzene
n-Butane	1-Pentene	Benzene	Formaldehyde
i-Butane	2-Pentene	Toluene	Total non-methane hydrocarbons

C. Siting

Measurements shall be taken in particular in urban or suburban areas at any monitoring site set up in accordance with the requirements of this Directive and considered appropriate with regard to the monitoring objectives referred to in Section A.

ANNEX XI

LIMIT VALUES FOR THE PROTECTION OF HUMAN HEALTH

A. Criteria

Without prejudice to Annex I, the following criteria shall be used for checking validity when aggregating data and calculating statistical parameters:

Parameter	Required proportion of valid data
One hour values	75 % (i.e. 45 minutes)
Eight hours values	75 % of values (i.e. 6 hours)
Maximum daily 8-hour mean	75 % of the hourly running eight hour averages (i.e. 18 eight hour averages per day)
24-hour values	75 % of the hourly averages (i.e. at least 18 hour values)
Annual mean	90 % ⁽¹⁾ of the one hour values or (if not available) 24-hour values over the year

⁽¹⁾ The requirements for the calculation of annual mean do not include losses of data due to the regular calibration or the normal maintenance of the instrumentation.

B. Limit values

Averaging Period	Limit value	Margin of tolerance	Date by which limit value is to be met
Sulphur dioxide			
One hour	350 µg/m ³ , not to be exceeded more than 24 times a calendar year	150 µg/m ³ (43 %)	— ⁽¹⁾
One day	125 µg/m ³ , not to be exceeded more than 3 times a calendar year	None	— ⁽¹⁾
Nitrogen dioxide			
One hour	200 µg/m ³ , not to be exceeded more than 18 times a calendar year	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	1 January 2010
Calendar year	40 µg/m ³	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	1 January 2010
Benzene			
Calendar year	5 µg/m ³	5 µg/m ³ (100 %) on 13 December 2000, decreasing on 1 January 2006 and every 12 months thereafter by 1 µg/m ³ to reach 0 % by 1 January 2010	1 January 2010
Carbon monoxide			
maximum daily eight hour mean ⁽²⁾	10 mg/m ³	60 %	— ⁽¹⁾

Averaging Period	Limit value	Margin of tolerance	Date by which limit value is to be met
Lead			
Calendar year	0,5 µg/m ³ ⁽³⁾	100 %	— ⁽³⁾
PM₁₀			
One day	50 µg/m ³ , not to be exceeded more than 35 times a calendar year	50 %	— ⁽¹⁾
Calendar year	40 µg/m ³	20 %	— ⁽¹⁾

⁽¹⁾ Already in force since 1 January 2005

⁽²⁾ The maximum daily eight hour mean concentration will be selected by examining eight hour running averages, calculated from hourly data and updated each hour. Each eight hour average so calculated will be assigned to the day on which it ends i.e. the first calculation period for any one day will be the period from 17:00 on the previous day to 01:00 on that day; the last calculation period for any one day will be the period from 16:00 to 24:00 on that day.

⁽³⁾ Already in force since 1 January 2005. Limit value to be met only by 1 January 2010 in the immediate vicinity of the specific industrial sources situated on sites contaminated by decades of industrial activities. In such cases, the limit value until 1 January 2010 will be 1,0 µg/m³. The area in which higher limit values apply must not extend further than 1 000 m from such specific sources.

ANNEX XII

INFORMATION AND ALERT THRESHOLDS

A. Alert thresholds for pollutants other than ozone

To be measured over three consecutive hours at locations representative of air quality over at least 100 km² or an entire zone or agglomeration, whichever is the smaller.

Pollutant	Alert threshold
Sulphur dioxide	500 µg/m ³
Nitrogen dioxide	400 µg/m ³

B. Information and alert thresholds for ozone

Purpose	Averaging period	Threshold
Information	1 hour	180 µg/m ³
Alert	1 hour ⁽¹⁾	240 µg/m ³

⁽¹⁾ For the implementation of Article 24, the exceedance of the threshold is to be measured or predicted for three consecutive hours.

ANNEX XIII

CRITICAL LEVELS FOR THE PROTECTION OF VEGETATION

Averaging period	Critical level	Margin of tolerance
Sulphur dioxide		
Calendar year and winter (1 October to 31 March)	20 $\mu\text{g}/\text{m}^3$	None
Oxides of nitrogen		
Calendar year	30 $\mu\text{g}/\text{m}^3$ NO _x	None

ANNEX XIV

NATIONAL EXPOSURE REDUCTION TARGET, TARGET VALUE AND LIMIT VALUE FOR PM_{2,5}

A. Average exposure indicator

The Average Exposure Indicator expressed in $\mu\text{g}/\text{m}^3$ (AEI) shall be based upon measurements in urban background locations in zones and agglomerations throughout the territory of a Member State. It should be assessed as a three-calendar year running annual mean concentration averaged over all sampling points established pursuant to Section B of Annex V. The AEI for the reference year 2010 shall be the mean concentration of the years 2008, 2009 and 2010.

However, where data are not available for 2008, Member States may use the mean concentration of the years 2009 and 2010 or the mean concentration of the years 2009, 2010 and 2011. Member States making use of these possibilities shall communicate their decisions to the Commission by 11 September 2008.

The AEI for the year 2020 shall be the three-year running mean concentration averaged over all those sampling points for the years 2018, 2019 and 2020. The AEI is used for the examination whether the national exposure reduction target is met.

The AEI for the year 2015 shall be the three-year running mean concentration averaged over all those sampling points for the years 2013, 2014 and 2015. The AEI is used for the examination whether the exposure concentration obligation is met.

B. National exposure reduction target

Exposure reduction target relative to the AEI in 2010		Year by which the exposure reduction target should be met
Initial concentration in $\mu\text{g}/\text{m}^3$	Reduction target in percent	2020
< 8,5 = 8,5	0 %	
> 8,5 — < 13	10 %	
= 13 — < 18	15 %	
= 18 — < 22	20 %	
≥ 22	All appropriate measures to achieve 18 $\mu\text{g}/\text{m}^3$	

Where the AEI in the reference year is $8,5 \mu\text{g}/\text{m}^3$ or less the exposure reduction target shall be zero. The reduction target shall be zero also in cases where the AEI reaches the level of $8,5 \mu\text{g}/\text{m}^3$ at any point of time during the period from 2010 to 2020 and is maintained at or below that level.

C. Exposure concentration obligation

Exposure concentration obligation	Year by which the obligation value is to be met
20 $\mu\text{g}/\text{m}^3$	2015

D. Target value

Averaging period	Target value	Date by which target value should be met
Calendar year	25 $\mu\text{g}/\text{m}^3$	1 January 2010

E. **Limit value**

Averaging period	Limit value	Margin of tolerance	Date by which limit value is to be met
STAGE 1			
Calendar year	25 µg/m ³	20 % on 11 June 2008, decreasing on the next 1 January and every 12 months thereafter by equal annual percentages to reach 0 % by 1 January 2015	1 January 2015
STAGE 2 ⁽¹⁾			
Calendar year	20 µg/m ³		1 January 2020

⁽¹⁾ Stage 2 — indicative limit value to be reviewed by the Commission in 2013 in the light of further information on health and environmental effects, technical feasibility and experience of the target value in Member States.

ANNEX XV

Information to be included in the local, regional or national air quality plans for improvement in ambient air quality**A. Information to be provided under article 23 (air quality plans)**1. *Localisation of excess pollution*

- (a) region;
- (b) city (map);
- (c) measuring station (map, geographical coordinates).

2. *General information*

- (a) type of zone (city, industrial or rural area);
- (b) estimate of the polluted area (km²) and of the population exposed to the pollution;
- (c) useful climatic data;
- (d) relevant data on topography;
- (e) sufficient information on the type of targets requiring protection in the zone.

3. *Responsible authorities*

Names and addresses of persons responsible for the development and implementation of improvement plans.

4. *Nature and assessment of pollution*

- (a) concentrations observed over previous years (before the implementation of the improvement measures);
- (b) concentrations measured since the beginning of the project;
- (c) techniques used for the assessment.

5. *Origin of pollution*

- (a) list of the main emission sources responsible for pollution (map);
- (b) total quantity of emissions from these sources (tonnes/year);
- (c) information on pollution imported from other regions.

6. *Analysis of the situation*

- (a) details of those factors responsible for the exceedance (e.g. transport, including cross-border transport, formation of secondary pollutants in the atmosphere);
- (b) details of possible measures for the improvement of air quality.

7. *Details of those measures or projects for improvement which existed prior to 11 June 2008, i.e.:*

- (a) local, regional, national, international measures;
- (b) observed effects of these measures.

8. *Details of those measures or projects adopted with a view to reducing pollution following the entry into force of this Directive:*
 - (a) listing and description of all the measures set out in the project;
 - (b) timetable for implementation;
 - (c) estimate of the improvement of air quality planned and of the expected time required to attain these objectives.
9. *Details of the measures or projects planned or being researched for the long term.*
10. *List of the publications, documents, work, etc., used to supplement information required under this Annex.*

B. Information to be provided under article 22(1)

1. All information as laid down in Section A.
2. Information concerning the status of implementation of the following Directives:
 1. Council Directive 70/220/EEC of 20 March 1970 on the approximation of the laws of the Member States on measures to be taken against air pollution by emissions from motor vehicles ⁽¹⁾;
 2. Directive 94/63/EC of the European Parliament and of the Council of 20 December 1994 on the control of volatile organic compound (VOC) emissions resulting from the storage of petrol and its distribution from terminals to service stations ⁽²⁾;
 3. Directive 2008/1/EC of the European Parliament and of the Council of 15 January 2008 concerning integrated pollution prevention and control ⁽³⁾;
 4. Directive 97/68/EC of the European Parliament and of the Council of 16 December 1997 on the approximation of the laws of the Member States relating to measures against the emission of gaseous and particulate pollutants from internal combustion engines to be installed in non-road mobile machinery ⁽⁴⁾;
 5. Directive 98/70/EC of the European Parliament and of the Council of 13 October 1998 relating to the quality of petrol and diesel fuels ⁽⁵⁾;
 6. Council Directive 1999/13/EC of 11 March 1999 on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain activities and installations ⁽⁶⁾;
 7. Council Directive 1999/32/EC of 26 April 1999 relating to a reduction in the sulphur content of certain liquid fuels ⁽⁷⁾;
 8. Directive 2000/76/EC of the European Parliament and of the Council of 4 December 2000 on the incineration of waste ⁽⁸⁾;
 9. Directive 2001/80/EC of the European Parliament and of the Council of 23 October 2001 on the limitation of emissions of certain pollutants into the air from large combustion plants;
 10. Directive 2001/81/EC of the European Parliament and of the Council of 23 October 2001 on national emission ceilings for certain atmospheric pollutants;

⁽¹⁾ OJ L 76, 6.4.1970, p. 1. Directive as last amended by Directive 2006/96/EC (OJ L 363, 20.12.2006, p. 81).

⁽²⁾ OJ L 365, 31.12.1994, p. 24. Directive as amended by Regulation (EC) No 1882/2003 (OJ L 284, 31.10.2003, p. 1).

⁽³⁾ OJ L 24, 29.1.2008, p. 8.

⁽⁴⁾ OJ L 59, 27.2.1998, p. 1. Directive as last amended by Directive 2006/105/EC.

⁽⁵⁾ OJ L 350, 28.12.1998, p. 58. Directive as amended by Regulation (EC) No 1882/2003.

⁽⁶⁾ OJ L 85, 29.3.1999, p. 1. Directive as last amended by Directive 2004/42/EC of the European Parliament and of the Council (OJ L 143, 30.4.2004, p. 87).

⁽⁷⁾ OJ L 121, 11.5.1999, p. 13. Directive as last amended by Directive 2005/33/EC of the European Parliament and of the Council (OJ L 191, 22.7.2005, p. 59).

⁽⁸⁾ OJ L 332, 28.12.2000, p. 91.

11. Directive 2004/42/EC of the European Parliament and of the Council of 21 April 2004 on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain paints and varnishes and vehicle refinishing products ⁽¹⁾;
 12. Directive 2005/33/EC of the European Parliament and of the Council of 6 July 2005 amending Directive 1999/32/EC as regards the sulphur content of marine fuels ⁽²⁾;
 13. Directive 2005/55/EC of the European Parliament and of the Council of 28 September 2005 on the approximation of the laws of the Member States relating to the measures to be taken against the emission of gaseous and particulate pollutants from compression-ignition engines for use in vehicles, and the emission of gaseous pollutants from positive-ignition engines fuelled with natural gas or liquefied petroleum gas for use in vehicles ⁽³⁾;
 14. Directive 2006/32/EC of the European Parliament and of the Council of 5 April 2006 on energy end-use efficiency and energy services ⁽⁴⁾.
3. Information on all air pollution abatement measures that have been considered at appropriate local, regional or national level for implementation in connection with the attainment of air quality objectives, including:
- (a) reduction of emissions from stationary sources by ensuring that polluting small and medium sized stationary combustion sources (including for biomass) are fitted with emission control equipment or replaced;
 - (b) reduction of emissions from vehicles through retrofitting with emission control equipment. The use of economic incentives to accelerate take-up should be considered;
 - (c) procurement by public authorities, in line with the handbook on environmental public procurement, of road vehicles, fuels and combustion equipment to reduce emissions, including the purchase of:
 - new vehicles, including low emission vehicles,
 - cleaner vehicle transport services,
 - low emission stationary combustion sources,
 - low emission fuels for stationary and mobile sources,
 - (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);
 - (e) measures to encourage a shift of transport towards less polluting modes;
 - (f) ensuring that low emission fuels are used in small, medium and large scale stationary sources and in mobile sources;
 - (g) measures to reduce air pollution through the permit system under Directive 2008/1/EC, the national plans under Directive 2001/80/EC, and through the use of economic instruments such as taxes, charges or emission trading.
 - (h) where appropriate, measures to protect the health of children or other sensitive groups.

⁽¹⁾ OJ L 143, 30.4.2004, p. 87.

⁽²⁾ OJ L 191, 22.7.2005, p. 59.

⁽³⁾ OJ L 275, 20.10.2005, p. 1. Directive as last amended by Regulation (EC) No 715/2007 (OJ L 171, 29.6.2007, p. 1).

⁽⁴⁾ OJ L 114, 27.4.2006, p. 64.

ANNEX XVI

PUBLIC INFORMATION

1. Member States shall ensure that up-to-date information on ambient concentrations of the pollutants covered by this Directive is routinely made available to the public.
 2. Ambient concentrations provided shall be presented as average values according to the appropriate averaging period as laid down in Annex VII and Annexes XI to XIV. The information shall at least indicate any levels exceeding air quality objectives including limit values, target values, alert thresholds, information thresholds or long term objectives of the regulated pollutant. It shall also provide a short assessment in relation to the air quality objectives and appropriate information regarding effects on health, or, where appropriate, vegetation.
 3. Information on ambient concentrations of sulphur dioxide, nitrogen dioxide, particulate matter (at least PM₁₀), ozone and carbon monoxide shall be updated on at least a daily basis, and, wherever practicable, information shall be updated on an hourly basis. Information on ambient concentrations of lead and benzene, presented as an average value for the last 12 months, shall be updated on a three-monthly basis, and on a monthly basis, wherever practicable.
 4. Member States shall ensure that timely information about actual or predicted exceedances of alert thresholds, and any information threshold is provided to the public. Details supplied shall include at least the following information:
 - (a) information on observed exceedance(s):
 - location or area of the exceedance,
 - type of threshold exceeded (information or alert),
 - start time and duration of the exceedance,
 - highest one hour concentration and in addition highest eight hour mean concentration in the case of ozone;
 - (b) forecast for the following afternoon/day(s):
 - geographical area of expected exceedances of information and/or alert threshold,
 - expected changes in pollution (improvement, stabilisation or deterioration), together with the reasons for those changes;
 - (c) information on the type of population concerned, possible health effects and recommended behaviour:
 - information on population groups at risk,
 - description of likely symptoms,
 - recommended precautions to be taken by the population concerned,
 - where to find further information;
 - (d) information on preventive action to reduce pollution and/or exposure to it: indication of main source sectors; recommendations for action to reduce emissions;
 - (e) in the case of predicted exceedances, Member State shall take steps to ensure that such details are supplied to the extent practicable.
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ANNEX XVII

CORRELATION TABLE

This Directive	Directive 96/62/EC	Directive 1999/30/EC	Directive 2000/69/EC	Directive 2002/3/EC
Article 1	Article 1	Article 1	Article 1	Article 1
Article 2(1) to (5)	Article 2(1) to (5)	—	—	—
Article 2(6) and (7)	—	—	—	—
Article 2(8)	Article 2(8)	Article 2(7)	—	—
Article 2(9)	Article 2(6)	—	—	Article 2(9)
Article 2(10)	Article 2(7)	Article 2(6)	—	Article 2(11)
Article 2(11)	—	—	—	Article 2(12)
Article 2(12) and (13)	—	Article 2(13) and (14)	Article 2(a) and (b)	—
Article 2(14)	—	—	—	Article 2(10)
Article 2(15) and (16)	Article 2(9) and (10)	Article 2(8) and (9)	—	Article 2(7) and (8)
Article 2(17) and (18)	—	Article 2(11) and (12)	—	—
Article 2(19), (20), (21), (22) and (23)	—	—	—	—
Article 2(24)	—	Article 2(10)	—	—
Article 2(25) and (26)	Article 6(5)	—	—	—
Article 2(27)	—	—	—	Article 2(13)
Article 2(28)	—	—	—	Article 2(3)
Article 3, with the exception of paragraph (1)(f)	Article 3	—	—	—
Article 3(1)(f)	—	—	—	—
Article 4	Article 2(9) and (10), Article 6(1)	—	—	—
Article 5	—	Article 7(1)	Article 5(1)	—
Article 6(1) to (4)	Article 6(1) to (4)	—	—	—
Article 6(5)	—	—	—	—
Article 7	—	Article 7(2) and (3) with amendments	Article 5(2) and (3) with amendments	—
Article 8	—	Article 7(5)	Article 5(5)	—
Article 9	—	—	—	Article 9(1) first and second subparagraphs
Article 10	—	—	—	Article 9(1) to (3) with amendments
Article 11(1)	—	—	—	Article 9(4)
Article 11(2)	—	—	—	—
Article 12	Article 9	—	—	—
Article 13(1)	—	Articles 3(1), 4(1), 5(1) and 6	Articles 3(1) and 4	—

This Directive	Directive 96/62/EC	Directive 1999/30/EC	Directive 2000/69/EC	Directive 2002/3/EC
Article 13(2)	—	Articles 3(2) and 4(2)	—	—
Article 13(3)	—	Article 5(5)	—	—
Article 14	—	Articles 3(1) and 4(1) with amendments	—	—
Article 15	—	—	—	—
Article 16	—	—	—	—
Article 17(1)	—	—	—	Articles 3(1) and 4(1)
Article 17(2)	—	—	—	Article 3(2) and (3)
Article 17(3)	—	—	—	Article 4(2)
Article 18	—	—	—	Article 5
Article 19	Article 10 with amendments	Article 8(3)	—	Article 6 with amendments
Article 20	—	Articles 3(4) and 5(4) with amendments	—	—
Article 21	—	—	—	—
Article 22	—	—	—	—
Article 23	Article 8(1) to (4) with amendments	—	—	—
Article 24	Article 7(3) with amendments	—	—	Article 7 with amendments
Article 25	Article 8(5) with amendments	—	—	Article 8 with amendments
Article 26	—	Article 8 with amendments	Article 7 with amendments	Article 6 with amendments
Article 27	Article 11 with amendments	Article 5(2) second subparagraph	—	Article 10 with amendments
Article 28(1)	Article 12(1) with amendments	—	—	—
Article 28(2)	Article 11 with amendments	—	—	—
Article 28(3)	—	—	—	—
Article 28(4)	—	Annex IX with amendments	—	—
Article 29	Article 12(2)	—	—	—
Article 30	—	Article 11	Article 9	Article 14
Article 31	—	—	—	—
Article 32	—	—	—	—
Article 33	Article 13	Article 12	Article 10	Article 15
Article 34	Article 14	Article 13	Article 11	Article 17
Article 35	Article 15	Article 14	Article 12	Article 18
Annex I	—	Annex VIII with amendments	Annex VI	Annex VII
Annex II	—	Annex V with amendments	Annex III	—
Annex III	—	Annex VI	Annex IV	—

This Directive	Directive 96/62/EC	Directive 1999/30/EC	Directive 2000/69/EC	Directive 2002/3/EC
Annex IV	—	—	—	—
Annex V	—	Annex VII with amendments	Annex V	—
Annex VI	—	Annex IX with amendments	Annex VII	Annex VIII
Annex VII	—	—	—	Annex I, Annex III section II
Annex VIII	—	—	—	Annex IV
Annex IX	—	—	—	Annex V
Annex X	—	—	—	Annex VI
Annex XI	—	Annex I, section I, Annex II, section I and Annex III (with amendments); Annex IV (unchanged)	Annex I, Annex II	—
Annex XII	—	Annex I, section II, Annex II, section II,	—	Annex II, section I
Annex XIII	—	Annex I, section I, Annex II, section I	—	—
Annex XIV	—	—	—	—
Annex XV Section A	Annex IV	—	—	—
Annex XV Section B	—	—	—	—
Annex XVI	—	Article 8	Article 7	Article 6 with amendments

STATEMENT BY THE COMMISSION

The Commission takes note of the text adopted by the Council and the European Parliament for the Directive on ambient air quality and cleaner air for Europe. In particular, the Commission notes the importance attributed by the European Parliament and the Member States in Article 22(4) and recital 16 to Community measures for the abatement of air pollutant emissions at source.

The Commission recognises the need to reduce the emissions of harmful air pollutants if significant progress is to be delivered towards the objectives established in the Sixth Environmental Action Programme. The Commission's communication on a thematic strategy on air pollution sets out a significant number of possible Community measures. Significant progress on these and other measures has been made since the adoption of the strategy:

- the Council and Parliament have already adopted new legislation limiting the exhaust emissions of light duty vehicles,
- the Commission has adopted a proposal for new legislation to improve the effectiveness of Community industrial emissions legislation including intensive agricultural installations and measures to tackle smaller scale industrial combustion sources,
- the Commission has adopted a proposal for new legislation limiting the exhaust emissions of engines installed in heavy duty vehicles,
- in 2008 the Commission foresees new legislative proposals that would:
 - further reduce the Member States' permitted national emissions of key pollutants,
 - reduce emissions associated with refuelling of petrol cars at service stations,
 - address the sulphur content of fuels including marine fuels,
- preparatory work is also underway to investigate the feasibility of:
 - improving the eco-design and reducing the emissions of domestic boilers and water heaters,
 - reducing the solvent content of paints, varnishes and vehicle refinishing products,
 - reducing the exhaust emissions of non-road mobile machinery and thereby maximise the benefit of lower sulphur non-road fuels already proposed by the Commission,
- The Commission also continues to push for substantial emissions reductions from ships at the International Maritime Organisation and it is committed to bringing forward proposals for Community measures should the IMO fail to deliver sufficiently ambitious proposals as foreseen in 2008.

The Commission is, however, committed to the aims of its Better Regulation initiative and the need for proposals to be underpinned by a comprehensive assessment of the impacts and benefits. In this regard and in accordance with the Treaty establishing the European Community, the Commission will continue to evaluate the need to bring forward new legislative proposals but reserves its right to decide if and when it would be appropriate to present any such proposal.

STATEMENT BY THE NETHERLANDS

The Netherlands has always supported the development of ambitious and effective European policy on air quality and will continue to do so in the future. It is, therefore, happy with the compromise agreed by the Council and the European Parliament and compliments the Parliament, the Commission and the Presidency on the results achieved. The new Directive on ambient air quality marks significant progress for both the environment and public health.

As the Netherlands pointed out when the Common Position was drawn up, the air quality in our country is strongly influenced by transboundary developments and will therefore benefit enormously from an effective European approach. The Netherlands' main concern has been that the Directive should contain a balanced package of European and national measures, as well as realistic time limits to achieve the air quality targets. Only then will Member States be able to achieve the ambitious targets that have been set.

The Netherlands is pleased with the Commission's statement that it will present Community measures in good time. Timely, EU-wide compliance with the air quality standards will depend on sound European policy tackling pollution at the source. The Netherlands would especially point to the lack of data and prevailing uncertainties about emissions and concentrations of fine particulates (PM_{2,5}). It will of course make every effort to meet the objectives of the Directive by the target date. On the basis of the knowledge currently at our command, this will largely be feasible. The Dutch government is developing a National Air Quality Cooperation Programme to tackle locations where emission ceilings are persistently exceeded, so that, there too, air quality standards may be met by the target date.

The Netherlands is pleased that the Council and the European Parliament concluded their second reading in time for the Directive to take effect as of early 2008. This is essential for our own national programme, as well as actions in the countries around us. The Netherlands will work hard to ensure that the national cooperation programme and all local and regional measures are sufficient.

2010 No.

ENVIRONMENTAL PROTECTION

The Air Quality Standards (Scotland) Regulations 2010

Made - - - -

Laid before the Scottish Parliament

Coming into force - -

10th June 2010

The Scottish Ministers make the following Regulations in exercise of the powers conferred by section 2(2) of the European Communities Act 1972(a) and all other powers enabling them to do so.

PART 1

General

Citation, commencement and extent

1.—(1) These Regulations may be cited as the Air Quality Standards (Scotland) Regulations 2010 and come into force on 10th June 2010.

(2) These Regulations extend to Scotland only.

Definitions

2. In these Regulations—

“ambient air” means outdoor air in the troposphere, excluding workplaces where members of the public do not have regular access;

“AOT 40” (expressed in $\mu\text{g}/\text{m}^3$.hours) means the sum of the difference between hourly concentrations greater than $80 \mu\text{g}/\text{m}^3$ (= 40 parts per billion) and $80 \mu\text{g}/\text{m}^3$ over a given period using only the one-hour values measured between 0800 hours and 2000 hours Central European Time each day;

“arsenic, cadmium, nickel and benzo(a)pyrene” mean the total content of those elements and compounds within the PM_{10} present in ambient air;

“Directive 2004/107/EC” means Directive 2004/107/EC of the European Parliament and of the Council relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air(b);

(a) 1972 c.68. Section 2(2) was relevantly amended by the Scotland Act 1998 (c.46), Schedule 8, paragraph 15(3) and the Legislative and Regulatory Reform Act 2006 (c.51), section 27. The functions conferred upon the Minister of the Crown under section 2(2) of the European Communities Act 1972, insofar as within devolved competence, were transferred to the Scottish Ministers by virtue of section 53 of the Scotland Act 1998.

(b) OJ No L 23, 26.1.05, p 3. [There are amendments to this]

“Directive 2008/50/EC” means Directive 2008/50/EC of the European Parliament and of the Council on ambient air quality and cleaner air for Europe^(a);

“fixed measurements” means measurements taken at fixed locations, either continuously or by sampling from time to time, to determine levels of pollutants in accordance with the relevant data quality objectives;

“indicative measurement” means measurements which meet data quality objectives that are less strict than those required for fixed measurements;

“margin of tolerance” means the percentage of the limit value by which that value may be exceeded in a given year;

“oxides of nitrogen” means the sum of the volume mixing ratio (ppbv) of nitrogen monoxide (nitric oxide) and nitrogen dioxide expressed in units of mass concentration of nitrogen dioxide ($\mu\text{g}/\text{m}^3$);

“PM₁₀” means particulate matter which passes through a size-selective inlet as defined in the reference method for the sampling and measurement of PM₁₀, EN 12341, with a 50 per cent efficiency cut-off at 10 μm aerodynamic diameter;

“PM_{2.5}” means particulate matter which passes through a size-selective inlet as defined in the reference method for the sampling and measurement of PM_{2.5}, EN 14907, with a 50 per cent efficiency cut-off at 2.5 μm aerodynamic diameter;

“particulate matter” means PM_{2.5} and PM₁₀;

“pollutant” means any of the following:—

- (a) sulphur dioxide;
- (b) nitrogen dioxide;
- (c) oxides of nitrogen;
- (d) particulate matter;
- (e) lead;
- (f) benzene;
- (g) carbon monoxide;
- (h) arsenic;
- (i) cadmium;
- (j) mercury;
- (k) nickel;
- (l) benzo(a)pyrene or other polycyclic aromatic hydrocarbons;
- (m) ozone;

“polycyclic aromatic hydrocarbons” means those organic compounds composed of at least two fused aromatic rings made entirely from carbon and hydrogen.

Designation of competent authority

3. The Scottish Ministers are designated as the competent authority for the purposes of Directive 2008/50/EC (other than for the purpose specified in Article 3(f) of that Directive) and for the purposes of Directive 2004/107/EC.

Zones and agglomerations

4.—(1) The Scottish Ministers must, for the purposes of these Regulations, divide the territory of Scotland into zones and agglomerations.

(a) OJ No L 152, 11.6.08, p1.

(2) A zone will be classified as an agglomeration if it is a conurbation with a population in excess of 250,000 inhabitants.

(3) In these Regulations references to a zone includes a zone which has been classified as an agglomeration.

(4) Zones are identified on a map published by the Scottish Ministers and deposited in the Scottish Government Library and available on the internet at <http://www.scotland.gov.uk/Topics/Environment/waste-and-pollution/Pollution-1/16215/6116>.

PART 2

Assessment of ambient air quality

CHAPTER 1

Sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter, lead, benzene and carbon monoxide

Assessment thresholds

5.—(1) The Scottish Ministers must classify each zone according to whether or not the upper or lower assessment thresholds specified in Section A of Annex II to Directive 2008/50/EC are exceeded in relation to sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter, lead, benzene and carbon monoxide.

(2) The Scottish Ministers must review the classification of zones in paragraph (1) at least every five years, and must do so more frequently than every five years if there are significant changes in the activities which may affect levels of sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter, lead, benzene and carbon monoxide in ambient air.

(3) When reviewing the classification of zones in accordance with assessment thresholds, the Scottish Ministers must comply with Section B of Annex II to Directive 2008/50/EC.

Assessment criteria

6.—(1) The Scottish Ministers must assess the level of sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter, lead, benzene and carbon monoxide in ambient air in all zones.

(2) In all zones where the level of those pollutants exceeds the upper assessment threshold referred to in regulation 5, fixed measurements must be used, but may be supplemented by modelling or indicative measurements or both in order to provide adequate information on the spatial distribution of the ambient air quality.

(3) In all zones where the level of those pollutants is below the lower assessment threshold referred to in regulation 5, modelling or estimation techniques or both may be used instead of measurement.

(4) In all other zones a combination of fixed measurements together with modelling or indicative measurements or both may be used.

(5) In addition to the measurements referred to in paragraphs (1) to (4), the Scottish Ministers must measure PM_{2.5} at rural background locations away from significant sources of air pollution, in order to provide information on an annual average basis on the total mass concentration and chemical speciation concentrations of that pollutant.

(6) For the purposes of paragraph (5), measurements must be carried out in accordance with the criteria set out in Sections A and C of Annex I, and Annex IV to Directive 2008/50/EC.

(7) Save as provided for in paragraph (8), measurements must be taken in accordance with the reference measurement methods specified in Section A and Section C of Annex VI of Directive 2008/50/EC.

(8) Alternative methods to those referred to in paragraph (7) may be used if—

- (a) they give equivalent results to the reference measurement methods, or
- (b) in the case of particulate matter, they display a consistent relationship to the reference method and are corrected to give equivalent results to those given by the reference measurement methods.

(9) Where measurements are supplemented by modelling or indicative measurement then the Scottish Ministers must take account of the results of those supplementary methods in assessing ambient air quality for the purposes of these Regulations.

(10) In this regulation, “chemical speciation concentrations” means the concentrations of different chemical components or species of particulate matter.

Location and number of sampling points

7.—(1) The Scottish Ministers must install sampling points in accordance with Schedule 1 for the assessment of sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter, lead, benzene and carbon monoxide.

(2) In zones where fixed measurement is the sole source of information for the assessment of air quality, the number of sampling points must be more than or equal to the minimum number specified in Section A of Annex V to Directive 2008/50/EC for the purpose of assessing compliance with limit values and alert thresholds.

(3) In zones other than agglomerations where fixed measurement is the sole source of information for the assessment of air quality, the minimum number of sampling points specified in Section C of Annex V to Directive 2008/50/EC for the purpose of assessing compliance with critical levels for the protection of vegetation must be installed.

(4) In zones where the information from fixed measurement is supplemented by information from modelling or indicative measurement or both, the number of sampling points in Section A of Annex V may be reduced by up to 50 per cent provided that the following conditions are met:—

- (a) the supplementary methods provide sufficient information for the assessment of air quality in relation to limit values or alert thresholds;
- (b) the supplementary methods provide sufficient information to inform the public as to the state of ambient air quality; and
- (c) the number of sampling points to be installed and the spatial resolution of other techniques are sufficient for the concentration of the relevant pollutant to be established in accordance with the data quality objectives specified in Section A of Annex I to Directive 2008/50/EC and enable assessment results to meet the criteria in Section B of that Annex.

(5) For the measurement of PM_{2.5} in rural background locations, the Scottish Ministers must install a sampling point for every 100,000km².

CHAPTER 2

Ozone

Assessment criteria

8.—(1) The Scottish Ministers must ensure that fixed measurements are taken in any zone where the concentrations of ozone have exceeded the long-term objectives specified in Schedule 4 during any of the previous five years of measurement.

(2) Save as provided in paragraph (3), for the purposes of paragraph (1), measurements must be taken in accordance with the reference measurement method specified in point 8 of Section A of Annex VI to Directive 2008/50/EC.

(3) Alternative methods to those referred to in paragraph (2) may be used provided the conditions set out in Section B of that Annex are complied with.

Location and number of sampling points

9.—(1) The Scottish Ministers must install sampling points in accordance with the criteria set out in Annex VIII to Directive 2008/50/EC.

(2) In zones where fixed measurement is the sole source of information for the assessment of air quality, the number of sampling points must be more than or equal to the minimum number specified in Section A of Annex IX to Directive 2008/50/EC.

(3) In zones where the concentrations of ozone have been below the long-term objectives for each of the previous five years of measurement, the number of sampling points must be determined in accordance with the criteria set out in Section B of Annex IX to Directive 2008/50/EC.

(4) In zones where the information from fixed measurement is supplemented by information from modelling or indicative measurement or both, the number of sampling points referred to in paragraph (2) may be reduced provided that the following conditions are met:—

- (a) the supplementary methods provide sufficient information for the assessment of air quality in relation to target values, long-term objectives, information and alert thresholds;
- (b) the number of sampling points to be installed and the spatial resolution of supplementary methods are sufficient for the concentration of ozone to be established in accordance with the data quality objectives set out in Section A of Annex I to Directive 2008/50/EC and to enable assessment results to meet the criteria specified in Section B of the that Annex; and
- (c) there is at least one sampling point in each zone, with a minimum of one sampling point per two million inhabitants or one sampling point per 50,000km², whichever produces the greater number of sampling points.

(5) The Scottish Ministers must ensure that nitrogen dioxide is measured at no less than 50 per cent of the sampling points required under Section A of Annex IX to Directive 2008/50/EC.

(6) The measurement referred to in paragraph (5) must be continuous except at rural background stations.

(7) The Scottish Ministers must ensure that concentrations of the ozone precursor substances listed in Annex X to Directive 2008/50/EC are measured at at least one sampling point.

(8) In choosing the location and number of sampling points for measurements of ozone precursor substances, the Scottish Ministers must take into account the objectives and methods set out in Annex X to Directive 2008/50/EC.

CHAPTER 3

Arsenic, cadmium, nickel, mercury, benzo(a)pyrene and other polycyclic aromatic hydrocarbons

Assessment thresholds

10.—(1) The Scottish Ministers must classify each zone according to whether or not the upper and lower assessment thresholds specified in Section I of Annex II to Directive 2004/107/EC are exceeded in relation to arsenic, cadmium, nickel and benzo(a)pyrene.

(2) The Scottish Ministers must review the classification of zones in paragraph (1) every five years, and must do so more frequently than every five years if there are significant changes in the activities which may affect levels of the pollutants referred to in paragraph (1) in ambient air.

(3) When classifying zones in accordance with assessment thresholds, the Scottish Ministers must comply with Section II of Annex II to Directive 2004/107/EC.

Assessment criteria

11.—(1) The Scottish Ministers must assess concentrations of arsenic, cadmium, nickel and benzo(a)pyrene in ambient air.

(2) In zones where the levels of arsenic, cadmium, nickel and benzo(a)pyrene are above the upper assessment thresholds, fixed measurements must be used but may be supplemented by modelling techniques to provide an adequate level of information on ambient air quality.

(3) In zones where the levels of arsenic, cadmium, nickel and benzo(a)pyrene are above the lower assessment thresholds but below the upper assessment thresholds, a combination of fixed measurements together with indicative measurements as referred to in Section I of Annex IV to Directive 2004/107/EC or modelling, or both, may be used to assess the level of those pollutants in ambient air.

(4) In zones where the levels of those pollutants are below the lower assessment thresholds, modelling or objective estimation techniques may be used instead of measurement.

Data quality objectives

12. When assessing levels of arsenic, cadmium, nickel, benzo(a)pyrene and other polycyclic aromatic hydrocarbons and gaseous mercury, the Scottish Ministers must apply the data quality objectives and other standards contained in Annex IV to Directive 2004/107/EC.

Location and number of sampling points

13. The location and number of sampling points for the assessment of arsenic, cadmium, nickel and benzo(a)pyrene must be determined in accordance with Annex III to Directive 2004/107/EC.

Monitoring of polycyclic aromatic hydrocarbons

14.—(1) The Scottish Ministers must monitor concentrations of other relevant polycyclic aromatic hydrocarbons in addition to benzo(a)pyrene as Scottish Ministers think fit, including at least the following:—

- (a) benzo(a)anthracene;
- (b) benzo(b)fluoranthene;
- (c) benzo(j)fluoranthene;
- (d) benzo(k)fluoranthene;
- (e) indeno(1,2,3-cd)pyrene; and
- (f) dibenz(a,h)anthracene.

(2) Monitoring sites must be located together with sampling points for benzo(a)pyrene.

(3) Monitoring sites must be selected so that geographical variations and long term trends in the concentrations of polycyclic aromatic hydrocarbons can be identified.

(4) Monitoring sites must be selected in accordance with the criteria in Sections I to III of Annex III to Directive 2004/107/EC.

Background monitoring

15.—(1) In addition to the other requirements of this Chapter, the Scottish Ministers must operate background sampling points to provide the indicative measurements of—

- (a) concentrations of—
 - (i) arsenic, cadmium, nickel and benzo(a)pyrene;
 - (ii) the polycyclic aromatic hydrocarbons in paragraph (1) of regulation 14;
 - (iii) total gaseous mercury.
- (b) total depositions of—
 - (i) arsenic, cadmium, nickel and benzo(a)pyrene within the PM₁₀ fraction;
 - (ii) the polycyclic aromatic hydrocarbons in paragraph (1) of regulation 14,
 - (iii) mercury.

(2) For the purposes of paragraph (1) the Scottish Ministers must ensure that—

- (a) at least one sampling point is installed for every 100,000 km²; and
- (b) each sampling point is located in accordance with Sections I to III of Annex III to Directive 2004/107.

(3) In this Regulation “total gaseous mercury” means elemental mercury vapour (Hg⁰) and reactive gaseous mercury, i.e. water-soluble mercury species with sufficiently high vapour pressure to exist in the gas phase.

Reference methods for sampling

16. Measurements of arsenic, cadmium, mercury, nickel, benzo(a)pyrene and other polycyclic aromatic hydrocarbons in ambient air and deposition of those pollutants must be made in accordance with the reference measurement methods set out in Annex V to Directive 2004/107/EC.

PART 3

Duties of the Scottish Ministers in relation to limit values etc.

Duty in relation to limit values

17.—(1) The Scottish Ministers must ensure that levels of sulphur dioxide, nitrogen dioxide, benzene, carbon monoxide, lead and particulate matter do not exceed the limit values set out in Schedule 2.

(2) In relation to PM_{2.5}, the Scottish Ministers must ensure that the margin of tolerance calculated in accordance with Schedule 2 is not exceeded.

(3) In zones where levels of the pollutants mentioned in paragraph (1) are below the limit values set out in Schedule 2, the Scottish Ministers must ensure that levels are maintained below those limit values and must endeavour to maintain the best ambient air quality compatible with sustainable development.

Duty in relation to target values

18.—(1) The Scottish Ministers must ensure that all necessary measures not entailing disproportionate costs are taken to ensure that concentrations of PM_{2.5}, arsenic, cadmium, nickel and benzo(a)pyrene do not exceed the target values in Schedule 3.

(2) In zones where the target values for arsenic, cadmium, nickel or benzo(a)pyrene are met, the Scottish Ministers must maintain the levels of those pollutants below those target values and must endeavour to achieve the best ambient air quality compatible with sustainable development.

Date of application for limit values and target values etc. in regulations 17 and 18

19.—(1) The limit values and target values in regulations 17 and 18 apply—

- (a) from the date specified in the relevant Schedule for each limit value or target value concerned; or
- (b) when these Regulations come into force, if no such date is specified.

(2) The margin of tolerance referred to in regulation 17(2) applies when these Regulations come into force.

Duty in relation to target values and long-term objectives for ozone

20.—(1) The Scottish Ministers must ensure that all necessary measures not entailing disproportionate cost are taken to attain the target values and long-term objectives for ozone set

out in Schedules 3 and 4 respectively in relation to the relevant objectives and averaging periods set out in those Schedules.

(2) In pursuance of the duty imposed by paragraph (1) in relation to target values, in zones where a target value has been exceeded the Scottish Ministers must implement the programme prepared pursuant to Article 6 of Council Directive 2001/81/EC on national emission ceilings for certain atmospheric pollutants^(a) and (if appropriate) an air quality action plan prepared pursuant to regulation 24.

(3) In zones where the concentrations of ozone are equal to or below the target values but exceed a long-term objective, the Scottish Ministers must prepare and implement measures which they consider to be cost-effective with the aim of obtaining the long-term objectives.

(4) The measures referred to in paragraph (3) must at least be consistent with the programme and air quality plans implemented under paragraph (2).

(5) In zones where the long-term objectives for ozone have been attained, the Scottish Ministers must, insofar as factors including meteorological conditions and the transboundary nature of ozone pollution permit—

- (a) ensure that they continue to be met;
- (b) maintain the best ambient air quality compatible with sustainable development; and
- (c) maintain a high level of protection for the environment and human health.

Duty in relation to information and alert thresholds

21. Where any of the information or alert thresholds in Schedule 5 are exceeded in relation to the relevant averaging periods set out in that Schedule, the Scottish Ministers must inform the public by means of radio, television, newspapers or the internet.

Duty in relation to critical levels for the protection of vegetation

22. The Scottish Ministers must ensure that the critical levels set out in Schedule 6 are not exceeded in relation to the relevant averaging periods and margins of tolerance set out in that Schedule.

PART 4

National Exposure Reduction for PM_{2.5}

Duty to limit exposure to PM_{2.5}

23.—(1) The Scottish Ministers must ensure that all necessary measures not entailing disproportionate costs are taken in relation to Scotland with a view to attaining the national exposure reduction target by 2020.

(2) The Scottish Ministers must ensure that all appropriate measures are taken in relation to Scotland with a view to ensuring that the average exposure indicator for 2015 does not exceed 20µg/m³.

(3) In this regulation—

“national exposure reduction target” means the target established by the Secretary of State in accordance with regulation [24] of the Air Quality Standards Regulations 2010^(b); and

“average exposure indicator for 2015” means the indicator for that year calculated by the Secretary of State in accordance with regulation [23] of those Regulations.

(a) O.J. No. L 309 27.11.01, p.22.

(b)

PART 5

Plans

Air quality plans

24.—(1) The Scottish Ministers must draw up and implement an air quality plan for any zone where the levels of sulphur dioxide, nitrogen dioxide, benzene, carbon monoxide, lead or particulate matter in ambient air exceed any of the limit values or target values in Schedules 2 or 3 in relation to that pollutant, taking into account any relevant margin of tolerance, whether or not the attainment date for that limit value or target value has passed.

(2) Where the attainment date for a limit value has passed, the air quality plan must set out the measures intended to ensure compliance with that limit value as soon as possible.

(3) Air quality plans must include the information listed in Schedule 7.

(4) Wherever possible, air quality plans must be consistent with other plans drawn up in accordance with obligations imposed under Council Directive 2001/80/EC on the limitation of emissions of certain pollutants into the air from large combustion plants(a), Council Directive 2001/81/EC on national emission ceilings for certain atmospheric pollutants(b), and Council Directive 2002/49/EC on assessment and management of environmental noise(c).

(5) Where an air quality plan is required in relation to more than one pollutant, the Scottish Ministers must, where appropriate, draw up and implement an integrated plan in relation to all pollutants concerned.

Short-term action plans

25.—(1) Where, in any zone, there is a risk that levels of sulphur dioxide or nitrogen dioxide will exceed the alert thresholds set out in Schedule 5, the Scottish Ministers must draw up and implement a short-term action plan.

(2) A short-term action plan must set out the measures intended to reduce the risk of alert thresholds being exceeded, or in the event of the levels being exceeded, to reduce the duration of such an incident.

(3) Where, in any zone, levels of ozone exceed the alert threshold set out in Schedule 5 or there is a risk that they will exceed that threshold, the Scottish Ministers must draw up and implement a short-term action plan taking into account Decision 2004/279/EC(d), if of the opinion that it is reasonably likely that the risk, severity or duration of the excess level of ozone can be reduced taking into account geographical, meteorological and economic conditions.

(4) For the purposes of paragraph (3), the threshold must be exceeded or be predicted to exceed the alert threshold for at least three consecutive hours.

(5) Short-term action plans may also be drawn up where there is a risk that any of the limit values or target values set out in Schedules 2 or 3 will be exceeded.

Public participation in drawing up air quality and short-term action plans

26.—(1) The Scottish Ministers must consult the public where they propose to prepare, modify or review an air quality plan or a short-term action plan.

(2) Where paragraph (1) applies, the Scottish Ministers must—

- (a) inform the public as to the proposal, any relevant background information and the right of the public to participate in the drawing up of the plan;

(a) OJ No L 309 27.11.01, p 1.

(b) OJ No L 309 27.11.01, p 22.

(c) OJ No L 189 18.7.02, p 12

(d) OJ No. L 87, 25.3.04, p 50.

- (b) specify the means by which the public can participate in the consultation, including an address for responses, and a reasonable timescale for the consultation;
- (c) take account of the results of the consultation in drawing up the plan.

(3) When the plan is published, the Scottish Ministers must also provide information to the public as to the reasons for the contents of the plan together with information about the public participation process that has been carried out.

PART 6

Public information

Public information

27.—(1) The Scottish Ministers must make the following available to the public and appropriate interested organisations:—

- (a) Up-to-date information given on at least a daily basis, and if possible on an hourly basis, on concentrations of sulphur dioxide, nitrogen dioxide, PM₁₀ and if possible, PM_{2.5}, ozone and carbon monoxide;
- (b) Up-to-date information on concentrations of benzene and lead, presented as an average over the last 12 months, and updated every three months or if possible every month;
- (c) Up-to-date information as to any amendment to the attainment dates for limit values for nitrogen dioxide or PM₁₀;
- (d) Up-to-date information on concentrations and deposition rates of arsenic, cadmium, mercury, nickel, benzo(a)pyrene and other polycyclic aromatic hydrocarbons;
- (e) information about cases where target values for arsenic, cadmium, nickel and benzo(a)pyrene are exceeded, together with reasons for such cases, the area concerned, and appropriate information regarding effects on health and the environment;
- (f) information on measures taken to achieve target values for arsenic, cadmium, nickel and benzo(a)pyrene;
- (g) information about actual or predicted instances where pollutants exceed alert or information thresholds;
- (h) air quality plans;
- (i) short-term action plans.

(2) The information in paragraph (1)(g) must be made available in accordance with Schedule 8.

(3) Information must be distributed free of charge in a clear and comprehensible manner via any easily accessible media including the internet or other appropriate means of telecommunication taking into account the requirements of Council Directive 2007/2/EC on establishing an infrastructure for spatial information in the European Community^(a).

(4) For the purposes of this Part, “interested organisations” includes environmental organisations, consumer organisations, organisations representing sensitive populations, relevant healthcare bodies and industrial federations.

Annual reports

28.—(1) The Scottish Ministers must publish annual reports for all the pollutants.

(2) Annual reports must contain the following information:—

- (a) details of all cases where levels of pollutants have exceeded limit values, target values, long term objectives, information and alert thresholds set out in Schedules 2 to 5 for the relevant averaging periods.
- (b) a summary assessment of the effects of the cases referred to in sub-paragraph (a).

(3) Annual reports may contain further information where appropriate, including assessments on forest protection and information as to ozone precursor substances listed in section B of Annex X to Directive 2008/50/EC as the Scottish Ministers think appropriate.

(a) OJ No L 108, 25.4.07, p 1.

PART 7

General

Revocation

29. The Air Quality Standards (Scotland) Regulations 2007^(a) are revoked.

St Andrew's House,
Edinburgh
May 2010

Authorised to sign by the Scottish Ministers

^(a) S.S.I. 2007/182.

SCHEDULE 1

Regulation 7(1)

Sampling points for measurement of sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter, lead, benzene and carbon monoxide in ambient air

PART 1

1. Ambient air quality must be assessed at sampling points located in accordance with this Schedule, except those listed in paragraph 2.

2. Compliance with limit values directed at the protection of human health does not need to be assessed at the following locations:—

- (a) any location situated within areas where members of the public do not have access and there is no fixed habitation;
- (b) on factory premises or at industrial installations to which all relevant provisions concerning health and safety at work apply;
- (c) on the carriageway of roads and on the central reservations of roads except where there is normally pedestrian access to the central reservation.

3. Insofar as they are relevant, the principles set out in this Schedule also apply to indicative measurement and modelling.

PART 2

Macroscale siting of sampling points

Sampling points for the protection of human health

1. Sampling points directed at the protection of human health must be sited to provide data on—

- (a) the areas within zones 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; and
- (b) levels in other areas within the zones which are representative of the exposure of the general population.

2. Sampling points must in general be sited to avoid measuring very small micro-environments in their immediate vicinity. Where feasible, the Scottish Ministers must locate sampling points so as to be representative of air quality in a street segment of no less than 100m in length at traffic-orientated sites or an area of at least 250m x 250m at industrial sites.

3. Sampling points in urban background locations must be located so that their pollution level is influenced by the combined contribution from all sources upwind of the station. The pollution level should not be dominated by a single source unless such a situation is typical for a larger urban area. Those sampling points must, as a general rule, be representative for several square kilometres.

4. Where the objective is to assess rural background levels, the sampling point must not be influenced by agglomerations or industrial sites in its vicinity, i.e. closer than five kilometres.

5. Where contributions from industrial sources are to be assessed, at least one sampling point must be installed downwind of the source in the nearest residential area. Where the background

concentration is not known, an additional sampling point must be situated within the main wind direction.

6. Sampling points must also, where possible, be representative of similar locations not in their immediate vicinity.

7. Account must be taken of the need to locate sampling points on islands, where that is necessary for the protection of human health.

Sampling points for the protection of ecosystems and vegetation

Sampling points targeted at the protection of ecosystems or vegetation must be sited more than 20 km away from agglomerations or more than 5 km away from other built-up areas, industrial installations or motorways or major roads with traffic counts of more than 50,000 vehicles per day. The Scottish Ministers must locate sampling points so as to be representative of air quality in a surrounding area of at least 1000 km². A sampling point may be sited at a lesser distance or to be representative of air quality in a less extended area, taking account of geographical conditions or opportunities to protect particularly vulnerable areas. Account must be taken of the need to assess air quality on islands.

PART 3

Microscale siting of sampling points

1. Insofar as is practicable, sampling points must be situated in accordance with the following criteria:—

- (a) the flow around the inlet sampling probe must be unrestricted (free in an arc of at least 270°) without any obstructions affecting the airflow in the vicinity of the sampler and the inlet sampling probe must normally be some metres away from buildings, balconies, trees and other obstacles and at least 0.5 m from the nearest building in the case of sampling points representing air quality at the building line;
- (b) in general, the inlet sampling point must be between 1.5 m (the breathing zone) and 4 m above the ground. However, higher positions (up to 8 m) may be necessary in some circumstances. Higher siting may also be appropriate if the station is representative of a large area;
- (c) the inlet probe must not be positioned in the immediate vicinity of sources in order to avoid the direct intake of emissions unmixed with ambient air;
- (d) the sampler's exhaust outlet must be positioned so that recirculation of exhaust air to the sampler inlet is avoided;
- (e) in relation to the location of traffic-orientated samplers sampling points must be at least 25 m from the edge of major junctions and no more than 10m from the kerbside.

2. The following factors may also be taken into account:—

- (a) interfering sources;
- (b) security;
- (c) access;
- (d) availability of electrical power and telephone communications;
- (e) visibility of the site in relation to its surroundings;
- (f) safety of public and operators;
- (g) the desirability of co-locating sampling points for different pollutants;
- (h) planning requirements.

SCHEDULE 2

Regulation 17(1) and (2)

Limit values

Sulphur dioxide

<i>Averaging period</i>	<i>Limit value</i>
One hour	350 µg/m ³ not to be exceeded more than 24 times a calendar year
One day	125 µg/m ³ not to be exceeded more than 3 times a calendar year

Nitrogen dioxide

<i>Averaging period</i>	<i>Limit value</i>
One hour	200 µg/m ³ not to be exceeded more than 18 times a calendar year
Calendar year	40 µg/m ³

Benzene

<i>Averaging period</i>	<i>Limit value</i>
Calendar year	5 µg/m ³

Carbon monoxide

<i>Averaging period</i>	<i>Limit value</i>
Maximum daily eight hour mean(a)	10 mg/m ³

Lead

<i>Averaging period</i>	<i>Limit value</i>
Calendar year	0.5 µg/m ³

PM₁₀

<i>Averaging period</i>	<i>Limit value</i>
One day	50 µg/m ³ , not to be exceeded more than 35 times a calendar year
Calendar year	40 µg/m ³

- (a) The maximum daily eight hour mean concentration of carbon monoxide must be selected by examining eight hour running averages, calculated from hourly data and updated each hour. Each eight hour average so calculated will be assigned to the day on which it ends, i.e. the first calculation period for any one day will be the period from 1700 hours on the previous day to 0100 hours on that day, the last calculation period for any one day will be the period from 1600 hours to 2400 hours on that day.

PM_{2.5}

<i>Averaging period</i>	<i>Limit value</i>	<i>Margin of tolerance</i>	<i>Date by which limit value is to be met</i>
Stage 1 Calendar year	25 µg/m ³	20% on 11th June 2008, decreasing on the next 1st January and every 12 months thereafter by equal annual percentages to reach 0% by 1st January 2015	1st January 2015

SCHEDULE 3

Regulation 18(1) and (2)

Target values

Arsenic, cadmium, nickel and benzo(a)pyrene

<i>Pollutant</i>	<i>Target value for the total content in the PM₁₀ fraction averaged over a calendar year</i>	<i>Date by which target value should be met</i>
Arsenic	6 ng/m ³	31st December 2012
Cadmium	5 ng/m ³	31st December 2012
Nickel	20 ng/m ³	31st December 2012
Benzo(a)pyrene	1 ng/m ³	31st December 2012

Ozone

<i>Objective</i>	<i>Averaging period</i>	<i>Target value</i>
Protection of human health	Maximum daily eight hour mean(a)	120 µg/m ³ not to be exceeded on more than 25 days per calendar year averaged over three years(b)
Protection of vegetation	May to July	AOT 40 (calculated from 1h values) 18,000 µg/m ³ .h averaged over five years(b)

PM_{2.5}

<i>Averaging period</i>	<i>Target value</i>
Calendar year	25 µg/m ³

- (a) The maximum daily eight hour mean must be selected by examining eight hour running averages, calculated from hourly data and updated each hour. Each eight hour average so calculated must be assigned to the day on which it ends i.e. the first calculation period for any one day will be the period from 1700 hours on the previous day to 0100 hours on that day; the last calculation period for any one day will be the period from 1600 hours to 2400 hours on the day.
- (b) If the three or five year averages cannot be determined on the basis of a full and consecutive set of annual data, the minimum annual data required for checking compliance with target values will be as follows:—
- (a) for the target value for the protection of human health: valid data for one year; and
- (b) for the target value for the protection of vegetation: valid data for three years.

SCHEDULE 4

Regulation 20(1)

Long term objectives for ozone

<i>Objective</i>	<i>Averaging period</i>	<i>Long term objective</i>	<i>Date by which long term objective should be met</i>
Protection of human health	Maximum daily eight hour mean within a calendar year	120 µg/m ³	Not defined
Protection of vegetation	May to July	AOT 40 (calculated from 1h values) 6000µg/m ³ .h.	Not defined

SCHEDULE 5

Regulation 21

Information and alert thresholds

Alert thresholds for Sulphur dioxide and Nitrogen dioxide

To be measured over three consecutive hours at locations representative of air quality over at least 100 km² or an entire zone, whichever is smaller.

<i>Pollutant</i>	<i>Alert threshold</i>
Sulphur dioxide	500 µg/m ³
Nitrogen dioxide	400 µg/m ³

Information and alert thresholds for ozone

<i>Purpose</i>	<i>Averaging period</i>	<i>threshold</i>
Information	1 hour	180 µg/m ³
Alert	1 hour	240 µg/m ³

SCHEDULE 6

Regulation 22

Critical levels for the protection of vegetation

Sulphur dioxide

<i>Averaging period</i>	<i>Critical level</i>
Calendar year and winter (1 October to 31 March)	20 µg/m ³

Oxides of Nitrogen

<i>Averaging period</i>	<i>Critical level</i>
Calendar year	30 µg/m ³ NO _x

SCHEDULE 7

Regulation 24(3)

Information to be included in air quality plans

- 1. Localisation of excess pollution—**
 - (a) region;
 - (b) city (map);
 - (c) measuring station (map, geographical co-ordinates)
- 2. General information—**
 - (a) type of zone
 - (b) estimate of the polluted area (km²) and of the population exposed to the pollution;
 - (c) useful climatic data;
 - (d) relevant data on topography; and
 - (e) sufficient information on the type of targets requiring protection in the zone.
- 3. Responsible authorities (names and addresses of persons responsible for the development and implementation of air quality plans).**
- 4. Nature and assessment of pollution—**
 - (a) concentrations observed over previous years (before the implementation of the improvement measures);
 - (b) concentrations measured since the beginning of the project; and
 - (c) techniques used for the assessment.
- 5. Origin of pollution—**
 - (a) list of the main emission sources responsible for pollution (map);
 - (b) total quantity of emissions from these sources (tonnes per year); and
 - (c) information on pollution imported from other regions.
- 6. Analysis of the situation—**
 - (a) details of those factors responsible for exceeding the limit value or target value (transport, including cross-border transport, formation [of secondary pollutants in the atmosphere]; and
 - (b) details of possible measures for improvement of air quality.
- 7. Details of those measures or projects for improvements which existed prior to 11th June 2008—**
 - (a) local, regional, national and international measures; and
 - (b) observed effects of those measures.
- 8. Details of those measures or projects adopted with a view to reducing pollution following 11th June 2008—**
 - (a) listing and description of all the measures set out in the project;
 - (b) timetable for implementation;
 - (c) estimate of the improvement of air quality planned and of the expected time required to attain these objectives.
- 9. Details of the measures or projects planned or being researched for the long term.**

10. List of the publications, documents and work etc. used to supplement information required by this Schedule.

SCHEDULE 8

Regulation 27(2)

Alert and information thresholds for nitrogen dioxide, sulphur dioxide and ozone

1. In cases where either the information threshold or the alert thresholds are exceeded the details set out in paragraphs 3 to 6 must, as a minimum, be made available to the public.

2. In cases where either the information or alert thresholds are predicted to be exceeded, the information set out in paragraphs 3 to 6 must be provided where practicable.

3. Information on any exceedance—

- (a) the location or area of the exceedance;
- (b) the type of threshold exceeded (information or alert threshold);
- (c) the time at which the exceedance began and its duration; and
- (d) the highest 1-hour and (in the case of ozone) 8-hour mean concentration.

4. Forecast for the following afternoon, day and days—

- (a) the geographical area of expected exceedances of an information or alert threshold;
- (b) the expected changes in pollution (that is, improvement, stabilisation or deterioration), together with the reasons for those changes.

5. Information on the type of population concerned, possible health effects and recommended conduct in particular—

- (a) information on the population groups at risk;
- (b) description of likely symptoms;
- (c) recommended precautions to be taken by the population concerned; and
- (d) where to find further information.

6. Information provided under this Schedule must also include—

- (a) information on preventive action to reduce pollution or exposure to it;
- (b) an indication of main source sectors; and
- (c) recommendations for action to reduce emissions.

EXPLANATORY NOTE

(This note is not part of the Regulations)

These Regulations, which extend to Scotland only, implement the following Directives:—

- (a) Directive 2008/50/EC on ambient air quality and cleaner air for Europe (this Directive replaces Council Directive 96/62/EC on ambient air quality assessment and management, Council Directive 1999/30/EC relating to limits for sulphur dioxide, nitrogen dioxide, oxides of nitrogen, particulate matter and lead in ambient air, Council Directive 2000/69/EC relating to limit values for benzene and carbon monoxide in ambient air, Council Directive 2002/3/EC relating to ozone in ambient air); and
- (b) Directive 2004/107/EC relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air.

These Regulations replace the Air Quality Standards (Scotland) Regulations 2007 (S.S.I. 2007/182), which are revoked (regulation 29).

Part 1 of the Regulations provides for definitions and designates the Scottish Ministers as the competent authority for the purposes of Directives 2008/50/EC and 2004/107/EC.

Part 2 of the Regulations relates to assessment of ambient air quality. Chapter 1 applies to the assessment of sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter, lead benzene and carbon monoxide. Chapter 2 relates to the assessment of ozone, and Chapter 3 relates to the assessment of arsenic, cadmium, nickel, mercury, benzo(a)pyrene and other polycyclic aromatic hydrocarbons.

Part 3 of the Regulations sets out the duties of the Scottish Ministers in relation to the limit values, target values, long-term objectives, information and alert thresholds, and critical levels for the protection of vegetation, all of which are set out in Schedules 2 to 6.

Part 4 of the Regulations provides for requirements in relation to PM_{2.5} in addition to the limit value and target value for this pollutant.

Part 5 of the Regulations imposes requirements on the Scottish Ministers to draw up air quality plans in relation to limit values and target values and short-term action plans in relation to alert thresholds. Short-term action plans may also be used in relation to limit values and target values.

Part 6 of the Regulations relates to public information.

Schedule 1 of the Regulations sets out the requirements for the siting of sampling points for the assessment of sulphur dioxide, nitrogen dioxide, oxides of nitrogen, particulate matter, lead, benzene and carbon dioxide.

Schedules 2 to 6 set out limit values, target values, long term objectives for ozone, information and alert thresholds, and critical levels for the protection of vegetation;

Schedule 7 sets out the information to be included in air quality plans.

Schedule 8 sets out the public information to be provided in relation to concentrations of pollutants.

[A Regulatory Impact Assessment has been prepared and placed in the Scottish Parliament Information Centre. Copies can be obtained from the Air, Noise and Nuisance Team, Environmental Quality Directorate, Victoria Quay, Edinburgh EH6 6QQ.]

Summary: Intervention & Options

Department /Agency:
Defra

Title: Transposition of the Air Quality Directive (2008/50/EC).

Stage: Consultation

Version: 1

Date: 22/10/2009

Related Publications: **Impact Assessment for PM₁₀ time extension notification**
(<http://www.defra.gov.uk/corporate/consult/air-quality/index.htm>)

Available to view or download at:

Contact for enquiries:

Telephone:

What is the problem under consideration? Why is government intervention necessary?

Council Directive 2008/50/EC contains options for seeking additional time to meet limit values for certain pollutants, requires deduction of natural sources from compliance assessments and consideration of the costs of additional action to achieve reductions in fine particulate matter (PM_{2.5}) in urban background areas. A separate IA has been produced to support the UK time extension notification for particulate matter (PM₁₀) and one is being prepared for the UK nitrogen dioxide (NO₂) notification consultation. The impacts of the deduction of natural sources and the PM_{2.5} controls are assessed here.

What are the policy objectives and the intended effects?

New controls for PM_{2.5} will further protect public health and the environment. This is balanced with provisions to secure additional time to meet PM₁₀ and NO₂ limit values in response to challenges faced across Europe, and a new duty to deduct natural sources such as sea-salt from compliance assessment reports (for PM₁₀). The Directive must be transposed into national legislation by June 2010 and our aim is to do this in an effective, timely and proportionate manner to achieve the objectives of the Directive whilst minimising the burdens on business.

What policy options have been considered? Please justify any preferred option.

1. Do not transpose the Directive
2. Transposition, using the new provisions in relation to time extensions, deducting natural sources and meeting the obligatory standards on the control of PM_{2.5}.

Option 2 is our preferred option because it meets our statutory obligations providing flexibilities to improve air quality without imposing disproportionate costs.

When will the policy be reviewed to establish the actual costs and benefits and the achievement of the desired effects?

The Directive is due to be reviewed in 2013 and the UK will review the costs and benefits of PM_{2.5} controls prior to then.

Ministerial Sign-off For CONSULTATION STAGE Impact Assessments:

I have read the Impact Assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options.

Signed by the responsible Minister:

.....Date:

Summary: Analysis & Evidence

Policy Option: Option 2	Description: Transpose the Air Quality Directive
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COSTS	ANNUAL COSTS		Description and scale of key monetised costs by 'main affected groups' The key costs of this option are the health costs associated with not delivering additional improvement in air quality.
	One-off (Transition)	Yrs	
	£ 0		
	Average Annual Cost (excluding one-off)		
	£ 46.5 Million	20	Total Cost (PV) £ 684 Million
Other key non-monetised costs by 'main affected groups' The costs focus primarily on chronic mortality impacts and does not reflect any potential wider benefits either on morbidity or other environmental benefits.			

BENEFITS	ANNUAL BENEFITS		Description and scale of key monetised benefits by 'main affected groups' Reduced mitigation costs including technology costs, resources costs and cleaning costs.
	One-off	Yrs	
	£ 0		
	Average Annual Benefit (excluding one-off)		
	£ 106 Million	20	Total Benefit (PV) £ 1,559 Million
Other key non-monetised benefits by 'main affected groups' This estimate excludes the potential benefit of time extensions, of at least £3.9bn for PM.			

Key Assumptions/Sensitivities/Risks

Key assumptions relate to the link between air pollution and chronic mortality and the approach to mitigating air pollution. The notable risk is that air pollution is shown to have wider health impacts than currently understood that might change the balance of the impacts.

Price Base Year 2008	Time Period Years 20	Net Benefit Range (NPV) £ 875 Million	NET BENEFIT (NPV Best estimate) £ 875 Million
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What is the geographic coverage of the policy/option?	UK
On what date will the policy be implemented?	June 2010
Which organisation(s) will enforce the policy?	Defra and DA's
What is the total annual cost of enforcement for these organisations?	£ 0
Does enforcement comply with Hampton principles?	Yes
Will implementation go beyond minimum EU requirements?	No
What is the value of the proposed offsetting measure per year?	£ N/A
What is the value of changes in greenhouse gas emissions?	£ 3 million saving
Will the proposal have a significant impact on competition?	No
Annual cost (£-£) per organisation (excluding one-off)	Micro Small Medium Large
Are any of these organisations exempt?	No No N/A N/A

Impact on Admin Burdens Baseline (2005 Prices)		(Increase – Decrease)
Increase of £ 0	Decrease of £ 0	Net Impact £ (<£5m)

Key: Annual costs and benefits: Constant Prices

Introduction

Council Directive on ambient air quality and cleaner air for Europe (2008/50/EC) consolidates the framework and three daughter directives on ambient air quality together with the Council Decision on the Exchange of Information into a single directive, with the intention of simplifying the existing legislation. It also introduces three key new provisions reflecting the experiences of member states in implementation and improved understanding on the health impacts of particulate matter:

- I. Additional time to meet limit values for PM₁₀¹ and NO₂, subject to consideration by the Commission of air quality plans setting out how the limit values would be achieved by the extended deadlines.
- II. A requirement for the deduction of natural contributions when assessing compliance with limit values;
- III. A new control framework for PM_{2.5};

Other minor changes have been introduced, many of which are points of clarification. The Directive must be transposed into national legislation by 11 June 2010.

Policy Options

This IA analyses the impacts of the following 2 options;

Option 1; Do nothing. Under this option, the UK government would not transpose the new Directive and would continue to be bound by the existing legislative framework. This option represents a reference point against which Option 2 is compared.

Given the attainment date for PM₁₀ was 2005 and is 2010 for NO₂ this option would require additional measures be undertaken to immediately meet limit values across the UK.

Option 2; Transposition of the Air Quality Directive. Under this option, government uses the new time extension provisions, deducts natural sources for PM₁₀ and meets obligatory standards on the control of PM_{2.5} (the Exposure Concentration

¹ Particulate Matter (PM) is generally categorised on the basis of the size of the particles (for example PM_{2.5} is particles with a diameter of less than 2.5µm). PM is made up of a wide range of materials and arise from a variety of sources. Concentrations of PM comprise primary particles emitted directly into the atmosphere from combustion sources and secondary particles formed by chemical reactions in the air. PM derives from both human-made and natural sources (such as sea spray and Saharan dust). In the UK the biggest human-made sources are stationary fuel combustion and transport. Road transport gives rise to primary particles from engine emissions, tyre and brake wear and other non-exhaust emissions. Other primary sources include quarrying, construction and non-road mobile sources. Secondary PM is formed from emissions of ammonia, sulphur dioxide and oxides of nitrogen as well as from emissions of organic compounds from both combustion sources and vegetation.

Obligation and the Limit Value), with any justified action taken to ensure progress towards the National Exposure Reduction Target for PM_{2.5} by 2020.

Under this option, UK would transpose the new Air Quality Directive by means of:

- **Using the additional time** available to meet limit values for PM₁₀ and NO₂, subject to consideration by the Commission of air quality plans setting out how the limit values would be achieved by the extended deadlines.
- Deduction of **natural contributions** when assessing compliance with limit values in relation to PM₁₀, and hence the case for seeking additional time (see above);
- Compliance with a new limit value and Exposure Concentration Obligation for PM_{2.5};

This option therefore assesses the impact of these provisions within the UK. To assess the costs and benefits it is necessary to consider the three key provisions individually.

The **additional time provision** provides important flexibility for the UK to achieve compliance in those small parts of the country where limit values are not already being achieved. Given the importance of this provision any such application has been or will be subject to public consultation.

In April 2009 following public consultation, the UK submitted to the Commission a notification to seek additional time to meet the limit value for PM₁₀ and a separate Impact Assessment was produced in relation to that². The notification sets out what actions will be taken to meet the limit values by the extended deadline of 2011. Details are set out in the Technical Report³ to accompany the UK Time Extension notification forms.

The evidence undertaken for this notification suggested that use of the additional time would create a net benefit of around £3.3 billion, within a range of £0.7 - £5.5 billion. These benefits arise as a result of the avoided technology and operational costs associated with the necessary abatement to achieve compliance as soon as possible.

The UK will also be submitting a notification for additional time to meet the NO₂ limit value and a separate Impact Assessment will be produced in association with that. This will be subject to a separate public consultation in 2010.

As the PM₁₀ decision on the time extension is still subject to Commission approval, and there are clear uncertainties around the detail of an application in relation to NO₂, the potential impacts are not included in the central benefit figures presented for this option. It must however be noted that the possibilities of additional time do present potential major benefits to the UK.

Related to the time extension notification for PM₁₀, the second key provision relates to the treatment of **natural sources** when assessing compliance with the limit values. The level of PM in ambient air is the result of both human activity (anthropogenic sources) as well as natural processes. Currently compliance against limit values is assessed against the total modelled levels of PM. The new provision in the Directive (Article 20 of Directive 2008/50/EC) requires Member States (under specific conditions) to deduct contributions of PM that occur naturally for the purpose of compliance reporting:

Where the commission has been informed of an exceedance attributable to natural sources.....that exceedance shall not be considered as an exceedance for the purposes of this Directive⁴.

² The full consultation including the IA is available from <http://www.defra.gov.uk/corporate/consult/air-quality/index.htm>

³ The technical report is available from: <http://www.defra.gov.uk/environment/quality/air/airquality/eu-int/eu-directives/airqual-directives/documents/090423-pm10-tech-doc.pdf>

⁴ Directive 2008/50/EC (Article 20 (b))

Pending formal Commission Guidance, Member States have been advised to use what they consider to be the most appropriate methodology for the deduction of natural sources. In the UK the main natural source of PM₁₀ is sea salt (Sodium Chloride). Unlike anthropogenic sources of particulate matter, sea-spray cannot be controlled. Furthermore, scientific evidence suggests that natural sources of PM (including sea salt) are relatively harmless to human health and the environment as compared with anthropogenic sources of PM, though the evidence on this is not conclusive⁵.

Assessing compliance excluding the contribution of natural sources has the effect of reducing any identified exceedences. Depending on the extent of the contribution of sea-salt, the effect might be that the exceedences would no longer exist. In other cases, it would reduce the level of a reported exceedences.

Given that the Secretary of State is obliged to take action to achieve compliance in the event of exceedences being reported, this provision will reduce the level of abatement necessary to achieve compliance.

The analysis therefore looks to model the additional abatement that is avoided through the exclusion of the contribution from natural sources in considering exceedences. It should be noted that in compiling the UK time extension notification for PM₁₀, natural sources were taken into account.

Finally, the Directive introduces **new controls for PM_{2.5}**. These aim to minimise the exposure of the whole population to PM_{2.5} – this new ‘exposure reduction’ approach is focused on driving down concentrations across urban background areas. Certain elements of the new controls are mandatory – the limit value, and the exposure concentration obligation.

The PM_{2.5} **limit value** applies everywhere from 2015 and aims to ensure a minimum standard of air quality for all people. There is also a PM_{2.5} target value to aim for from 2010. Table 1 sets these out.

Table 1; Limit and target value (applying everywhere).

Standards applying across zones/agglomerations (compliance assessed in accordance with Annex III)		Compliance date
Target value	25 µg/m ³	January 2010
Limit value	25 µg/m ³	January 2015

The Exposure Concentration Obligation applies across UK urban background areas. It must be attained by 2015 – and will be calculated as the 3 year mean concentration averaged over the relevant sampling points for 2013--15.

The National Exposure Reduction Target is a % reduction in average concentration in UK urban background locations, to be achieved by 2020 by taking measures not entailing disproportionate costs. The target for 2020 is determined by the mean concentration in urban background locations over the 3 years 2009 -2011 (this is termed the Average Exposure Indicator for 2010). The directive (Annex XIV) also specifies how the AEI for 2020 shall be calculated. The target for the UK therefore cannot yet be finally determined.

⁵ “There is a view that some components of particles from natural sources are less toxic than some components of particles from anthropogenic sources. However, this observation is based on more general principles rather than specific evidence. For example, sea salt (sodium chloride) is a common constituent of the body so is therefore assumed to be relatively harmless. There have been several studies of the effects of particles from different sources but these have not shown conclusively that all constituents of particles from natural sources are harmless. For example, the dust from Saharan dust storms has been shown to have some health effects” (Perez et al 2008).

Table 2; Standards for urban background areas.

Standards applying across urban background areas		Compliance date
Exposure Concentration <u>Obligation</u>	20 µg/m ³	2015
National Exposure Reduction <u>Target</u>	% reduction according to the AEI	2020

The new provisions to a large extent mirror those set out in the 2007 Air Quality Strategy (see Box 1 below).

Box 1 *Developments since the Air Quality Strategy 2007*

The Air Quality Strategy (AQS 2007) presents data which show the UK to be on target to meet a 15% Exposure Reduction, assuming we put in place Measure Q. Measure Q included the early introduction of the Euro 5, 6 and VI vehicle emission standards, a programme to incentivise low emission vehicles, and reductions in emissions from international shipping.

The baseline used for the current assessment includes Euro 5, 6 and VI (their early introduction will make little difference to levels of uptake in 2020) and some of the impact of the agreement on a revised Annex VI to the MARPOL convention, which has a similar or stronger effect than the shipping measures proposed in AQS 2007. Nevertheless, whereas AQS 2007 showed that baseline plus measure Q gave a 16.1% exposure reduction from 2010 to 2020, the baseline used in this assessment shows only 6.4%⁶. AQS 2007 Volume 2 (pp 124-126) discusses the uncertainties in the PM_{2.5} projections used for the AQS 2007 assessment, and the assessment used in this impact assessment is within the range suggested.

The main reasons for the difference in the two sets of projections are:

- changes to the energy projections used – AQS 2007 used Updated Energy Projection (UEP) 12, whereas the work to support this assessment used UEP 30. Differences in the level of energy projected and in particular the level of coal used for energy generation can have a significant impact on the level of secondary particles, and therefore the background concentrations of PM_{2.5}.
- While, the same basic model was used for both sets of projections, there have been a number of changes to the assumptions used. Most significant is the relationship between the emission of secondary particle precursor gases (mainly SO₂, NO_x and NH₃) and the formation of secondary particles. Secondary particles are a major component of PM_{2.5} and so trends over time are very sensitive to changes in this relationship, as is shown by the analysis in AQS 2007 Volume 2. The outcome of the changes made to the model is that secondary particulate levels, and therefore PM_{2.5}, are not reduced as much for the same reduction in SO₂ and NO_x emissions in the second set of projections
- The AQS 2007 projections assumed a greater proportion of the PM_{2.5} mass was nitrate, and therefore changed with changes in precursor emissions. The model was adjusted to reflect more recent knowledge and apportioned a greater part of the mass to components such as sea salt, secondary organic aerosol and iron and calcium rich dusts, which tend not to change with changes in “controlled” emissions. This means that emission controls assumed for the decade 2010-2020 will have a lower impact on PM_{2.5} concentrations.

⁶ 7.4% if only prospective monitoring sites are used, rather than population weighted mean values used in the other assessments

Though there are considerable uncertainties attached to projections of PM_{2.5} concentrations our current assessment is that both the limit and target values (Table 1) and the legally binding 2015 Exposure Concentration Obligation in urban areas (Table 2) will be achieved under business as usual (BAU) measures. This is based on the projections prepared for the PM₁₀ time extension notification⁷.

In addition, the projections indicate that the UK's National Exposure Reduction Target will likely be 10%. This would mean a target to abate particulates to reduce exposure to PM_{2.5} by 10% in 2020 relative to the Average Exposure Indicator (AEI) for 2010. The 10% reduction target is determined by the expectation that the initial concentration of PM_{2.5} for the AEI will be in the range of 8.5 µg.m⁻³ and 13 µg.m⁻³.

On the basis of these projections, additional abatement would be necessary in order to fully deliver meet the National Exposure Reduction Target, which Member States must take all necessary actions, not imposing disproportionate costs, to achieve by 2020. Option 2 assumes that foreseeable measures under development but which cannot yet be factored into the baseline projections would ensure further progress towards the National Exposure Reduction Target without incurring disproportionate costs. This is considered further in the section on sensitivities and uncertainties.

Cost Benefit Analysis

Option 1: Do nothing (do not transpose)

This option provides the base case or counterfactual for the other options and so by definition the marginal impacts are zero. This does not however mean that this is a zero cost option but rather that in order to estimate its costs it is necessary to define an alternate base case.

It is UK government policy to transpose directives into national legislation. Not transposing the directive is therefore not an option.

Option 2: Transposition of the Air Quality Directive (using time extension notification provisions, deduction of natural sources and meeting legally binding standards for PM_{2.5}). Option 2 does not include taking specific additional actions to achieve compliance with the PM_{2.5} National Exposure Reduction Target by 2020.

This appraisal focuses on the deduction of natural sources of PM₁₀ emissions from compliance assessments. The time extension decisions are subject to bespoke analysis.

To assess the impact of excluding for compliance purposes exceedences attributable to natural sources it is necessary to assess the changes in the level of abatement and resulting ambient concentrations. The analysis assumes a concentration of 1.9µg.m⁻³ can be attributed to natural sources of PM₁₀, as defined by the methodology used in the UK Time Extension Notification for PM₁₀⁸. The methodology used to derive this figure is explained on pages 42-49 of the Technical Document which supported this notification, and assumes that all natural PM can be attributed to sea salt. The analysis used here assumes that the exclusion of natural sources would reduce the amount of abatement undertaken to achieve compliance by 1.9µg.m⁻³.⁹

⁷ <http://www.defra.gov.uk/environment/airquality/eu-int/eu-directives/airqual-directives/notification.htm>

⁸ <http://www.defra.gov.uk/environment/airquality/eu-int/eu-directives/airqual-directives/documents/090423-pm10-tech-doc.pdf>

⁹ The level of PM₁₀ attributable to natural sources varies across the country, and 1.9µg.m⁻³ is the figure derived for the London area. Given that this is the area with by far the greatest residual PM₁₀ compliance problem, it was considered appropriate to use this figure.

In order to assess the associated impacts of abatement this analysis assumes that the marginal abatement method is retrofitting Diesel Particulate Filters (DPF) to the vehicle fleet. This measure has been selected as the marginal method as it was applied in the evidence base for the PM₁₀ time extension notification. More information on the reasoning for selecting this as the marginal approach is provided in the previous impact assessment.

This analysis therefore estimates the impacts of not introducing a measure to uptake retrofitting to reduce concentrations by 1.9µg.m⁻³. It must be noted in practice that this is a conservative assumption of the impacts as it only reflects the non-transposition costs of the treatment of natural sources. In practice non-transposition would also remove the potential time extensions that could also deliver notable benefits.

Benefits

The assumed marginal technology means that Option 2 will result in the reduced requirement to fit diesel particulate filters (DPFs) to the existing fleet. The benefits of the fleet management are equivalent to the 'avoided costs' of abatement that otherwise would be incurred while complying with the more stringent abatement target. These benefits can be separated into three components:

- *Technology costs (avoided):* The unit costs of the DPF technology and the operational costs for the different vehicle types are outlined in Table 3 below. The costs presented are the costs per unit of producing the technology. The costs are annualised over the lifetime of the measure taking into account the vehicle survival rates.

Table 3: Resource costs per unit of technology¹⁰

Vehicle Type	Unit Resource costs	Annual Cleaning costs
Diesel car	£614	£0
Diesel LGV	£1,106	£0
Articulated HGVs	£1,750	£240
Rigid HGVs	£1,350	£160
Captive Fleet	£1,350	£160

- *Cleaning costs of HGV diesel particulate filters:* The efficient operation of DPFs on HGVs also requires that they are cleaned annually. This cost therefore has been estimated using the cleaning costs set out in Table 3.
- *Resource costs (avoided) of fuel:* DPF technology also can have a negative impact on fuel economies for some vehicle types. A negative impact on fuel economy implies that the particular vehicle will use more fuel per km than a the vehicle did before the retrofitting took place (i.e. a fuel penalty). This measure also estimates the carbon impacts due to the negative impact on fuel economies (valued in accordance with Department for Transport guidance) and the resulting additional carbon emissions (valued according to the latest guidance from the Department for Energy and Climate Change) when DPFs are fitted. Fuel economy assumptions for the different vehicle types in this measure are presented in the Table 4

¹⁰ Source Air Quality Strategy (2007) available from www.defra.gov.uk

Table 4: Fuel penalty of retrofitting DPFs by vehicle type¹¹

Vehicle Type	Impact on fuel economy
Diesel Car	- 5%
Diesel LGV	- 5%
Articulated HGV	0%
Rigid HGV	0%
Captive fleet ¹	0%
¹ Buses and Coaches	

The benefits (avoided costs) of this measure as described above are discounted at the standard appropriate HM Treasury Green Book rate and annualised over the lifetime of this measure (2009 – 2029) and presented in Table 5 below.

Table 5: Benefits of fleet management scheme (avoided costs relative to the baseline) retrofitting (£ millions)

Annualised Technology Costs avoided.	Annualised Resource cost of extra fuel consumed.	Annualised carbon cost from extra fuel consumed	Annualised cleaning costs of DPFs on HGVs avoided.	Annual PV of Benefits (Avoided Costs)
£88	£8	£3	£7	£106

Costs

The costs of this option relate to the health benefit that is being forgone by not undertaking the above abatement measure.

The benefits of this option have been based on retrofitting across the road vehicle fleet. However, it is important to highlight that the scenario analysed in this section only considers the retrofitting of diesel and petrol cars. Therefore, the impacts of scrapping HGV, LGVs and buses are omitted from this analysis giving a conservative estimate of the costs. Introducing this scheme was assumed not to change behavioural decisions such as distance travelled or the rate at which the vehicle fleet renews itself.

The emissions reductions from this technology are modelled to fall over time as the retrofitted vehicles exit the fleet. This natural fleet turnover combined with the uptake rate in Table 5 estimate the impact upon emissions and ambient concentrations associated with Option 2 as outlined in Table 6 below. These reflect the missed reductions in emissions resulting from the reduced level of abatement.

¹¹ The impact on fuel efficiencies are taken from the Updated Third Report of the Interdepartmental Group on Costs and Benefits released alongside the Air Quality Strategy (2007). Available from www.defra.gov.uk.

Table 6: Increase in emissions for Option 2

Country	Pollutant	Increase in Emissions (tonnes)				
		2010	2015	2020	2025	2030
UK	PM ₁₀	2,884	831	239	69	26

The Government's Interdepartmental Group on Costs and Benefits (IGCB) impact-pathway methodology has been used to estimate the health impacts of the increase in emission resulting from the deduction of natural sources from compliance reports¹². The IGCB methodology is best practice air quality appraisal guidance¹³. This option is assumed not to have any impact after 2030 when all the retrofitted vehicles are estimated to have left the fleet. Table 7 provides the health impacts generated by the above changes in emissions. This represents the number of life years lost, as well as the number of hospital admissions.

Table 7: Quantified costs of Option 2

PM life years lost (,000s)	PM – RHA (2010 p.a.) (,000s)	PM – CHA (2010 p.a.) (,000s)
30.4	49.1	49.1
PM – RHA Respiratory Hospitable Admissions attributable to changes in particulate matter PM – CHA Cardiovascular Hospitable Admissions attributable to changes in particulate matter		

These health costs have then been monetised using the per tonne damage costs under the IGCB methodology. The relevant annual damage cost estimate has been applied to the changes in emissions between 2010 and 2030, for each year within this change it has been assumed that the emission change applies to the mid-point of year. The costs are outlined in Table 8;

Table 8: Annual present value of health impacts of Option 2 (£millions)

PM life years saved	PM – RHA	PM – CHA
45.87	0.05 – 0.30	0.05 – 0.30
PM – RHA Respiratory Hospitable Admissions attributable to changes in particulate matter PM – CHA Cardiovascular Hospitable Admissions attributable to changes in particulate matter		

Consolidated costs and benefits of Option 2

Table 9 below presents the annual Net Present Value (NPV) of this option. The £106 million in benefits (avoided costs) are derived by summing all the benefits in Table 5. Likewise, the £46.5 million in costs is derived by summing the costs in Table 8. Therefore, Option 2 has a present value annual benefit of £59.5 million.

¹² It should be noted that non-health impacts were not modelled for this option therefore the benefits may be marginally underestimated. However, the non-health impacts of PM typically only account for less than 0.5% of the health impacts.

¹³ More information on the IGCB and its methodology is available from <http://www.defra.gov.uk/environment/quality/air/airquality/panels/igcb/index.htm>

Table 9: Annual costs and benefits of implementing Option 2 (£millions)

Annual PV of Benefits (£ million)	Annual PV of costs (£ million)	Annual NPV (£ million)
106	46.5	59.5

Table 10 below represents the annualised data in table 9 in the form of net present values for the year 2010, these have been calculated over a 20 year appraisal period;

Table 10: Net Present Value of Option 2 (£million).

PV of Benefits (£million)	PV of costs (£million)	NPV (£million)
1,559	684	875

The results above indicate that the benefits of transposition substantially outweigh the costs. This analysis suggests that omitting natural sources from the assessment of compliance with the limit values would create a net annual benefit of £59.5million for each year over the life time of the retrofitted technology. This equates to a net benefit of £875 million between 2010 and 2030.

It should also be noted that these impacts are not evenly distributed over time. The majority of the £1,559 million PV of benefits (avoided costs) would be gained in the first year as the cost of the new technology is around £1,300 million. The ongoing costs of around £300 million, of additional fuel, carbon emissions and DPF cleaning, are also skewed towards the early period with over a fifth of the costs (22%) occurring in 2010 and only a fiftieth (2%) half way through the life of the vehicles in 2020.

The costs are also skewed towards the early years after the retrofitting scheme. Of the £684 million in costs, over a fifth (21%) occur in 2010 falling to under a fiftieth (2%) half way through the life of the vehicles in 2020.

Sensitivities and uncertainties

A number of features of both the projections of air quality and the measure itself need to be borne in mind when considering the evidence :

1. **Uncertainty in PM₁₀ projections:** as noted in the Time Extension Notification for the achievement of the PM₁₀ Limit Values¹⁴, the PM₁₀ data for this period was based on measurements using Partisol gravimetric analysers. In 2008, problems with the data produced by these instruments resulted in the data being corrected to account for certain systematic bias. This introduced further uncertainty into the base dataset.
2. **Distributional impacts:** sources of air pollution and consequently the exposure to air pollution are not evenly distributed across the UK. Urban areas in particular can be seen to suffer from worse air pollution whilst typically rural areas benefit from relatively good air quality. As a result the impacts of changes in air quality

would not be expected to have the same impacts across different groups. This creates a potential for specific groups to be particularly affected by air pollution such as particular racial groups. While this variation is recognised, given the scale of the social benefits of the preferred option, it is not judged to be sufficient to alter the preferred option.

3. **Baseline components:** the baseline used for this analysis draws on UEP 30, in addition to emission controls such as the introduction of Euro 5 and 6, which have already been agreed. However, this baseline omits a number of features which may have a significant impact on air quality and the costs and benefits of measures over the period 2010-2020:

- Climate change measures: in July 2009, the Government, led by DECC, published the UK Low Carbon Transition Plan - a package of policy measures and initiatives setting out the strategy on carbon reduction up to 2022. This included the Renewable Energy Strategy which sets out potentially radical changes to the way in which electricity, transport energy and heat are produced. This could impact on air quality in a number of ways:
 - reducing fossil fuel based electricity production will probably mean the reduction in emissions of SO₂ and NO_x from large combustion plant, with a consequent reduction in secondary PM₁₀. This will in turn reduce background PM₁₀ concentrations over the period;
 - encouraging the uptake of low carbon vehicles could result in an increase in diesel powered vehicles (unless retrofit), with a consequent increase in PM emissions. However, it is anticipated that the period will also see an uptake of electric vehicles as technologies improve and costs reduce. This will have a reducing effect on PM₁₀ concentrations, especially when coupled with low carbon electricity production (see above).
 - the use of non-combustion renewables for heat production (e.g. ground source heat pumps or solar thermal) will reduce PM₁₀ emissions. However, the increased use of biomass to produce heat, especially where it replacing gas fired heating, will increase PM emissions. The Renewable Energy Strategy contains some measures to minimise this impact but it is likely that space heating emissions of PM will become more significant over the period.
- International action: as was set out in the Time Extension Notification for PM₁₀, transboundary movement of pollutants from other countries, principally those in Northern Europe, make a significant contribution to background levels of PM₁₀ in the UK. Those countries who are part of the European Union are subject to the same EU legislation as the UK, both on air quality and national emissions. It is expected that the European Commission will soon publish proposals for a new National Emissions Ceilings Directive with targets for 2020, which will reduce emissions of the precursors of secondary PM both in the UK and across the European Union. This and other measures (such as the application of the Renewable Energy Directive) will tend to reduce transboundary pollution and have a beneficial effect on background PM₁₀ concentrations across the period.

- **Technology costs:** the analysis of the measure to improve air quality concentrations of PM relies exclusively on the uptake (through retrofitting) of new vehicle technologies. The technology costs used reflect today's prices. However, over the period, pressure to reduce the carbon emissions from transport is likely to result in both significant research and innovation and more widespread uptake of such technologies, with the result that the technology costs will reduce significantly. While this reduction cannot be quantified at this point, it is a pattern that has been seen with almost all new emission reduction technologies introduced in recent decades.
- **Environmental impacts:** the evidence provided above does not monetise and value the impacts on the natural environment from the identified measure to improve air quality. This potentially understates the costs of Option 2.

Conclusions and policy recommendation.

The preferred option is to transpose the Directive undertaking additional abatement as justified to make progress towards the expected PM_{2.5} National Exposure Reduction Target by 2020 (Option 2). This option is estimated to deliver a total net benefit of at least £875 million with substantial potential additional benefits arising from the opportunities for additional time to meet limit values where required.

Specific Impact Tests: Checklist

Use the table below to demonstrate how broadly you have considered the potential impacts of your policy options.

Ensure that the results of any tests that impact on the cost-benefit analysis are contained within the main evidence base; other results may be annexed.

See comments on distributional impacts on page 11.

Type of testing undertaken	<i>Results in Evidence Base?</i>	<i>Results annexed?</i>
Competition Assessment	No	No
Small Firms Impact Test	No	No
Legal Aid	No	No
Sustainable Development	Yes	No
Carbon Assessment	Yes	No
Other Environment	Yes	No
Health Impact Assessment	Yes	No
Race Equality	Yes	No
Disability Equality	No	No
Gender Equality	No	No
Human Rights	No	No
Rural Proofing	No	No

TRANSPOSITION NOTE

Directive 2008/50/EC of the European Parliament and of the Council on ambient air quality and cleaner air for Europe (OJ No. L152, 11.06.08, p1)

Scottish Ministers from the transposition deadline of 10 June 2010 rely, on the provisions of the Air Quality Standards (Scotland) Regulations 2010 set out in the Table below in respect of the transposition of the above Directive in Scotland. The Regulations apply to the following pollutants sulphur dioxide, nitrogen dioxide, oxides of nitrogen, particulate matter, lead, benzene, carbon monoxide and ozone.

Directive Article	Objectives	Implementation	Responsibility
Article 1	Objectives of the Directive as a whole.	Implicit in the Regulations as a whole.	Scottish Ministers
Article 2	Definitions	Regulations 2	
Article 3	Establishes the designation of competent authorities responsible for the assessment (including methodology) of ambient air quality Liaison with other member states and the European Commission.	Regulation 3	Scottish Ministers
Article 4	Requires member states to divide their territories into zones for the assessment and monitoring of pollutants.	Regulation 4	Scottish Ministers
Article 5	Establishes a regime for the assessment of pollutant (excluding ozone) concentrations including upper and lower thresholds in accordance with Annex II.	Regulation 5	Scottish Ministers
Article 6	Establishes the assessment criteria for the collation of information on pollutant concentrations (excluding ozone), including that on monitoring and modelling measurements.	Regulation 6	Scottish Ministers
Article 7	Establishes the location and number of pollutant (excluding ozone) sampling points.	Regulation 7, Schedule 1	Scottish Ministers
Article 8	Establishes reference methods for the assessment of pollutant concentrations (excluding ozone) in accordance with sections A, B and C of Annex VI.	Regulation 6	Scottish Ministers
Article 9	Establishes the assessment criteria in relation to ozone concentrations.	Regulation 8	Scottish Ministers

Article 10	Establishes the location and number of sampling points in relation to ozone assessment .	Regulation 9	Scottish Ministers
Article 11	Requires the application of reference measurement methods in relation to ozone assessments as prescribed in Annex VI.	Regulation 8	Scottish Ministers
Article 12	Obligations for maintaining pollutant (excluding ozone) concentrations below the limit values prescribed in Annexes XI and XIV.	Regulation 17, Schedule 2	Scottish Ministers
Article 13	Establishes obligations for compliance with pollutant (excluding ozone) limit values and alert thresholds prescribed in Annexes XI and XII.	Regulations 17,19 and 21 Schedules 2 and 5	Scottish Ministers
Article 14	Establishes obligations for compliance with critical levels prescribed for sulphur dioxide and oxides of nitrogen in Annex XIII.	Regulation 22, Schedule 6	Scottish Ministers
Article 15	Establishes obligations for compliance with a national PM _{2.5} exposure reduction target as prescribed in Annex XIV and the number of sampling points on which the PM _{2.5} average exposure indicator should be based as prescribed in Annex V.	Transposed on a UK basis through Air Quality Standards Regulations 2010 Regulation 23	Secretary of State Scottish Ministers
Article 16	Establishes obligations for compliance with new PM _{2.5} target and limit values as prescribed in Annex XIV.	Regulations 17,18 and 19, Schedules 2 and 3	Scottish Ministers
Article 17	Establishes obligations in relation to zones and agglomerations where concentrations of ozone exceed its target values and long-term objectives	Regulation 20	Scottish Ministers
Article 18	Establishes obligations in relation to zones and agglomerations where concentrations of ozone meet its long-term objectives.	Regulation 20	Scottish Ministers
Article 19	Requirement to inform the public and European Commission of exceedences in pollutant information (as prescribed in Annex XII) or alert thresholds.	Regulation 27, Schedule 5 Transposition not required for reporting of information to the Commission.	Scottish Ministers
Article 20	Exceedences attributable to natural sources of pollution (e.g. sea salt) are to be discounted when assessing compliance of pollutants against their limit values.	Transposition not required.	Scottish Ministers

Article 21	Exceedences attributable to winter-sanding or -salting of roads are to be discounted as above.	Transposition not required.	Scottish Ministers
Article 22	Exemption from the obligation to apply limit values and postpone attainment deadlines for certain pollutants.	Transposition not required.	Scottish Ministers
Article 23	Establishes obligations for the implementation of air quality plans when pollutant limit and target values have been exceeded.	Regulations 24 and 26	Scottish Ministers
Article 24	Establishes obligations for the implementation of short term action plans when there is risk of exceedences in pollutant limit and target values and/or alert thresholds.	Regulations 25 and 26	Scottish Ministers
Article 25	Establishes obligations in relation to incidences of transboundary pollution.	Transposed on a UK basis through Air Quality Standards Regulations 2010	Secretary of State
Article 26	Prescribes the information which must be provided to the public and appropriate bodies on pollutant concentrations and how the information is communicated.	Regulations 27 and 28	Scottish Ministers
Article 27	Provision of information to the European Commission by member states on air quality compliance in their territory including any assessment on contributions from natural sources.	Transposition not required.	
Article 28	Implementing measures for the European Commission.	Transposition not required.	European Commission
Article 29	Committee provisions for the European Commission.	Transposition not required.	European Commission
Article 30	Establishes obligation for member states to establish a penalty regime for breaches of the Directive.	Transposition not required. The Regulations rely on public law remedies in relation to breach by the Scottish Ministers. Penalties in relation to specific	Scottish Ministers

		polluters are set out in applicable sectoral legislation.	
Article 31	Repeal and transitional provisions	Transposition not required.	
Article 32	Duties for the European Commission to review provisions on PM _{2.5} and other pollutants as appropriate.	Transposition not required.	European Commission
Article 33	Prescribes obligations for making national legislation to transpose the Directive and the availability of appropriate number of PM _{2.5} monitoring stations by January 2009.	Transposition not required.	Scottish Ministers
Article 34	Directive entry into force date.	Transposition not required.	European Commission
Article 35	Provision to address Directive to member states.	Transposition not required.	
Annex I	Prescribes data quality objectives in relation to the pollutant monitoring and assessment.	Regulations 6 and 9	Scottish Ministers
Annex II	Prescribes pollutant (excluding ozone) upper and lower assessment thresholds and criteria for the determination of exceedences in these thresholds.	Regulation 5	Scottish Ministers
Annex III	Prescribes criteria for the assessment of pollutant concentration and location of sampling points.	Schedule 1	Scottish Ministers
Annex IV	Criteria for measurements at rural background locations.	Regulation 6	Scottish Ministers
Annex V	Criteria for determining minimum number of sampling points for fixed measurement concentrations of certain pollutants.	Regulation 7	Scottish Ministers
Annex VI	Prescribed criteria for the reference methods to be used in assessing pollutant concentrations.	Regulations 6 and 8	Scottish Ministers
Annex VII	Prescribed target values and objectives for ozone	Schedules 3 and 4	Scottish Ministers

Annex VIII	Criteria for the classification and location of ozone sampling points.	Regulation 9	Scottish Ministers
Annex IX	Criteria for the minimum number of sampling points for ozone assessment.	Regulation 9	Scottish Ministers
Annex X	Criteria for the measurement of ozone precursor substances.	Regulation 9	Scottish Ministers
Annex XI	Prescribed pollutant limit values and margins of tolerance.	Schedule 2	Scottish Ministers
Annex XII	Prescribed pollutant alert thresholds	Schedule 5	Scottish Ministers
Annex XIII	Prescribed critical levels for protection of vegetation.	Schedule 6	Scottish Ministers
Annex XIV	Prescribed PM _{2.5} national exposure reduction target, target value and limit value.	Transposed on a UK basis through Air Quality Standards Regulations 2010 Schedules 2, 3 and 7	Secretary of State Scottish Ministers
Annex XV	Prescribes information to be included in air quality plans.	Schedule 7	Scottish Ministers
Annex XVI	Prescribes the information which must be provided to the public and appropriate bodies on pollutant concentrations.	Regulation 27 Schedule 8	Scottish Ministers
Annex XVII	Correlation table	Not applicable	

TRANSPOSITION NOTE

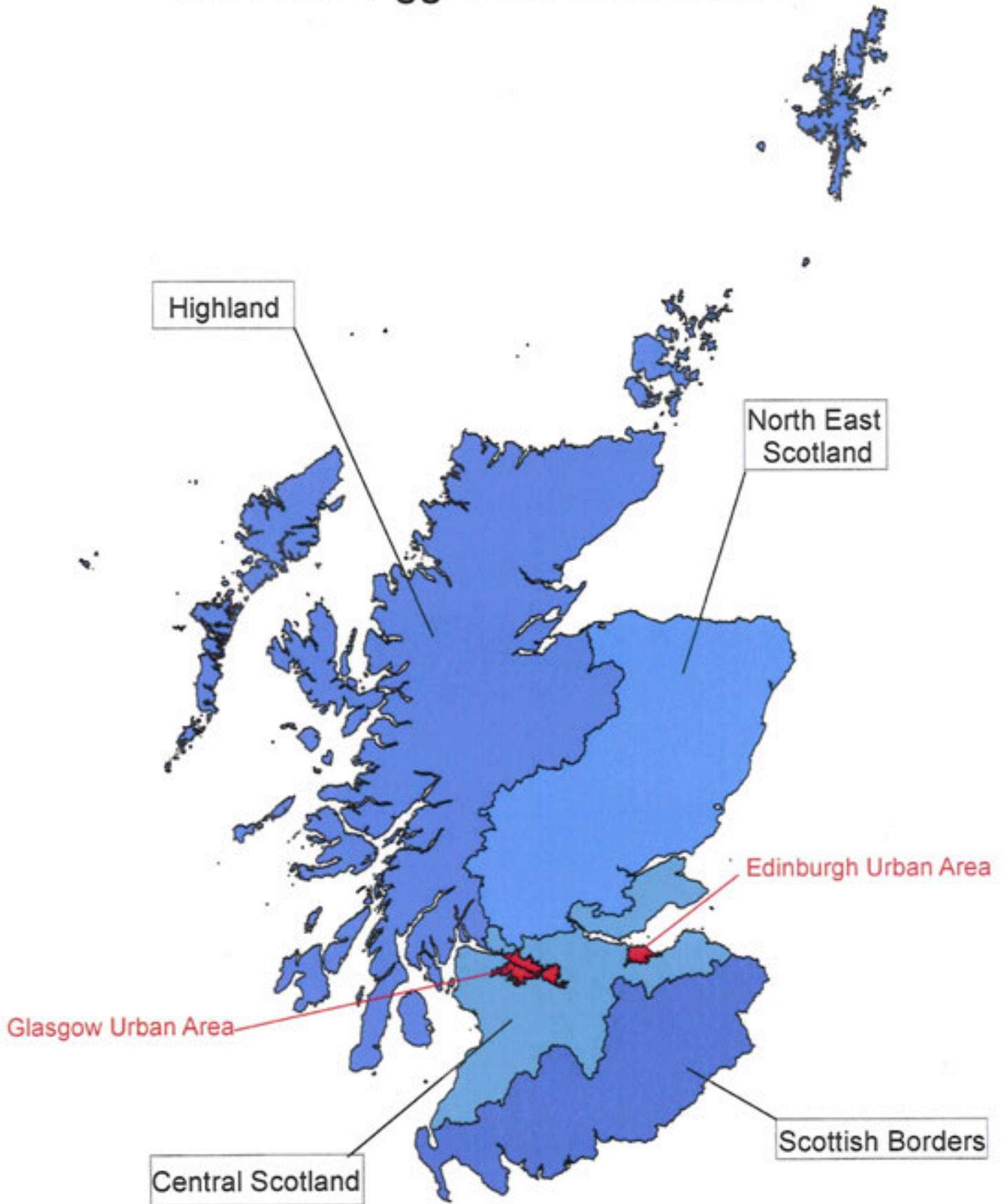
Directive 2004/107/EC of the European Parliament and of the Council relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air (OJ No L 23, 26.01.05, p3)

Scottish Ministers rely, from 10 June 2010, on the provisions of the Air Quality Standards (Scotland) Regulations 2010 set out in the Table below in respect of the transposition of the above Directive in England. These Regulations replace the Air Quality Standards (Scotland) Regulations 2007 (SSI. 182).

Directive Article	Objectives	Implementation	Responsibility
Article 1	Objectives of the Directive as a whole.	Implicit in Regulations as a whole.	Scottish Ministers
Article 2	Definitions	Regulation 2	
Article 3	Establishes requirements for compliance with target values prescribed in Annex I.	Regulation 18, Schedule 3	Scottish Ministers
Article 4	Establishes the regime for assessing pollutant concentrations and deposition rates	Regulations 10, 11,12, 13, 14, 15, 16	Scottish Ministers
Article 5	Establishes the reporting requirements and deadlines for the provision of information to the Commission with the target values prescribed in Annex I.	Transposition not required.	Scottish Ministers
Article 6	Committee provisions for the European Commission	Transposition not required.	European Commission
Article 7	Prescribes the information which must be provided to the public and appropriate bodies on pollutant concentrations and how the information is communicated.	Regulations 26 and 27	Scottish Ministers

Article 8	Prescribes obligations for the Commission to provide by the end of 2010 a report reviewing the implementation of the Directive and proposing necessary amendments to the Directive.	Transposition not required.	European Commission
Article 9	Establishes obligation for member states to establish a penalty regime for breaches of the Directive.	Transposition not required. The Regulations rely on public law remedies in relation to breach by the Scottish Ministers. Penalties in relation to specific polluters are set out in applicable sectoral legislation.	Scottish Ministers
Article 10	Prescribes measures for member states to implement the Directive.	Transposition not required.	Scottish Ministers
Article 11	Date for when the Directive must come into force.	Transposition not required.	Scottish Ministers
Annex I	Prescribes pollutant target values.	Schedule 3	Scottish Ministers
Annex II	Prescribes upper and lower assessment thresholds for the pollutants and criteria for the determination of exceedences in these thresholds.	Regulation 10	Scottish Ministers
Annex III	Prescribes criteria for the location and minimum number of sampling points.	Regulation 13	Scottish Ministers
Annex IV	Prescribes data quality objectives and requirements for air quality models.	Regulation 12	Scottish Ministers
Annex V	Prescribed criteria for the reference methods to be used in assessing pollutant concentrations.	Regulation 16	Scottish Ministers

Scotland Agglomerations (red) and Non-Agglomeration Zones





RESPONDENT INFORMATION FORM

Please Note That This Form Must Be Returned With Your Response To Ensure That We Handle Your Response Appropriately

1. Name/Organisation

Organisation Name

[Text input field for Organisation Name]

Title Mr [] Ms [] Mrs [] Miss [] Dr [] Please tick as appropriate

Surname

[Text input field for Surname]

Forename

[Text input field for Forename]

2. Postal Address

[Form with multiple lines for postal address and fields for Postcode, Phone, and Email]

3. Permissions

I am responding as...

Individual / Group/Organisation

[] Please tick as appropriate []

(a) Do you agree to your response being made available to the public (in Scottish Government library and/or on the Scottish Government web site)?

Please tick as appropriate [] Yes []

(b) Where confidentiality is not requested, we will make your responses available to the public on the following basis

Please tick ONE of the following boxes

Yes, make my response, name and address all available []

or

Yes, make my response available, but not my name and address []

or

Yes, make my response and name available, but not my address []

(c) The name and address of your organisation will be made available to the public (in the Scottish Government library and/or on the Scottish Government web site).

Are you content for your response to be made available?

Please tick as appropriate [] Yes []

No

(d) We will share your response internally with other Scottish Government policy teams who may be addressing the issues you discuss. They may wish to contact you again in the future, but we require your permission to do so. Are you content for Scottish Government to contact you again in relation to this consultation exercise?

Please tick as appropriate [] Yes [] No