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COMMISSION STAFF WORKING PAPER

**on the implementation of EU Air Quality Policy and preparing for its comprehensive
review**

1. INTRODUCTION

A discussion in the Commission on the revision of the national emissions ceilings directive (NEC) took place on 18 January 2010¹. Following that discussion, the Commission services prepared this document which summarises the approach to implementing EU Air Quality Policy including the preparations for a comprehensive review and the revision of the National Emission Ceilings Directive (NEC)². It follows internal reflection based on what has been achieved, what remains to be done and ensuring coherence with other relevant initiatives.

2. AIR QUALITY IN EUROPE

Clean air matters to all EU citizens³. Air pollution seriously impacts people's health and the environment. Hence, the objectives to reduce air pollution have been an important element of the EU's environment policy over the past decades.

Over time, significant experience and expertise has been accumulated in the EU allowing us to master the often complex inter-relations between multiple pollutants and effects under varying atmospheric and geographical conditions. This understanding has been increasing also thanks to wider international collaborative work done under the UNECE⁴ Convention on Long Range Transboundary Air Pollution and its Protocols.

Whilst the EU is well on track to resolve the problem of ecosystems damage due to acid deposition induced by air pollution, ecosystem biodiversity remains under serious threat due to excess nutrient deposition (eutrophication). Likewise, there remain widespread problems with high levels of ground-level ozone damaging both vegetation and human health. Several of our air quality standards such as those for ground-level ozone (O₃), particulate matter (PM) and nitrogen dioxide (NO₂) are widely exceeded in the EU, especially in urban areas⁵.

The latest World Health Organisation (WHO) health and environment progress report for Europe (2010)⁶ states that "*urban air pollution, especially particulate matter, causes significant health problems throughout the region, reducing the life expectancy of residents of more polluted areas by over one year*". In the same vein, the European Environment Agency (EEA) latest State of the Environment Report (SOER2010)⁷ shows that exposure to particulate matter (PM) and ozone (O₃) remains of major environment-related health concern, linked to a significant loss of life expectancy, acute and chronic respiratory and cardiovascular effects, impaired lung development in children, and reduced birth weight.

¹ PV(2011)1944 (<http://ec.europa.eu/transparency/regdoc/rep/10061/2011/EN/10061-2011-1944-EN-F-0.Pdf>)

² Directive 2001/81/EC (OJ L 309, 27.11.2001, p. 22)

³ http://ec.europa.eu/environment/archives/barometer/pdf/summary2008_environment_en.pdf

⁴ United Nations Economic Commission for Europe (<http://www.unece.org>)

⁵ European Environment Agency, 2010. The European environment –State and outlook 2010. Synthesis pp. 96-100. Copenhagen. Via <http://www.eea.europa.eu/soer>.

⁶ WHO –Health and Environment in Europe: Progress Assessment (2010), ISBN 978 92 890 4198 0

⁷ European Environment Agency, 2010 (see footnote 4)

3. ACHIEVEMENTS AND CHALLENGES OF EU AIR QUALITY POLICY

EU policies to reduce air pollution and improve air quality have a long tradition in delivering tangible results⁸. However, a decade ago, significant challenges remained or emerged anew which required a more integrated and ambitious approach. The 2005 Thematic Strategy on Air Pollution (TSAP)⁹ of the Commission, flowing from the 6th Environmental Action Programme (6EAP)¹⁰, provided such a comprehensive EU policy framework for the period up to 2020. At the time, it was concluded that no technology scenarios existed that would enable reaching the ultimate objectives stated in the 6EAP. Consequently, "interim objectives" for air quality were established for the period up to 2020.

To reach these interim objectives, sector specific priorities for EU action were identified building on the existing EU legislative body on air quality as well as on sector-specific product and process regulations addressing individual emission sources.

Since the adoption of the TSAP in 2005, most of the outlined measures have been implemented. Those include the streamlining of existing air quality directives in 2008 with the introduction of new air quality limit values for fine particulate matter (PM_{2.5}), and a tightening of emission limit values from different transport sources¹¹. In addition, the revision of the Industrial Emissions Directive¹² allowed the inclusion of important new rules for emissions from industrial installations. Finally, most measures taken to reduce greenhouse gas emissions, such as those contained in the 2008/9 Climate Change and Energy Package¹³, are also set to yield important pollutant emission reductions. These together with the decision by the International Maritime Organisation (IMO) to amend the maximum sulphur content of fuels used by the maritime shipping sector are expected to contribute further to improving regional and local air quality.

The 2005 TSAP announced, among other actions, a revision of the NEC Directive in order to align the ceilings with the 2020 TSAP objectives and in particular to introduce a ceiling for particulate matter. Originally foreseen for 2006, the review was postponed to account for the outcome of the negotiations on the Climate Change and Energy Package. A subsequently planned review and revision in 2008 was again delayed due to concerns over implementation difficulties and subsequently because attention being drawn towards focussing in addressing the economic crisis.

⁸ E.g. the Large Combustion Plants Directive ((Directive 88/609/EEC as amended by Directive 94/66/EC (OJ L 337, 24.12.1994, p. 83), the Auto-Oil Programmes or later the National Emission Ceilings Directive (2001/81/EC) led to significant reduction in air pollution. A more comprehensive list of relevant EU legislation is available via <http://ec.europa.eu/environment/air/legis.htm>

⁹ COM(2005) 446 final

¹⁰ Decision No. 1600/2002/EC (OJ L 242, 10.9.2002, p. 1)

¹¹ See also Directive 2008/50/EC on ambient air quality and clean air for Europe, Directive 2008/1/EC on integrated pollution and prevention control, Directive 2001/80/EC on large combustion plants; Regulations on EURO standards for vehicles: 715/2007 for light duty vehicles (OJ L 171, 29.6.2007, p. 1) and 595/2009 for heavy duty vehicles (OJ L 188, 18.7.2009, p. 1)

¹² Directive 2010/75/EU (OJ L 334, 17.12.2010, p. 17)

¹³ Communication from the Commission to the Council and the European Parliament. "20 20 by 2020 Europe's climate change opportunity", COM (2008) 30 Final

4. THE WAY FORWARD

Launching a comprehensive review

The current policy efforts, at EU and national level, have not fully delivered the expected results. Limit and target values of particulate matter, nitrogen dioxide and ground-level ozone are exceeded in many urban areas and global emission of nitrogen oxides (NO_x) are not decreasing as much as expected. One of the reasons is the increase in transport volume, the gap between regulated emission limits in type approval and the "real world" emissions¹⁴ and the slower turnover of vehicles fleets (meaning that older vehicles which are often more polluting are staying on the road for longer). Prompt action is required to further reduce air emissions linked to the most problematic pollutants such as particulate matter, ground-level ozone, and nitrogen dioxide. Preparatory work to update the Thematic Strategy and associated measures such as the review of the Ambient Air Quality Framework Directive¹⁵ and the revision of the NEC Directive is to resume without delay with a view of adopting an up-to-date clean air strategy package no later than 2013.

An open and broad consultation process with European stakeholders and European citizens will be crucial to the success of the review. The Commission services will therefore launch this consultation process in 2011 and conduct it in various ways and levels¹⁶, including:

- A first **public online consultation** in 2011 focussing on experiences and improvements to the existing air quality legislation;
- The establishment of a **stakeholder group** in June 2011 which will follow the review process and be the main platform for structured input from experts from Member States, other countries, other EU institutions, industry and other stakeholders, NGOs, etc.
- Dedicated **workshops and events** on particular themes including the possibility of joining up with related ongoing initiatives such as research projects;
- The **dialogue with international organisations** (such as the WHO, UNECE, etc.) and other relevant bodies and fora working on air quality and pollution issues. Furthermore, the candidate countries and potential candidates will be involved as much as possible as they will eventually have to align with and implement the reviewed legislation.

Before the finalisation of the review, the preparatory work for Commission proposals including a comprehensive Impact Assessment and a final public consultation will be carried out.

¹⁴ The difference between the vehicle emissions measured during normal driving conditions on the road and the limits prescribed by type approval standards for EURO 3, 4 and 5 as well as EURO IV and V.

¹⁵ Directive 2008/50/EC (OJ L 152, 11.6.2008, p. 1)

¹⁶ Up to date information on the review will be provided through EUROPA (http://ec.europa.eu/environment/air/index_en.htm)

Taking short-term policy actions

To secure air emission reductions in the short term while at the same time kick-starting the preparatory actions, initiatives which will deliver and guarantee long term permanent substantial air emission reduction will continue to be taken. Such actions include, in particular, e.g.:

- revision of Directive 1999/32/EC introducing the new **sulphur content of certain fuel oils** following the 2008 IMO agreement to amend MARPOL Annex VI while taking into account the possible impacts;
- prioritising EU actions in support of urban "hot spots" where air quality limits are exceeded, in particular by:
 - addressing the "**real world**" **emissions**, including speeding up the adoption of a revised test cycle for the type approval of vehicles signalled in the Communication a European Strategy on clean and energy efficient vehicles¹⁷.
 - facilitating the implementation of the Directive on the **promotion of clean and energy-efficient road transport vehicles**¹⁸ by reinforcing informative supports like the new Clean Vehicle Portal¹⁹.
 - focusing on the urban dimension²⁰ by supporting European municipalities in formulating and implementing **Sustainable Urban Mobility Plans** and in testing innovative technologies and novel approaches for the more efficient and sustainable transport of goods and people in urban areas.²¹ This includes launching EU-wide electro-mobility demonstration projects that foster a swift **roll-out of clean and low (or near zero) carbon vehicles**. Future initiatives of this kind may be targeted specifically to those urban areas that have sustained air quality exceedance levels²².
 - promoting the **upgrading of vehicles** to the highest possible standards based on innovative or already available and tested **retrofit** technologies also building on the experience on retrofitting in the Member States²³.
- implementation of **energy efficiency and renewable energy measures** outlined in the climate and energy package including in particular implementation of Directive 2003/87/EC²⁴ establishing a scheme for greenhouse gas emission allowance trading within the Community and Decision 406/2009/EC²⁵ on the effort of Member States to reduce their

¹⁷ COM(2010) 186 final

¹⁸ Directive 2009/33/EC (OJ L 120, 15.5.2009, p. 5)

¹⁹ <http://www.cleanvehicle.eu/>

²⁰ Action Plan on Urban Mobility COM(2009) 490 final

²¹ Civitas Initiative (www.civitas.eu)

²² COM(2010) 186 final

²³ Some experiences in Member States also show interesting linkages between schemes on the internalization of externalities (see COM (2008) 435) and retrofitting e.g. reduction of charges for retrofitted lorries in the German highway toll system.

²⁴ OJ L 275, 25.10.2003, p. 32

²⁵ OJ L 140, 5.6.2009, p. 136

greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020 for sectors not covered by the emissions trading Directive.

- measures under the Common Agriculture Policy (CAP); and support measures through the **cohesion funds** for implementing the **EU environmental acquis** as well as support for **research** through the framework programme;
- revision of the **UNECE Gothenburg Protocol** aiming *inter alia* at, broadening the participation and ratification of the EU's eastern neighbours and set 2020/2030 ceilings for the pollutants covered by the current NEC Directive, including PM emission ceilings.

Moreover, major initiatives likely to contribute to air quality improvements such as the **White Paper on Transport** as well as other specific Commission actions (e.g. non road mobile machinery) are already included in the Communication "A resource-efficient Europe"²⁶ and in the Communication "Innovation Union"²⁷, both flagship initiatives under the Europe 2020 Strategy"²⁸, in the Commission Work Programme 2011²⁹ or will be included for 2012.

Co-operating with Member States in implementation

The measures outlined above and the initiatives that the Commission is taking on the implementation of air quality legislation (e.g. the preparation of guidelines) should be based on – and reinforce – the objectives of the Europe 2020 strategy, specifically as regards the Commission's commitments to **implementation and smart regulation**. They will also help Member States in resolving their present non-compliance status. Such efforts are expected to be matched by the Member States. This is all the more important given that about 20 Member States face infringement procedures for failing to meet the limit values for particulate matter in one or more zones or agglomerations within their territories, almost always urban hotspots.³⁰ The ongoing evaluation of the implementation of the 2010 national ceilings of the current NEC directive reveals that a number of Member States will miss some of their ceilings, in particular for nitrogen oxides (NOx), which is an important precursor for ground-level ozone and contributor to particulate matter formation.³¹ However, despite the need for appropriate short-term measures, there will be a need to address implementation shortcomings and their sources in the Air Policy Review envisaged for 2013 at the latest. In this context, also voluntary commitments and market based instruments should be considered.

Creating co-benefits with climate change policy

Action taken to improve air quality will at the same time yield important short-term benefits for **climate change**. There is now sufficient evidence that certain constituents of the group of

²⁶ COM(2011) 21 final

²⁷ COM(2010) 546 final

²⁸ COM(2010) 2020 final

²⁹ COM(2010) 623 final (e.g. Strategic Transport Technology Plan or the revision of the non-road mobile machinery directive).

³⁰ Local air quality related to PM, for example, is indeed often impacted by pollution originating in the "background" region (up to one third) and outside the national border (again up to one third), hence beyond the control of the local or national authorities.

³¹ Seven Member States (AT, BE, FR, IE, LU, MT, ES) indicated that the national ceilings for nitrous oxides (NOx) may not be met with exceedances reaching more than 10%, one Member State (ES) indicated that the national ceilings for ammonia (NH₃) and volatile organic carbons (VOC) may not be met, with an excess of more than 10% for both.

PM pollutants (e.g. black carbon) have a high "radiative forcing potential" thereby contributing to the warming up of the atmosphere in the short term. A reduction of these pollutants within the next 10-15 years would help achieving the UNFCCC's and EU's long term objective of limiting the global temperature increase to less than 2 degrees Celsius.³² There are many more important inter-linkages between air pollution and climate change policies. Where synergies exist they should be reaped as illustrated in earlier Commission proposals on climate change.³³ In some cases, there are also trade-offs which need to be managed and minimised. The current EU climate change policy is however not likely to be sufficient to ensure that the TSAP objectives are fully met and additional air pollution control measures will therefore be needed.

Driving the international agenda forward

At the **international (UN-ECE)** level, efforts in the field of air quality are focussed at present on a timely conclusion of the ongoing revision of the Gothenburg Protocol³⁴ of the Convention on Long-Range Transboundary Air Pollution. Broadening the participation and ratification of the Gothenburg protocol towards the EU's eastern neighbours, as well as pursuing ambitious objectives for existing Parties, will be an important objective for the EU during the negotiations in 2011.

Tapping the innovation potential and fostering research

Air quality and emission control measures can become **drivers for innovation and growth**, when properly designed. Indeed, as EU air quality standards are amongst the most stringent around the world therefore, they force technical innovations. In addition, stationary industrial air pollution sources, for example, have to meet strict environmental legislation with regard to emissions to all environmental media and in particular air. Technologies to reduce these pollutants are already widely available and are being continuously improved. They include air/gas filtration systems, scrubbers, gas treatment plants, dust collectors and others. The innovative and dynamic nature of technology development in general must be exploited to a greater extent also in the area of air, road and sea transport technology. These will be important incentives for the creation of business opportunities in the EU. Already now, as part of the eco-industry, abatement of air pollution overall increased from 6.7 billion Euros in 2004 to 7.2 billion Euros in 2008. Addressing air pollution created by buildings and households can also be an important driver for innovation.

Furthermore, additional research efforts are needed in order to underpin the evolving legislative process and to facilitate its implementation in the EU. In particular, research areas that deserve special attention are the health impact of air pollutants and the link to other public health aspects (including indoor air pollution), the understanding of key processes at different scales (including the inter-linkages between air quality and climate change) and the integrated assessment of the relationships between policies and environmental effects.

³² See UNEP (2010) "Measures to Limit Near-Term Climate Change and Improve Air Climate: An Integrated Assessment of Black Carbon and Tropospheric Ozone"
(<http://news.sciencemag.org/sciencenow/Integrated%20Assessment%20of%20Black%20Carbon%20low%20res.pdf>)

³³ COM(2010) 265 final

³⁴ The Gothenburg Protocol (Protocol to Abate Acidification, Eutrophication and Ground-level Ozone) to the Convention on Long Range Transboundary Air Pollution sets emission ceilings for 2010 for four pollutants: sulphur, NOx, VOCs and ammonia.

Optimising financial assistance

The recent Commission Communication "Regional Policy contributing to Sustainable Growth in Europe 2020"³⁵ also demonstrates significant opportunities for Member States in relation to co-financing measures to improve air quality. In the current budget for Cohesion Policy €105 billion are available to fund projects for sustainable growth. The Commission document calls on Member States and regional and local authorities, who manage the funding programmes, to make full use of the funds available allowing for the inclusion of actions on resource efficient transport and green public procurement.

Moreover, the debate on the post-2013 EU's Multiannual Financial Framework, in particular with regards to Structural Funds and the CAP, may lead to a wider perspective as to how the Community's health and environmental objectives can be met. Specific examples of potential spending destinations are Community support to disseminate state-of-the-art air quality assessment and management tools to public authorities across the EU, targeted co-financing of public procurement where clear air quality benefits are gained at local and trans-boundary level (e.g. city fleet retrofit or electrification programs) or in the agriculture sector, of improving animal husbandry and manure/fertiliser management to reduce ammonia.

5. CONCLUSION

Considering the above, a comprehensive review of the EU air quality policies should be launched soon and completed by 2013 at the latest. This review will aim to produce a robust EU Clean Air package, updating existing policies and directives including the National Emission Ceilings Directive according to latest science, and outlining further cost-effective measures to move much closer to the related 6EAP's objective *"to achieve levels of air quality that do not result in unacceptable impacts on, and risks to, human health and the environment."* This review will build on and reinforce the objectives of the Europe 2020 strategy for smart, sustainable and inclusive growth³⁶ and involve all relevant stakeholders.

Meanwhile, important emission abatement measures will continue to be implemented so as to help Member States and the local authorities to address effectively and overcome current non-compliance situations in the short to medium term.

³⁵ COM(2011) 17 final
³⁶ COM(2010) 2020 final