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New Air Quality Directive ambitions and feasibility in balance

By the end of last year the Council and the European Parliament reached a compromise on the new Air Quality Directive. The new Directive will not be as strong as many may have wished: adverse health effects including premature mortality will be reduced but not eliminated.

But the compromise showed the recognition that an AQ Directive generates resistance if it is not matched by equally stringent emission reduction legislation against an equivalent time horizon; too big discrepancies could soar the positive attitude in Member States towards environmental legislation. With new and stringent policies to reduce climate change at stake politicians did not want to risk this.

The new Directive also gives evidence of the wish to install more modern concepts of regulation in Europe. The inclusion of PM_{2.5} regulation created an opportunity to introduce, in addition to the concentration cap (to become a limit value from 2015), an exposure reduction target outside the hot spot areas addressed by the limit value approach. This instrument encourages action also when the concentrations are below the target values.

While this is good news anyway it must be admitted that the limit values in the CAFE Programme have proved to be very productive instruments. Though addressing one issue only they have been the crowbar to make difficult decisions possible which improve the quality of European city centres in a broader sense.

For other components than PM_{2.5} limit values remain the single criterion. But the pain has been relieved here by allowing additional time in situations with serious constraints.

The better balance in the new Directive between level of ambition and feasibility will certainly increase the support in Member States to comply with its requirements and reduce 'eurosceptis'. It is also clear that with it the CAFE job is far from complete.

From the Editor

In this Newsletter we continue to provide information on European policy developments on clean air and climate change. Of decisions by the Executive Body of the CLRTAP in Geneva the one to start the process for a revision of the Gothenburg Protocol is of major relevance. The progress in Brussels is outlined in reports on the New Air Quality Directive and the proposed EUROVI regulation for heavy duty vehicles. Several other proposals of the Commission are dealt with concisely as Short news.

At the end of last year EFCA's discussion Forum at www.efca.net appeared to be insufficiently stable to support exchanges. We apologise for that. Discussions had to be postponed, therefore, but work on a more stable facility is in progress. In the meantime your response is welcome at info@efca.net.

European developments

Compromise on new Air Quality Directive

Europe is expecting the formal approval and publication of the “Directive on ambient air quality and cleaner air for Europe”. The text was finalised at the end of last year after a compromise had been reached between the Council and the European Parliament¹.

The Directive will replace the Air Quality Directive from 1999 and include its three daughter Directives on separate air pollutants, streamlining the legislation in the EU.

Existing limit values for SO₂, NO₂, CO, benzene, lead and PM₁₀ have not been changed; a new element is that corrections for emissions from natural sources may be allowed. The compromise text shows due consideration of the remaining health risks when these limits are fully respected. But it has also taken into account that in many European zones and agglomerations the conditions for compliance within the timeframe of the Directive may be particularly difficult as it is dependent on community wide emission reduction at source. In this respect the compromise referred to planned new regulation for industrial emissions (IPPC), exhaust emissions from heavy duty vehicles and the tightening of National Emission Ceilings; further measures related to refuelling of petrol cars and shipping, such as the sulphur content of marine fuels.

Because the regulation in all these cases may need an average ten years before their effectiveness will become visible the compromise includes the possibility for Member States to ask for a later compliance date for specific zones or agglomerations. The Commission will consider a request against actions taken and planned by the Member State.

With respect to the requirements for Air Quality Plans and Short-term Action Plans (when exceedances are expected) it is notable that the compromise text has more detail on what it might

contain; communication of Action Plans to the general public and to organisations which are considered to represent it has been extended to relevant industrial federations.

PM_{2.5} approach

The inclusion of PM_{2.5} in the Directive offered the possibility to introduce some regulation novelties. For the PM_{2.5} regulation the notion ‘concentration cap’ has been introduced; the value (25 µg/m³) aims at ‘preventing unduly high risks for human health’, while a limit value aims at ‘avoiding, preventing or reducing harmful effects on human health and the environment as a whole’. For both attainment within a given period applies. The ‘concentration cap’ has the status of target value from 2010; in 2015 it will be upgraded to a limit value; and an intermediate date will be set at which the margin of tolerance for exceedances should be 20% or less. It is foreseen that the limit value will be tightened to 20 µg/m³ from 2020; a decision on this is to be taken after the review of the Directive by the Commission which will be made in 2013. Unlike PM₁₀ there is no regulation on daily values for PM_{2.5}.

The more interesting element of the regulation is the ‘Exposure Reduction Target’ and the ‘Exposure Concentration Obligation’ in urban background locations in zones and agglomerations which is applicable from 2010. Both are defined by an Average Exposure Indicator (AEI), based on the three year running annual mean concentration averaged over all sampling points in a Member State. The AEI for the reference year shall be based on the years 2008, 2009 and 2010. The Exposure Reduction Target is to be reduced in ten consecutive years till 2020 by a certain percentage which is dependent on the AEI value in the reference year as summarised in the table. A higher reference value requires a bigger effort. When an annual average of 8.5 µg/m³ is reached no further reduction is required.

| Exposure Reduction Target relative to the AEI in 2010; to be met in 2020 | |
|--|---|
| Initial concentration in $\mu\text{g}/\text{m}^3$ | Reduction target in percent |
| <8.5-8.5 | 0 % |
| 8.5-<13 | 10 % |
| 13-<18 | 15 % |
| 18-<22 | 20 % |
| >22 | All appropriate measures to achieve 18 $\mu\text{g}/\text{m}^3$ |

The Directive will also define an Exposure Concentration Obligation (ECO) for urban background locations: a value of 20 $\mu\text{g}/\text{m}^3$ should be met in 2015. The ECO compliance will be examined in 2015 and 2020. To that aim AEI values are to be used which are respectively the three year running mean concentration over the years 2013, 2014 and 2015 and those over 2018, 2019 and 2020.

PM₁₀ and PM_{2.5}

The PM_{2.5} fraction amounts to between 60 and 70 percent. of the PM₁₀ fraction. Therefore, policies to reduce the emissions of PM₁₀ will, at first approximation, be equally effective for PM_{2.5}. It is quite probable that MS complying with the PM₁₀ limit value of 40 $\mu\text{g}/\text{m}^3$ will also comply with a limit value of 25 $\mu\text{g}/\text{m}^3$ PM_{2.5} in 2015. This is also more likely because the ECO will be examined against an AEI-value in which high concentration values in one meteorologically unfavourable year contribute for one third only.

The dual obligation of PM₁₀ limit value and ECO for PM_{2.5} may require different measures at the local level than with PM₁₀ regulation only.

Proposal on EURO VI emission limits

A draft proposal with tighter emission standards for heavy duty vehicles (trucks and buses) was sent to the Council and Parliament by the European Commission on 21 December 2007¹. EUROVI is the most recent in a series of six regulations for these vehicles since 1992. Compared with EUROV - which will become effective from 2008/2009 - the new regulation aims a further reduction of NOx emissions by

Feasibility of the PM_{2.5} regulation

The knowledge on PM_{2.5} sources and concentrations levels is still far from complete and monitoring of PM_{2.5} may not be in place at the required detail presently in the whole EU. MS will therefore be allowed to base their AEI reference on the years 2009 and 2010 only or include 2011 instead of 2008. The Directive will require that monitoring is installed at the same spatial resolution as defined for PM₁₀. Supplemental information from model calculations is allowed in the annual report, but the uncertainties in the emission database for PM_{2.5} are still considerable.

It is likely that MS which have difficulties to comply with the present PM₁₀ limit value may also experience constraints with the ECO requirement in 2015. Preliminary surveys suggest that the present and intended source oriented EU-wide policies may be insufficient for Member States in the category of a 20% reduction target.

1. The compromise text which shows in bold the changes agreed at the second reading by Parliament is available at:

<http://www.europarl.europa.eu/sides/getDoc.do?type=TA&reference=P6-TA-2007-0596&language=NL>.

COST 633 Meeting Announcement
Particulate matter and health in 2020 – Are we on the right track?
 Brussels, 13-14 March 2008 <http://cost633.dmu.dk>

80% and of PM by 66%. EUROVI is proposed to become effective in 2013/2014.

The proposal itself primarily details what is to be regulated; what it could amount for the emissions limits is to be found in the accompanying Press release, the outcome of the Public consultation among stakeholders and some background papers. The proposal was summarised and explained in a presentation to the Council².

From the four scenarios presented in the Public consultation last year (Table 1) stakeholders selected scenarios A and D which are both considered equivalent to US legislation (to

Table 1 EURO VI scenarios for heavy duty diesel vehicles

| | A | B | C | D |
|---------------------------------------|-----------|-----------|-----------|-----------|
| PM, g/kWh | 0.01 | 0.02 | 0.015 | 0.015 |
| NO _x , g/kWh ¹⁾ | 0.4 | 0.2; 2.0 | 1.0; 2.0 | 0.5;1.0 |
| THC, g/KWh ¹⁾ | 0.16;0.66 | 0.55;1.05 | 0.55;1.05 | 0.55;1.05 |
| CO ₂ increase | 2-3% | 5-6% | neutral | neutral |

¹⁾ Different values refer to engines with compression ignition, resp. positive ignition; increased CO₂-emission applies to compression ignition engines only

become effective from 2010). A majority preferred scenario A; the fuel penalty (and 2-3% extra CO₂-emission) of that scenario was not considered an issue. The Commission, therefore, also opts for scenario A, defending it with the results of a cost-benefit analysis. Details on this analysis were given in the presentation to the Council. The most relevant data are for 2030 when the limit values are approaching their maximum effect and have been summarised in table 2.

Table 2 Monetary impacts of EUROVI scenarios: cumulative effect in 2030 (in Million Euros)

| | A | B | C | D |
|--------------------------------------|------|------|------|------|
| Total cost | 2615 | 2823 | 1511 | 1654 |
| Benefit (decrease in external costs) | 5689 | 6221 | 3587 | 5250 |
| Net benefit | 3074 | 3398 | 2076 | 3596 |

While scenario B has the higher benefit, though at higher cost, it is also counterbalanced by a 5-6% higher CO₂ emission which was not monetised. It was concluded that scenario A is the preferred option.

The proposal contains a great number of provisions for technical specifications to be detailed at technical level through comitology. Among these are the introduction of limit values for particle numbers (and a reference method for counting these) and for the fraction NO₂ in NO_x-emissions.

It will also be possible for MS to introduce financial incentives for vehicles which comply to

the EUROVI regulation. From 2014 when the regulation is to become effective this will not be allowed anymore.

Comment

The draft proposal has been issued in a time that the Commission is also deeply involved in proposing regulation for a lower dependency on fossil fuels and reduction of CO₂-emissions. One would expect, therefore, that the issue would be how to balance energy, clean air and climate change objectives in this regulation: heavy duty vehicles have an impact on each of these.

The Commission could not easily negate the preference for scenario A in the Public consultation. One should have in mind, however, that it was not unanimous and may reflect subjective opinions. The procedure with the presentation of different scenarios was a sensible approach for a dilemma when integrating partly conflicting policies and was strictly neutral. But policymakers for clean air in the Member States have a longer tradition and may be better organised than their colleagues for climate change, who are rather focussing at the United Nations level than that at the EU. Did their opinion weigh sufficiently in the Public consultation?

It is of interest then to see whether the cost/benefit evaluation is convincing.

From what has been presented (the final report on this evaluation is not available yet), it can be seen that scenario D also results in massive benefits. Scenario A has some 8% higher health benefits, but at a cost which is nearly 60% higher. In other words, the additional spending of 960 million Euro result in additional benefits of 440 million Euro.

Also, scenario A has a fuel penalty resulting in 2-3% extra CO₂-emission. Unfortunately, it seems from the presentation that the TREMOVE methodology which was used for the cost-benefit analysis does not have a routine to monetise the impact of CO₂-emissions on public health and the environment. That means that the cost/benefit analysis does not provide a complete picture.

This imperfection does not make it easier to conclude in favour of either scenario A or D, because there are more uncertainties which do not seem to have been taken in account. Black

particles which are emitted from diesel engines behave as a greenhouse gas. NO_x-emissions are precursors for the production of tropospheric ozone, which enhances the greenhouse effect, but also for the formation of haze which rather has an opposite effect. Reducing these emissions may, in principle, compensate for additional CO₂-emissions. Estimating the combined radiative effects of the emission and production of all involved greenhouse gases could improve the selection of the optimal scenario for the EUROVI regulation.

Reconciling a scenario which results in increased CO₂-emissions with the energy and climate change objectives of the Commission seems difficult at first sight. One may hope that during the Parliamentary process the results from additional studies may reduce the imperfections of the present analysis and increase the confidence in the quality of the proposed regulation.

References

1. Proposal for a Regulation of the European Parliament and of the Council on type-approval of motor vehicles and engines with respect to emissions from heavy duty vehicles (Euro VI) and on access to vehicle repair and maintenance information, 21-12-2007
2. Commission presentation on the Draft Proposal on EUROVI to the Council, 14-01-2008

Both references are available at:

http://ec.europa.eu/enterprise/automotive/pagesbackground/pollutant_emission/index.htm

Short news

CO₂-emissions from cars

On 19 December 2007 the Commission issued a proposal to limit average CO₂-emissions from new cars in the EU from the present 160 grams/km to 120 grams/km in 2012. Improvements in motor technology should bring the emissions down to an average of 130 g/km while the complementary measures for components, such as tyres and air conditioning systems and reduced carbon content of fuels should result in an additional cut of 10 g/km. Implementation of the Directive will be supported through an amendment to the car labelling directive and by encouraging Member States to introduce differentiated road taxes.

Passenger cars are responsible for around 12 % of CO₂-emissions in the EU. Additional information is available at:

http://ec.europa.eu/environment/co2/co2_home.htm.

New IPPC Directive proposed

On 21 December 2007 the Commission issued a draft for a new Directive aiming at cutting the industrial emissions in Europe further. This so called IPPC Directive simplifies current legislation by merging seven existing Directives. It is expected to reduce the administrative costs considerably, both for authorities and industry which will further the implementation and enforcement in Member States. Tightening the emission limit values in some sectors, notably the large combustion plants, and widening its scope will result in substantial health benefits. It is also proposed to abandon the present flexibility with site-specific criteria when applying Best Available Techniques. Additional information is available at: <http://www.europa.eu.int/comm/environment/ippc/index.htm>

Emission Trading System

On 23 January 2008 the Commission sent a proposal to Council and European Parliament with the aim to amend the current Directive on the Emission Trading System (ETS). It is proposed to introduce one EU-wide cap instead of the present 27 national caps and to introduce harmonised rules on free allocation of emission rights. Also a much larger share of emissions will be auctioned instead of free allocation. A number of new industry sectors will be brought under the ETS, such as the aluminium and ammonia industries; emissions of nitrous oxide and perfluorocarbons will be made tradable, in addition to CO₂. The proposal should result in an emission reduction of 21% in 2020 in the already participating industries when compared to 2005. Additional information is available at: <http://ec.europa.eu/environment/climat/emission.htm>

Shared Environmental Information System

On 5 February 2008 the Commission proposed SEIS, a European Shared Environmental Information System. The idea is to combine and streamline all present systems of data information collection and storage in the EU in one decentralised but integrated, web-enabled information system. The system should include present systems such as WISE (Water Information System for Europe), EIONET (information and observation), INSPIRE (spatial data) and GMES (monitoring from satellites). Additional information is available at: <http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2008:0046:FIN:EN:PDF>

EFCA activities in 2008

Integrating Climate Change and Clean Air

As already mentioned in November last year an EFCA Task Force has been exploring the ground for an event addressing the integrated approach of air pollution and climate change problems in Europe. This has resulted in a proposal which has been used to contact potential sponsors for a workshop or conference in Strasbourg, France, probably in November 2008.

The proposal has been developed in cooperation with IUAPPA's Global Atmospheric Pollution

Forum which itself will conduct an event on the same topic in September, though with limited access. The EFCA event, while focussing on the European situation, will also serve as one of several satellite activities of the Global Forum. This made it worthwhile to consider the scope of both events by an integrated programming to create as much added value as possible.

A First Announcement is now expected to be available in April of this year.

Convention on Long Range Transboundary Air Pollution

Decisions Executive Body

In December last year the Executive Body of the Convention convened in Geneva for its annual meeting to review the current work and to plan its progress. Andrzej Jagusiewicz noted interesting results; in particular, the decision to revise the Gothenburg Protocol and the positive attitude towards further opening of the Convention and its Protocols to new members.

Gothenburg Protocol

Before taking any decision on the revision of the Protocol the EB noted that:

- ⌘ deposition of acidifying substances in Europe had declined since the 1980s
- ⌘ nitrogen deposition remained a widespread problem for European ecosystems
- ⌘ no clear downward trend in the past 10 years in ozone indicators for human health and ecosystems has been detected in Europe.

Taking into account the additional information on ozone presented by the British Royal Society the EB decided that the first review of the Gothenburg Protocol had been completed. On the basis of that conclusion, the EB next decided in accordance with article 3, paragraph 12 to the Protocol, to mandate the

Working Group on Strategies and Review to commence, in 2008, negotiations on further obligations to reduce emissions and present the outcome of this work to the 27th session of the EB in 2009.

The EB also decided that any revision or new protocol should consider more flexibility into some of the current, and future as well, annexes and obligations e.g. with respect to timescales or recomandatory nature of technical requirements.

Moreover, the EB called for the development and use of new analytical tools such as models specific to the geographic region or regional circumstances, which should ensure adequate accounting of synergies and trade-offs with climate change. As result it may lead for example to non-binding aspirational goals for the pollutants covered by the Protocol for such countries like EECCA. The cost-effective outcome should also take into account the nitrogen cycle.

In short, the EB has successfully overcome the obstacles and has paved the way to revise the Gothenburg Protocol. The "black scenario" as described in the article in the first EFCA newsletter hasn't happened. The message from the EB is quite evident: the modelled optimized scenarios to revise the Gothenburg Protocol should cover the whole geographic scope of EMEP without excluding the development of differentiated approaches for different sub-regions of the UNECE.

Opening of the Convention and its Protocols

First of all the EB welcomed the activities of the Global Atmospheric Pollution Forum and requested the Bureau and its secretariat to keep it informed of developments and possibilities for cooperation. For EFCA which has always supported IUAPPA's initiative for the Forum this is a welcome development. Next the EB requested all its subsidiary bodies to cooperate with relevant experts and organizations from outside the region to share the Convention's experiences and useful scientific and technical information. And finally, the EB took note of the informal "ambassador" system operated by the Bureau and invited it to further consider an extension of the list of "ambassadors" by identifying inter alia the right persons who could present information promoting the Convention under the auspices of the EB.

EFCA accreditation

Following the request from EFCA, the Executive Body agreed the accreditation of EFCA. The latter was the only one to be accredited since the EB decision

2007/11 establishing the relevant procedure for accreditation of NGOs.



Last year Andrzej Jagusiewicz represented EFCA in Geneva

News on EFCA and its members

EFCA agrees on its strategy

At the end of last year the Assembly agreed the final draft of the EFCA strategy 2007-2011. In the strategy EFCA, building on its mission and identity, defined its priority topics and assessed the means it has for realising its objectives in balance with its resources.

EFCA is committed to continue a policy of constructive contributions in dialogue with the different parties in Europe; this will be done primarily by monitoring the progress in the policy processes within the EU and under the Convention in Geneva. Its observations may inspire EFCA to initiate or sponsor the organisation of workshops or conferences, to arrange or facilitate discussions and to disseminate the results through publications. EFCA's work programme will focus on:

- Implementation of the Thematic Strategy on Air Pollution, which is the successor of the Clean Air for Europe Programme;
- Policy developments under the CLRTAP, in particular the revision of the Gothenburg Protocol and possibly other Protocols in the future;

- Integration of policies to limit climate change below tolerable levels with clean air policy and their consistency with policies in other public domains; in particular Transport & Traffic and Energy policies are relevant in this respect.

For details of the strategy the reader is referred to EFCA's website, www.efca.net.

News from members

NSCA becomes Environmental Protection-UK

Under the management of its Chief Executive, Philip Mulligan, the National Society for Clean Air and Environmental Protection completed last year an internal discussion to redefine its objectives and scope and adopt a new name which agrees with these. The focus for the next several years will be: air quality and climate change, land quality and noise. The oldest EFCA-member (founded in 1898 as the Coal Smoke Abatement Society) seems well positioned to continue its leading role in addressing environmental challenges in the UK.

ASASPP – new president and structure

The Austrian Society for Air and Soil Pollution Prevention recently joined forces with the Commission for Clean Air of the Austrian Academy of Sciences. By integrating the Commission in the Society Austria's expertise in the field of clean air has been brought together in one organisation which enjoys the support by the Academy.

Along with the structure change professor dr Marianne Popp who already chaired in the Academy took over the chair of ASASPP. She will be ASASPP's delegate in EFCA; Walter Kofler and Manfred Neuberger stay involved as international liaison officers.

PIGEKO – changed delegation

PIGEKO's international coordinator, Andrzej Jagusiewicz, has been appointed as Poland's Chief Inspector of Environmental Protection from 1 January of this year. EFCA congratulates him with this responsible position and wishes him all success!

During the few years that Andrzej has been involved he showed his interest in EFCA by contributing in the internal discussions and stimulating EFCA's public role. He was instrumental in establishing the connection between EFCA and the Convention on Long Range Transboundary Air Pollution and EFCA's recent accreditation in Geneva.

The Board of PIGEKO, will decide these days on a new Polish delegate in EFCA who preferably is also available to represent EFCA at relevant meetings on the CLRTAP.

Emissionsminderung: Stand, Konzepte, Fortschritte – VOC, Feinstaub, Klimarelevante Gase
9-10 April 2008, Neurenberg, Germany.
(www.vdi.de/Emissionsminderung2008)

International workshop on Evaluating Climate Change and Development
10-13 May 2008, Alexandria, Egypt
(www.esdevaluation.org)

2d International Conference on Harbours, Air Quality and Climate Change
29-30 May 2008, Rotterdam (www.haqcc.org); Cfp: 01-03-08

16th European Biomass Conference and Exhibition - From Research to Industry and Markets
2-6 June 2008, Valencia, Spain

35th International Symposium on Environmental Analytical Chemistry ISEAC 35
22-26 June, 2008, Gdansk, Poland
(<http://www.pg.gda.pl/chem/iaeac/index.htm>); Cfp: 30-03-08

11th International Conference on Indoor Air Quality and Climate,
17-22 August 2008, Copenhagen
(<http://www.indoorair2008.org/>)

Air Pollution 2008 - 16th International Conference on Modelling, Monitoring and Management of Air Pollution
22 - 24 September, 2008, Skiathos, Greece
(<http://www.wessex.ac.uk/conferences/2008/air08/index.html>); Cfp: ?

16th IUAPPA Regional Conference Where did all the clean air go?
1-3 October 2008, Kruger National Park, South Africa

5th International Symposium on Non-CO₂ Greenhouse Gases (NCGG-5)
July 2009, Netherlands (www.vvm.info); Cfp: May 2008

15th IUAPPA World Congress: Back to Basics: Sharing solutions that work
11-16 September 2010, Vancouver, Canada

Calendar

Cfp = Deadline Call for Papers

3d European Ele-drive Transportation Conference (EET 2008)

11-13 March 2008, Geneva, (www.ele-drive.com)

EFCA

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