

Comments to DG ENV on the analysis underpinning the review of EU air quality policy.

Submitted jointly by the European Environmental Bureau (EEB), Transport & Environment (T&E), the Air Pollution & Climate Secretariat (AirClim), the Health and Environmental Alliance (HEAL) and ClientEarth. (2012-02-03)

At the second Stakeholder Expert Group meeting 19-20 January, the European Commission invited participants to provide views and comments by 3 February.

Based on the presentations given at the SEG meeting, we would like to stress the need to look closer into the emission reduction potential for some specific source sectors, as well as to possible additional measures (including new or revised EU legislation) to further reduce emissions.

The sector emission figures used here are taken from NEC Scenario Analysis Report Nr. 7, dated 27 August 2010 (see table, below).

Table: Emissions in EU27 by SNAP sector in 2000 and in 2020 under current legislation (CLE-PRIMES10) and under “maximum reductions” (MRR). (Kilotonnes)

Sector	NO _x				PM _{2.5}		
	2000	2020 CLE	2020 MRR		2000	2020 CLE	2020 MRR
Power generation	2648 (22%)	1106 (20%)	791 (18%)		196 (11%)	38	29
Domestic	700	635	481		527 (29%)	380 (35%)	108 (19%)
Industrial combustion	1302 (11%)	932 (17%)	471 (11%)		107	92	52
Industrial processes	176	149	91		305 (17%)	237 (22%)	126 (22%)
Fuel extraction	0	0	0		9	7	7
Solvents	0	0	0		0	0	0
Road traffic	5505 (45%)	1527 (28%)	1527 (34%)		328 (18%)	88 (8%)	88 (15%)
Off-road sources	1899 (15%)	1070 (20%)	1070 (24%)		161 (9%)	65 (6%)	65 (11%)
Waste management	10	6	3		86	88	64
Agriculture	12	8	0		80	95	35
SUM	12251	5433	4434		1798	1089	574

Source: NEC Scenario Analysis Report Nr. 7. 27 August 2010. Report to the European Commission by IIASA.

1. The road vehicles and off-road sources sectors

Since emission figures both for nitrogen oxides (NO_x) and particulate matter (PM_{2.5}) for 2020-CLE and 2020-MRR are the same, it appears as if the GAINS model does not contain any emission abatement options for new-builds beyond Euro 6/VI-standards for road vehicles

and beyond those standards for non-road mobile sources (NRMM) currently given in directive 97/68/EC (revised in 2004/26/EC).

The model appears to assume that the euro-standards will actually deliver emissions reductions in real world in line with the strengthened emission standards. However, past experiences have proven that there is an important gap between the limit values contained in the legislation and the real emissions from vehicles. In order to make sure that future vehicle legislation will lead to emission reductions this gap needs to be closed as soon as possible.

Clearly there are emission abatement techniques (including alternative energy sources, such as gas or electricity) already available – and forthcoming up to 2020, and even more so up to 2030 – that can reduce NO_x and PM emissions well below the already adopted standards for new-builds.

Moreover, there are since several years retrofit techniques available – and already applied in several countries – that can significantly cut emissions of NO_x and PM from existing vehicles and engines.

The current analysis indicate that NO_x emissions from these two sectors are very big and represent close to 50 per cent of total land-based NO_x emission under 2020-CLE and nearly 60 per cent of total land-based NO_x emission under 2020-MRR. Even though the projected contribution from these two sectors to total land-based PM emissions are less marked (12 per cent under 2020-CLE and 26 per cent under 2020-MRR), it is still significant. Moreover, as many of the vehicles/engines in these two sectors are diesel-driven, the share of black carbon of PM emissions is likely to be very high, which is an extra motive to aim for short-term additional PM-reductions from these vehicles/engines.

We are aware that for the purpose of the revised NEC directive the main target year may be as far off as 2025 or even 2030, and that due to renewal of the fleets the need for retrofiting will appear less important these longer time frames.

However, the analysis for the review of EU air pollution policies must, in our view, also investigate a broad range of shorter-term emission abatement options (their efficiency, costs and benefits) in order to see how the current unsatisfactory air quality situation can be improved, and how member states can meet current and forthcoming air quality standards.

It is therefore of outmost importance that the GAINS model (or other integrated assessment models used in the analysis) is updated to include all available and expected forthcoming emission abatement options for these two sectors, both for new-builds and for existing vehicles/engines.

There is also a need to include so-called non-technical measures to reduce transport emissions, such as measures aiming to reduce road transport, improve transport efficiency, shift to low- or zero-carbon vehicles, etc.

While we note that some of the measures mentioned above are being addressed on pages 5-6 in the “Commission Staff working paper on the implementation of EU Air Quality Policy and preparing for its comprehensive review” (SEC(2011) 342 final), we would very much appreciate more precise information on how they will be accounted for in the modelling analysis and in the review process.

At the SEG meeting in January, DG Enterprise and Industry made a presentation about the revision of Directive 97/68/EC on non-road mobile machinery, and we would appreciate more information on the timeline for this work, including when a proposal containing specific measures to further reduce the PM and NO_x emission of the sector, and as appropriate, align the non-road standard with the Euro VI limit values, can be expected.

2. The domestic sector

Already in year 2000, the domestic sector was the biggest source sector of PM emissions in the EU, responsible for nearly 30 per cent of total land-based emissions. Under current legislation, this share is projected to increase to 35 per cent in 2020. The technical potential for cutting these emissions, which primarily emanates from the burning of solid fuels (mostly wood) in small-scale combustion appliances (boilers, stoves, open fireplaces), is huge, as illustrated by the MRR scenario where PM emissions from these sources are cut by more than 70 per cent.

As the turnover time of these appliances is very slow, there is clearly a need for this review to investigate various options to reduce emissions from the existing stock, including to:

- Reduce the fuel use in existing appliances by improving insulation and increasing energy efficiency;
- Speed up replacement of old appliances with new cleaner ones (e.g. pellets burners);
- Replace old appliances with alternative options (e.g. district heating; heat pumps; cleaner fuels);
- Retrofit old appliances with emission abatement techniques (e.g. PM filters).

Specific policy measures can include mandatory emission standards for new and/or existing appliances and economic incentive schemes and targeted information campaigns for the retrofitting and replacing of existing dirty appliances.

An overview of PM emissions from small-scale biomass combustion, including emission abatement techniques, national emission standards and options for emission limit values, can be found in a paper¹ prepared under the Convention on Long-range Transboundary Air Pollution (LRTAP).

A presentation by DG Energy at the SEG meeting in January showed that the Ecodesign Directive is expected to soon cover new boilers and to set NO_x standards for these. The Directive is also expected to address emissions from new solid fuel small (<500 kW) combustion installations (open fireplaces are however not likely to be included) and to set PM emission standards for these. The PM standards for these installations would be introduced in two steps, the first starting from around 2015 only. These emission standards would, according to DG Energy, be based on best European practice as of 2011. The timetable presented by DG Energy does not seem to reflect the fast growing use of small scale domestic appliances which may lead to increasing PM and BC emissions in populated areas of the EU. In order to avoid the introduction on the market of dirty appliances in the next couple years, we call upon the Commission to readjust its time table and ensure that the first tier happens at least one year before the announced initial date, i.e. before the end of 2013. Then more

¹ Options for limit values for emissions of dust from small combustion plants (June 2010). Can be downloaded from: http://www.unece.org/fileadmin/DAM/env/documents/2010/eb/wg5/wg47/Informal%20documents/Info.%20doc%209_Options%20for%20PM%20ELVs%20for%20SCI%20%20final.pdf

ambitious PM standards should be introduced in a later stage (tier II), giving enough time for the industry to invest in cleaner and more efficient technology.

Measures to reduce PM emissions from the domestic sector do not seem to appear at all in the Commission Staff working paper (SEC(2011) 342 final). Considering their high and increasing share of total EU land-based emissions and the fact that much of these emissions take place from low stacks in populated areas, we would very much appreciate more information on how they will be dealt with in the modelling analysis and in the review process. Since setting standards under the Ecodesign Directive will cover only new facilities, and will take several years until taking effect, we encourage the Commission to investigate alternative or complementary approaches and instruments for reducing emissions from this sector. The review should also address the emissions from open fireplaces which escape from the scope of the Ecodesign Directive.

3. The agriculture sector

More than 90 per cent of total EU ammonia emissions come from agriculture and by 2020 under current legislation emissions are expected to come down only by less than 10 per cent, as compared to their levels in year 2000. There is however a significant potential to cut ammonia emissions from agriculture – under the MRR scenario, emissions in 2020 are 44 per cent lower than in 2000. If considering also non-technical abatement measures, emissions could come down even further.

In the context of revising the Gothenburg Protocol under the LRTAP Convention various options to reduce ammonia emissions have been considered and these have been presented for example in a report² by the Convention's Task Force on Reactive Nitrogen. A number of measures have been considered, and five "top priority measures" are selected, namely:

- Low-emission land application of manure & fertilizer:
 - a) Application of cattle, pig & poultry slurry & solid manure,
 - b) Low emission use of urea fertilizer.
- Animal feeding strategies to reduce nitrogen excretion, from cattle, pig & poultry.
- Low-emission techniques for all new stores for cattle and pig slurries and poultry manure.
- Strategies to improve nitrogen use efficiencies and reduce nitrogen surpluses, with nitrogen balances on demonstration farms.
- Low-emission techniques in new and largely rebuilt pig & poultry housing.

While we note that agriculture is mentioned in the Commission Staff working paper (SEC(2011) 342 final), there are no indications as to what type of ammonia emissions abatement measures – be it technical/non-technical or voluntary/mandatory – the Commission may consider. Unfortunately, the presentation by DG AGRI at the SEG meeting in January did not provide any information specifically relating to ammonia emissions. Therefore, we would very much appreciate some more precise information on how measures to reduce ammonia emissions from agriculture will be included in the modelling analysis and in the review process.

² Options for revising the annexes to the Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone: annex IX (June 2011). Can be downloaded from:
<http://www.unece.org/fileadmin/DAM/env/documents/2011/eb/wg5/WGSR49/ece.eb.air.wg.5.2011.16.e.pdf>

4. The shipping sector

Future emissions of SO₂, and to some extent also of primary PM, from shipping will largely be determined by the implementation of IMO's MARPOL Annex VI transposed into EU law by the sulphur-in-fuels directive (1999/32/EC). It is also important to investigate the benefits of extending the SO_x Emission Control Areas (ECAs) to include more seas around Europe, and also of designating sea areas as NO_x-ECAs.

While ship sulphur standards will cut emissions of SO₂ (and to some extent also of PM) on new as well as existing ships, international ship NO_x standards so far are in practice restricted to new-builds, which is a major shortcoming since ships have a slow turnover rate – the average life length being around 25-30 years. Technologies exist to significantly reduce NO_x emissions from existing ships, and at low cost as compared to further reductions at many land-based sources. Selective catalytic reduction (SCR), for example, is a proven commercially available technology that can cut NO_x emissions by more than 90 per cent.

We believe that the analysis should include an investigation of policy instruments that could be used to ensure significant NO_x-reductions from the existing fleet of ships. Examples of such policy instruments include mandatory emission standards (possibly limited to the biggest emitters or to certain categories of ships, e.g. passenger and cruise ships) and economic instruments (e.g. emission charges). Options to reduce NO_x emissions from existing ships should also be included in the integrated assessment analysis.

At the SEG meeting in January, the Commission presented the latest developments on the DG CLIMA's initiative to develop a policy aiming at mitigating the climate impact of shipping activities. We recommend considering also the potential air quality benefits of proposed measures when designing this future policy. In particular, we believe there is a need to investigate more closely the emissions of black carbon from international shipping, their impact on human health and the environment and their emission reduction potential.

5. Power generation and industrial combustion

According to the Industrial Emissions Directive, the Commission shall before the end of 2012 review the need to control emissions from combustion installations smaller than 50 MW_{th}. We welcome the information given at the SEG meeting that the Commission has contracted consultants to study the pros and cons of regulating air pollutant emissions from combustion plants in the range 1-50 MW_{th}, and that this study should be finalised by mid-2012.

Will the outcome of the study be ready in time to be considered and included in the integrated assessment modelling, or will possible proposals be treated separately?

6. Links to climate policy

A study³ from 2010 estimated the additional health benefits of moving from the current EU target of 20% GHG reductions to 2020 to a 30% reduction target at between €10.5 billion and €30.5 billion per year in 2020. These benefits are in addition to those already anticipated for the achievement of the 20% reduction in emissions, estimated at up to €52 billion for the year 2020. The upper estimate of €30.5 billion per year is equivalent to roughly two-thirds of the

³ Acting now for better health: A 30% reduction target for EU climate policy (June 2010). By HCWHE and HEAL. <http://www.env-health.org/spip.php?article938>

Commission's own estimate in 2010⁴ of the implementation costs of a domestic EU 30% target – the Commission estimated the additional cost at €46 billion per year in 2020.

Early action on further reductions in greenhouse gas emissions will also ease the regulatory burden on EU countries. The higher target on climate change policy would contribute to health and environment objectives of the 2005 Thematic Strategy on Air Pollution by bringing forward the date of compliance with existing air quality legislation. The Commission in 2010 estimated that the fall in emissions of SO₂, NO_x and fine particles (PM) would lead to reductions in air pollution control costs of €5.3 billion per year in 2020.

The study concludes that a move to a 30% domestic EU target should be seen as a first step towards an emission reduction target of at least 40% by 2020 for all industrialised countries, needed in order to limit global temperature increase to well below 2°C.

According to a more recent Commission Staff working paper⁵, a 30% GHG reduction commitment scenario (based on a 25% domestic GHG reduction) would reduce air pollution control costs in 2020 by €3.6 billion compared to the baseline scenario (which would reduce GHG emissions by only 14% between 1990 and 2020), and it is expected to result in EU-wide health benefits from reduced air pollution mortality valued at €3.3 - 7.6 billion in 2020.

The examples above illustrate clearly some of the very close links between climate policies and air pollution policies. There are several other links, such as that some air pollutants also act as greenhouse gases (e.g. ground level ozone and methane) and some air pollutants may have direct or indirect impacts on climate. A recent UNEP report⁶ indicates that deep and immediate reductions of carbon dioxide emissions complemented by measures to reduce black carbon and tropospheric ozone, is the only viable way in the next decades to keep the global temperature increase below the 2°C rise target. Reducing emissions of these air pollutants will thus benefit both air quality and climate.

Most importantly, policies and measures aimed at reducing the use of fossil fuels will bring benefits for both climate and air quality.

We believe that scenarios for the EU air pollution policy review process should be based on a coherent energy scenario in line with EU climate policy targets and measures. As EU climate policy must be strengthened as a matter of urgency, we also believe that the review should include coherent EU energy scenarios based on EU GHG targets of 30% and 40% domestic reductions by 2020.

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⁴ Analysis of options to move beyond 20% greenhouse gas emission reductions and assessing the risk of carbon leakage. (May 2010). European Commission Communication COM (2010) 265 final. <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52010DC0265:FR:NOT>

⁵ Analysis of options beyond 20% GHG emission reductions: Member State results (January 2011). European Commission Staff working paper, provisional version. http://ec.europa.eu/clima/policies/package/docs/staff_working_doc_2012_en.pdf

⁶ UNEP (2011): Integrated Assessment of Black Carbon and Tropospheric Ozone, Summary for Decision Makers. www.unep.org/dewa/Portals/67/pdf/Black_Carbon.pdf