

# Acid News

## IN THIS ISSUE

### Editorial:

#### Abandon defeatism! 2

Air pollutant emissions can be reduced much further and at less cost than is currently assumed.

#### Still a difference 3

A modern car engine still produces lower emissions if it is adapted to run on gas or ethanol.

#### Directive watered down 6

The European Parliament want to allow member states to postpone compliance with air pollution limits until 2014.

#### Downward trend flattens 10

New EMEP data shows that air pollutant emissions in Europe continue to fall – but considerably slower than in the 1990's.

#### Hitting the ceiling 12

More than half of the EU member states foresee difficulties in meeting their national emission ceilings by 2010.

#### It's not that expensive 14

Industry estimates of the costs of EU environmental legislation is often exaggerated – occasionally tenfold – a new study reveals.

#### Maersk takes the lead 16

Maersk Line's voluntary switching to low-sulphur fuel close to the coast is a significant break with the maritime industry.

#### Time is running out 20

The UK government has only four years to implement a major new climate action programme, a new report claims.

#### The heat is on 21

The world's temperature has increased to levels not seen in at least 12,000 years, American climate scientists report.



CLIMATE CHANGE & AIR QUALITY

## Carbon cuts will reduce air pollution

Tackling climate change will improve Europe's air quality, cut premature deaths and could save 12 billion euro annually in air pollution control costs by 2030.

REDUCING GREENHOUSE GAS emissions, by burning smaller amounts of fossil fuels, will mean less air pollution, according to a report<sup>1</sup> by the European Environment Agency (EEA). As a result the cost of tackling air pollution will be cut significantly.

Three main scenarios for 2030 have been analyzed in the study:

**Baseline scenario:** This was

originally developed for the European Commission in the context of the Clean Air For Europe (CAFE) programme, but has now been extended in duration, from 2020 to 2030.

**Climate Action scenario:** This includes a 40-per-cent reduction in EU greenhouse gas emissions from 1990 to 2030 (which is said to be consistent with the EU's stated

*Continued on page 4*

# Acid News

A newsletter from the Swedish NGO Secretariat on Acid Rain, the primary aim of which is to provide information on air pollution and its effects on health and the environment.

Anyone interested in these matters is invited to contact the secretariat. All requests for information or material will be dealt with to the best of our ability. Acid News is available free of charge.

In order to fulfill the purpose of Acid News, we need information from everywhere, so if you have read or heard about something that might be of general interest, please write or send a copy to:

The Swedish NGO Secretariat on Acid Rain  
Box 7005, 402 31 Göteborg, Sweden

Tel: +46-31-711 45 15. Fax: +46-31-711 46 20

E-mail: [info@acidrain.org](mailto:info@acidrain.org)

Internet: [www.acidrain.org](http://www.acidrain.org)

Editor: Christer Ågren ([cagren@acidrain.org](mailto:cagren@acidrain.org))

Published by The Swedish Society for Nature Conservation.

Language consultant: Malcolm Berry, Seven G Translations, UK.

Printed by Trio Tryck AB, Örebro, Sweden.

ISSN 0281-5087.

## THE SWEDISH NGO SECRETARIAT ON ACID RAIN

The Secretariat has a board consisting of one representative from each of the following organizations: Friends of the Earth Sweden, the Swedish Anglers' National Association, the Swedish Society for Nature Conservation, the Swedish Youth Association for Environmental Studies and Conservation, and the World Wide Fund for Nature Sweden.

The essential aim of the secretariat is to promote awareness of the problems associated with air pollution, and thus, in part as a result of public pressure, to bring about the needed reductions in the emissions of air pollutants. The aim is to have those emissions eventually brought down to levels – the so-called critical loads – that the environment can tolerate without suffering damage.

In furtherance of these aims, the secretariat

- Keeps up observation of political trends and scientific developments.
- Acts as an information centre, primarily for European environmentalist organizations, but also for the media, authorities, and researchers.
- Produces information material.
- Supports environmentalist bodies in other countries in their work towards common ends.
- Participates in the lobbying and campaigning activities of European environmentalist organizations concerning European policy relating to air quality and climate change, as well as in meetings of the Convention on Long-range Transboundary Air Pollution and the UN Framework Convention on Climate Change.

## EDITORIAL

In its Thematic Strategy on Air Pollution the Commission concludes that even if all technically feasible measures are applied irrespective of cost, it still would not be possible to meet the objectives of the Sixth Environmental Action Programme.

This defeatist view was repeated in a recent consultancy report to the European Parliament, which stated that *“even with application of maximum technically feasible reductions, attainment of all limit values everywhere in Europe is unlikely before 2020”*.

But the so-called maximum technically feasible reductions (MTFR) scenario simply does not reflect the maximum emission reduction potential by 2020. There are many reasons for this, including the following:

**Local measures were not included in MTFR:** Specifically designed to improve air quality in local “hot spots”, a series of emission control measures are available, such as traffic restrictions, congestion charging, particle filter retrofit programmes, etc.

**MTFR was limited to technical measures and to current performance:** The MTFR scenario assumed the application of technical abatement measures only. Structural measures, such as switching fuels from coal to gas, increasing energy efficiency and changes in the transportation and agricultural sectors, were not fully accounted for. Such measures could reduce emissions more – and at much lower cost – than relying solely on technical “end-of-pipe” solutions. Moreover, technical developments expected over the next 15 years were not accounted for.

**Measures to reduce ship emissions were not included:** Emissions from shipping contribute significantly to the air pollution

in Europe. There are technical and very cost-effectively means by which these emissions could be cut by more than 90 per cent.

**EU climate change policies were not fully accounted for:** The energy scenario used for the Thematic Strategy resulted in CO<sub>2</sub> emission reductions of only 3.6 per

cent between 1990 and 2020, but official EU policy is to reduce emissions of greenhouse gases (GHG) by 15–30 per cent. It is estimated that each one-per-cent reduction in CO<sub>2</sub> in 2020 results in a reduction of 0.5–1.5 per cent of emissions of SO<sub>2</sub>,

NO<sub>x</sub>, and PM<sub>2.5</sub>. So if we assume that EU aims at a reduction of 15–30 per cent in GHG emissions, baseline air pollutant emissions in 2020 would be around 5–40 per cent lower, and emissions under the MTFR scenario would also be lowered.

**All current legislation was not included in the baseline scenario:** The scenario analysis failed to account fully for the effects of implementing existing legislation and measures, such as the air quality daughter directives, the IPPC directive, the NEC directive and the impact of the Common Agriculture Policy. If these are included, the baseline emissions in 2020 would have been lower, and thus the MTFR emissions would also be lower.

It is obvious that these shortcomings in the analysis are of major importance, since the overall effect of overestimating the costs to attain various environmental targets and underestimating the real potential for emission reductions gives a false impression that ambitious environmental targets are “unattainable”, which leads to a general lowering of the level of ambition of air quality policies.

CHRISTER AGREN

## Defeatist view on air pollution should be abandoned



# New fuels reduce harmful emissions

A modern car engine still produces lower emissions if it is adapted to use gas or ethanol.

IN THE PAST there were big differences in air pollution emissions from engines that ran on petrol or diesel and those that ran on gas or ethanol. But as emission control technology has gradually improved for all engines the differences between the various fuels have become less apparent. However, a modern car engine still produces lower exhaust emissions if it is adapted to use alternative fuels, according to a summary of measurements that are considered representative of Swedish conditions.

## Nitrogen emissions halved

Emissions of nitrogen oxides from a modern flexi-fuel car<sup>1</sup> are halved if it is run on so-called E85 fuel (85 per cent ethanol, 15 per cent petrol), compared with the same car if it runs on petrol alone. Hydrocarbon emissions remain at the same overall level regardless of the fuel, although their composition changes. Exhaust fumes from petrol contain more aromatics, while those from E85 contain more ethanol and acetaldehyde. Particle emissions are unchanged.

A modern bi-fuel car<sup>2</sup> also cuts emissions of nitrogen oxides by half when run on gas rather than petrol. Particle emissions are similarly halved. Total hydrocarbon emissions increase slightly when running on gas, but most of this is methane. The main environmental effect of methane is that it contributes to climate change. From a climatic point of view this increase in methane emissions is negligible, however, since it is equivalent to only about one tenth of the *reduction* in climate effects that are achieved by switching from petrol to natural gas. The conclusion is conse-



Green fuels make a difference.

quently that all harmful emissions are reduced by running cars on gas as compared to petrol or diesel.

## Diesel cars inferior

The figures above only apply to vehicles that have been fully modified to run on ethanol or gas by the manufacturer or an authorized installer. More basic aftermarket conversions can actually increase exhaust emissions. Interest in such conversions has grown rapidly in Sweden over the past year since tax exemption made E85 slightly cheaper than petrol.

Diesel cars without particle filters or equivalent emission control systems release three to four times more nitrogen oxides and at least five times more particles than new cars powered by petrol, gas or ethanol. Emissions of hydrocarbons are 90–95 per cent lower. Diesel cars fitted with particle filters have particle emissions as low as those of petrol and ethanol cars.

The study stresses that the underlying data is often taken from measurements carried out on individual cars, and that the spread of results is relatively large. This means that the figures should not be used as a basis for any far-reaching conclusions, but should be seen as indicative.

PER ELVINGSON

*Source: Avgasutsläpp från lätta fordon som körs på alternativa drivmedel* (Exhaust emissions from light vehicles that run on alternative fuels). In Swedish only. By Mats-Ola Larsson, Miljöinfo AB, January 2006.

<sup>1</sup> Flexi-fuel vehicles can run on a mixture of petrol and ethanol. They commonly use E85 fuel, which consists of 85% ethanol and 15% petrol. Cars have a single fuel tank and the engine is modified to run on any ethanol content up to 85%. There are at least five flexi-fuel models of car available on the Swedish market at present, including the Ford Focus, Saab 9-5, Volvo S40 and Volvo V50.

<sup>2</sup> A bi-fuel vehicle is built to run on two different types of fuel, usually petrol and natural gas, and they therefore have two separate fuel tanks. The driver can switch between the two fuels. On the Swedish market there are currently at least ten bi-fuel passenger car models, including the Volvo V70, Volvo S60, Volkswagen Caddy, Volkswagen Touran, Opel Zafira, Opel Combo, Fiat Punto, Fiat Multipla, Fiat Doblo, Citroen C3 and Mercedes-Benz E200.

© GARY ETCHELL / FOTOLIA



## Benefits of climate policies assessed

Policies and strategies aimed at combating climate change can also reduce air pollution and increase energy security. Hence they could improve the efficiency of EU energy policies without negatively affecting Europe's competitiveness, according to a report published in May by the Netherlands environmental assessment agency (MNP).

Abatement costs for stringent climate policies are estimated to be in the order of 1–2 per cent of GDP by 2030, assuming broad international participation. The ancillary benefits of greenhouse gas abatement policies are however significant – in the case of air pollution, these may even approximate to greenhouse gas abatement costs.

Greenhouse gas emission reductions will lower the emissions of the harmful air pollutants SO<sub>2</sub>, NO<sub>x</sub>, and particulate matter (PM), which in turn will reduce the number of premature deaths, cases of chronic bronchitis, and absence from work due to illness.

Climate and air pollution policies could also boost technological developments, and thus lead to EU leadership in some areas. Efficient EU policies could include strict emission standards for promoting clean innovative options and the creation of markets for cleaner products that meet long-term environmental targets.

The report **"Sustainable energy: trade-offs and synergies between energy security, competitiveness, and environment"** can be downloaded from <http://www.mnp.nl/en/publications/2006/index.html>

## Large combustion plant BREF approved

In July, the European Commission formally approved "BREF" documents detailing how to apply best available techniques (BAT) to minimize environmental impact in sectors regulated under the EU directive on integrated pollution prevention and control (IPPC). Among those approved was one covering large combustion plants, which had been completed by the EU's IPPC bureau at the end of 2004. For more information, see the IPPC Bureau website about BREFs: <http://eippcb.jrc.es/pages/FActivities.htm>

Source: ENDS Europe Daily, 19 July 2006



View of baseline scenario.

© ANDREAS BAUHLER / FOTOLIA

## Carbon cuts will reduce air pollution

*Continued from front page*

long-term objective to limit global mean temperature increase to 2°C above pre-industrial levels). Like the baseline scenario, air pollution control is limited to currently existing legislation.

**Climate Action Maximum Feasible Reduction scenario:** In this scenario, the Climate Action scenario has been extended to include assumed maximum feasible technical emission reductions for air pollutants.

Projections show that existing air pollution abatement policies in the EU (i.e. without the new measures foreseen in the Commission's Thematic Strategy on Air Pollution from September 2006) are expected to improve air quality in 2030, as compared to the situation in the base year 2000.

However, the EU's long-term objectives for air quality – as stated in

the Sixth Environment Action Programme – are unlikely to be met. In fact, with existing measures alone, the situation is even projected to worsen after 2020 (see Table 1).

### Climate action saves lives

This can be illustrated by the baseline scenario, which results in 311,000 premature deaths due to pollution by fine particles (PM<sub>2.5</sub>) and ground-level ozone by 2030, as compared to 293,000 in 2020.

Under the climate action scenario the number of premature deaths from air pollution in 2030 is projected to fall by more than 20,000, down to 288,000. The economic benefits to society of the resulting health improvements are valued at between 16 and 46 billion euro in the EU25 (there are also additional benefits in neighbouring countries outside the EU25). Ecosystem damage from acidification, eutrophication and ground-level ozone will also be lower. Moreover the costs for implementing current air pollution

legislation are estimated to come down by some 10–12 billion euro. See Table 2.

### Improved air quality in cities

It is clear that climate policies will have a positive effect on regional-scale air pollution, but improvements will also take place in urban background air quality and urban hotspots, such as street canyons. The analyses suggest that as a result of enhanced climate policies, by 2030 exceedances of the air quality limit values for nitrogen dioxide (NO<sub>2</sub>) and particles (PM<sub>10</sub>) will drop considerably in street canyons in cities across Europe. Further improvements would be attained through the combined climate action and maximum feasible reduction scenario.

The effects of climate change policies on air pollutant emissions can mainly be seen in the energy and transport sectors. The share of sulphur dioxide (SO<sub>2</sub>), NOx and PM emissions in these sectors changes considerably in those scenarios that assume climate policies but no additional air pollution policies.

### Increasing shipping emissions

Emissions from international shipping (and aviation) are not yet subject to greenhouse gas policies, and only very limited measures as regards control of air pollutant emissions. Consequently, shipping emissions of SO<sub>2</sub> and NOx are expected to increase by 80–90 per cent

	2000	National Ceilings 2010	Climate Action 2020	Strategy on Air Poll. 2020	Base-line 2030	Climate Action 2030	Climate Action MFR 2030
<b>NOx</b>	11,581	8,319	5,888	4,657	6,125	5,524	2,849
<b>VOCs</b>	10,654	8,150	5,915	5,251	5,863	5,877	4,101
<b>SO<sub>2</sub></b>	8,736	6,543	2,806	1,602	2,851	2,371	1,130
<b>NH<sub>3</sub></b>	3,824	3,976	3,686	2,774	3,597	3,582	2,174
<b>PM<sub>10</sub></b>	2,455	n.a.	1,490	n.a.	1,512	1,357	817
<b>PM<sub>2.5</sub></b>	1,748	n.a.	965	714	937	860	468

Table 1. Emissions of air pollutants from land-based sources in the EU 25 under various scenarios (thousand tonnes).

between 2000 and 2030, and their emissions of volatile organic compounds (VOCs) and PM are projected to more than double in the same time period. No additional emission abatement measures for international shipping or aviation have been assumed in the EEA study.

### Joint approach saves money

The policies of the Thematic Strategy on Air Pollution will – if implemented – improve air quality and reduce damage to both human health and ecosystems. The study shows that an approach that combines air pollution and climate policies can achieve more stringent air quality objectives at lower cost than air policies would by themselves.

In other words, if the EU makes concerted efforts to meet its long-term climate objective, the costs

for additional air pollution control – as calculated under the Thematic Strategy on Air Pollution for example – are overestimates of the real costs associated with air pollution control alone.

It is concluded that climate change policies can make a substantial contribution to reducing air pollution. But in order to move closer to the EU's long-term objectives on air quality, significantly greater efforts in the form of further targeted air pollution abatement measures, including measures on international shipping, would still be necessary.

CHRISTER AGREN

<sup>1</sup> Air quality and ancillary benefits of climate change policies (2006). Published by the European Environment Agency. Download report at [http://reports.eea.europa.eu/technical\\_report\\_2006\\_4/en](http://reports.eea.europa.eu/technical_report_2006_4/en).

Table 2. Summary of air pollution effects in the EU 25 under each scenario.

	Change in air pollution control costs compared to baseline (bill. euro/year)	Human health			Natural environment	
		Life years lost due to PM <sub>2.5</sub> (millions)	Premature deaths due to PM <sub>2.5</sub> and O <sub>3</sub> (thousands)	Monetized health damage (billion euro/year)	Acidification: Unprotected forest area (1,000 km <sup>2</sup> )	Eutrophication: Unprotected ecosystem area (1,000 km <sup>2</sup> )
<b>2000</b>	n.a.	3.62	370	280-790	243	733
<b>2030 Baseline</b>	n.a.	2.64	311	210-650	128	637
<b>2030 Climate Action</b>	-12 <sup>1</sup>	2.45	288	190-600	109	606
<b>2030 Climate Action MFR</b>	42	1.66	200	130-420	31	150

<sup>1</sup> In addition to lower air pollutant control costs of 10 billion euro/year, less air pollutants are also emitted under the climate action scenario compared to the baseline scenario. Achieving these lower emission levels would cost approximately 2 billion euro/year.





NEW AIR QUALITY DIRECTIVE

© LARS-ERIK HAKANSSON

# Health protection under pressure

The European Parliament wants to allow member states to postpone compliance with air pollution limits until 2014. This attempt to water down the new air quality directive angers environmentalists as well as the European Commission.

PROPOSALS BY the European Parliament to water down key aspects of proposed new EU air quality legislation have angered both the European Commission and environmentalists. The Parliament voted in late September to allow member states to postpone compliance with existing limit values for air pollutants until 2014.

*"This is a bad deal for health,"* said Kerstin Meyer, air pollution policy officer of the European Environmental Bureau (EEB). *"People are already suffering from air pollution. We simply can't afford to postpone measures to reduce the pollutants in the air we breathe. There's a clear risk that polluters will simply do nothing if they're given these elastic deadlines. We urge the Com-*

*mission and the Council swiftly to oppose these changes."*

## Negotiations underway

The proposed new air quality directive – which was presented by the Commission one year ago – streamlines existing legislation and introduces new standards for so-called PM<sub>2.5</sub>, i.e. fine particles under 2.5 microns. (See AN 4/05, p. 4–5.)

Negotiations on the proposed new air quality directive for the European Union are now well under way. After the Parliament finalized its first reading in September, Council will seek to adopt a common position, probably in late October. The process follows the so-called co-decision procedure, which means that eventually the European Par-

liament, the Commission and the Council of Environment Ministers must reach agreement on the text of the directive, and the ultimate sanction if this can't be achieved is that the proposal will be dropped.

In June the Environment Council agreed a "general approach", which will in all probability form the basis of their subsequent common position. Also in June, the Parliament's environment committee agreed amendments, largely based on inter-party compromises between the conservative, liberal and socialist groups. These compromises were later used as the basis for the Parliament's first reading position, which was adopted at a plenary session in Strasbourg on 26 September.

Last year, environmental organi-

zations had already expressed deep concerns over the low level of ambition and a series of weaknesses in the original Commission proposal. Following discussions in Parliament and Council, the proposal has subsequently been further weakened. Table 1 shows how things have progressed on some key issues.

Existing limit values for nitrogen dioxide (NO<sub>2</sub>) may be deferred to 2014 everywhere (Parliament's proposal), or with options to defer for five years up to 2015 under certain conditions (proposal by the Commission).

### No justification

Regarding fine particles, there appears to be little support for the so-called indicative PM<sub>10</sub> limits agreed in the first daughter directive to be introduced by 2010. Despite the fact that these indicative standards are more consistent with the recently confirmed World Health

Organization's guidelines (see AN 2/06, p. 1), they look set to be disregarded.

The 2005 PM<sub>10</sub> limit values have been the subject of intense debate, and there have even been moves, notably during the early discussions in Parliament, to drop the daily mean entirely. Although this threat now appears to have faded, Parliament's move to allow member states an increase in the number of allowable exceedances of the daily limit value for PM<sub>10</sub> cannot be justified on either health or scientific grounds.

As can be seen in the table, all three institutions propose deferment periods for the date by which member states have to comply with the standards that were adopted in 1999 and were supposed to be attained by 2005.

### Commissioner critical

EU environment commissioner

Stavros Dimas commented: "We recognise the need for some extra time, but any extensions have to be strictly limited because they mean that people will be exposed to excessive pollution levels – and will therefore be running avoidable health risks – for a longer period. We cannot accept the Parliament's proposal for extensions of more than five years. In addition, weakening the daily limit value for PM<sub>10</sub> means that people whose health is most affected by poor air quality may be exposed to higher pollution levels on significantly more days a year even if the annual limit value were to be lowered. This too is unacceptable."

The main reason for the proposed backtracking on limit value commitments appears to be widespread non-compliance revealed last year. The current problematic situation can to a large extent be attributed to delayed and weak action at both

*Continued on following page*

Table 1. Negotiations on the new air quality directive – brief summary of state of play September 2006

	Commission Proposal September 2005	Parliament 1st reading September 2006	Council General approach June 2006
<b>Limit values:</b> (compliance year)			
NO <sub>2</sub> (2010)	Retain existing LV Option to defer to 2015	Defer existing LV to 2014	Retain existing LV Option to defer to 2015
PM <sub>10</sub> (2005)	Retain existing LV  Option to defer to end of 2009	Option to increase allowed exceedance days from 35 to 55 (as from 2010) Lower annual LV from 40 to 33 µg/m <sup>3</sup> as from 2010 Option to defer to 2011/12 plus 2 <sup>nd</sup> period to 2013/14	Retain existing LV  Option to defer to 2010/11 (3 years from entry into force)
Indicative PM <sub>10</sub> (2010)	Drop indicative LVs	Drop indicative LVs	Drop indicative LVs
PM <sub>2.5</sub>	LV 25 µg/m <sup>3</sup> (2010)  Option to defer to 2015	TV 20 µg/m <sup>3</sup> (2010) LV 20 µg/m <sup>3</sup> (2015) No option to defer the LV	TV 25 µg/m <sup>3</sup> (2010) LV 25 µg/m <sup>3</sup> (2015) No option to defer
<b>Exposure reduction:</b>			
PM <sub>2.5</sub>	TV 20% reduction by 2020  To be reviewed by 2012/13 with view to legally binding obligations	Differentiated TV 0-20% reduction by 2020 Subject to review with view to legally binding obligations (3 years from entry into force) (2010/2011)	Differentiated TV 0-20% by 2020 Subject to review with view to legally binding obligations (3 years from entry into force) (2010/2011)
<b>Where limit values apply</b>	LV's apply everywhere	Larger exemption for location where public exposure is thought to be limited	Exemption for locations where public exposure is thought to be limited
<b>Action plans</b>	Short and long term plans mandatory	Short term action plans to be voluntary	Short and long term plans mandatory

**Note:** LV = limit value, and TV = target value

## Boreal forests provide billions in uncounted benefits

Boreal forests provide US\$225 billion in ecological services, including water filtration and carbon capture, according to estimates by Canadian researchers. This huge benefit is unrecognized in national income accounts or measures such as gross domestic product (GDP), said the researchers, who urged creation of a comprehensive accounting system for natural capital to recognize the full value of services provided by boreal forests.

The boreal forests span 6.4 million square miles across most of northern Canada, Russia and Scandinavia, accounting for about one third of the planet's total forest area. It is estimated that environmental services from the boreal forests – from climate regulation via carbon capture and storage, water filtration and waste treatment, to biodiversity maintenance and pest control by birds – are worth about \$143 per hectare. This amounts to \$83 billion annually in Canada alone, and if these ecosystem services were counted in Canada, they would amount to roughly nine per cent of GDP.

Source: Environment News Service, 25 September 2006.

## Phase two Naps late and criticized

By the end of September, over half of the EU countries had submitted their national allocation plans (Naps) for the second phase of the EU emission trading scheme for greenhouse gas emissions. Originally, the Commission set 30 June as the deadline, but this was later extended to 17 July. According to the Commission, countries that do not submit by 12 October will face infringement proceedings.

Although many member states have set tighter emission caps than for phase one, green groups have strongly criticized several governments for setting caps above verified emissions for 2005 or for depending too much on purchasing allowances from abroad by using the Kyoto protocol flexible mechanisms.

For more information, see the European Commission's ETS webpage: [http://ec.europa.eu/environment/climat/2nd\\_phase\\_ep.htm](http://ec.europa.eu/environment/climat/2nd_phase_ep.htm)

Source: ENDS Europe Daily, 29 September 2006

## Health protection under pressure

*Continued from previous page*

local, member state and community level – further and deeper emission abatement measures could and should have been taken at a much earlier stage. (See AN 4/05, p. 6.)

### Positive Parliament suggestion

Lowering the annual mean  $PM_{10}$  limit value from 40 to 33  $\mu g/m^3$  is one of the few positive suggestions by Parliament. In stringency terms this would bring the annual mean approximately in line with the current daily limit value. So provided that the existing daily limit value is kept, and the number of allowed exceedance days is limited to 35, its practical implications are probably limited.

When it comes to  $PM_{2.5}$ , Parliament wants a lower limit value of 20  $\mu g/m^3$ , as compared to 25  $\mu g/m^3$  proposed by the Commission. While the Commission's proposed standard would become binding as from 2010 (with the possibility for member states to postpone up to 2015), Parliament's standard would be binding from 2015.

The proposed exposure reduction approach for  $PM_{2.5}$  aims to complement the limit values by creating a more effective driver for overall air quality improvements over larger areas, thus providing benefits for more people.

### Allowing exemptions

But proposals for this new approach have met with some scepticism due to fear that it may be overly complicated or even used as a backdoor route to weakening standards. Indications so far suggest that some of these concerns are well justified. Current exposure reduction proposals are for "soft" target values only, and the suggested review date is still many years ahead.

The Parliament also endorsed changes which would in practice allow a wide range of places to be exempted from applying air quality standards. For example, it recommended that air quality standards need not be followed in places where there is no permanent population, in workplaces, and in areas without air quality monitors. Another amendment would also allow some

industries to avoid applying stringent reduction measures.

To help member states meet air quality limits, the Parliament demanded measures targeting pollution at source, including the inclusion of 20 to 50 MW combustion plants in the IPPC directive and stricter emission standards for road vehicles.

But according to the EEB, the combined result of the Parliament's proposals fails to raise the overall level of ambition. *"The apparent strengthening of the annual  $PM_{10}$  and  $PM_{2.5}$  standards is largely cosmetic,"* said Kerstin Meyer. *"It looks good on paper but it won't do much in reality. What's more, the accompanying changes to daily  $PM_{10}$  limit risk harming vulnerable people, like children and the elderly, by allowing more pollution days each year."*

### Opportunities to tighten up

There are still opportunities to tighten up the new directive, however. To ensure effective protection of peoples' health, deferment options must be kept to an absolute minimum, exemptions of certain locations or of so-called natural pollutants should not be allowed, existing limit values need to be left intact, and new limit values should be introduced for  $PM_{2.5}$  in line with WHO guidelines. More resolve is also needed on exposure reduction.

Subsequent steps depend on how much common ground there is between the three institutions. Realistically, the earliest the directive will be adopted is by mid-2007, but this assumes that all three institutions are keen to find an early compromise. Should that not be the case, things could well drag on into 2008.

CHRISTER AGREN

**Notes:** Fine particles are among the most dangerous pollutants for human health, and contribute to the premature deaths of 350,000 people across the EU each year. Limit values for particles and nitrogen dioxide were adopted in 1999. According to directive 1999/30, the limit values for  $PM_{10}$  entered into force in January 2005, while those for  $NO_2$  become legally binding in 2010. The  $PM_{10}$  limit values are a combination of a daily and an annual standard. The daily limit is 50 microgrammes per cubic metre (averaged over 24 hours) and the annual limit 40  $\mu g/m^3$ . The daily limit can be exceeded on up to 35 days per year in order to take account of unusual and adverse meteorological conditions.



# New PM standards upset health experts

ON 21 SEPTEMBER, the US government approved new federal air quality standards for particulate matter. The rules require communities across the country to further cut levels of fine (PM<sub>2.5</sub>) and coarse (PM<sub>2.5-10</sub>) particulate matter. States must meet the new standards by 2015, although extensions up to 2020 could be allowed.

The new rules tighten the daily standard for PM<sub>2.5</sub> from 65 to 35 micrograms per cubic metre of air ( $\mu\text{g}/\text{m}^3$ ). According to the EPA, revising the daily fine particle standard will yield additional estimated health benefits valued at between US\$9 billion and 75 billion a year from reduced premature deaths, heart attacks and hospital admissions for people with heart and lung disease.

The annual standard for fine particulate matter is left unchanged at  $15\mu\text{g}/\text{m}^3$ . Based on recently updated estimates of benefits, meeting this standard will result in benefits ranging from US\$20 billion to 160 billion a year.

## Scientists urge stricter standards

The existing daily standard for coarse particulate matter is retained at  $150\mu\text{g}/\text{m}^3$ , while the administration decided to withdraw the annual coarse particle standard, citing a lack of available evidence indicating an association between long-term exposure to coarse particles at current levels and adverse health effects.

But scientists at the US Environment Protection Agency (EPA) had urged stricter standards for fine particles and did not suggest withdrawing the annual coarse particle standard. In March, members of EPA's Clean Air Science Advisory Committee sent a letter to EPA Administrator Stephen Johnson, explaining the science behind their advice and urging him to adopt their



American health expert.

recommendation for an annual fine particle standard between 12 and  $14\mu\text{g}/\text{m}^3$ .

Public health experts criticized the revised rules as being too weak and said the administration's decision fails to adequately address a pollutant that causes serious heart and respiratory ailments and is responsible for thousands of premature deaths each year. The American Lung Association and other health experts have called for an annual PM<sub>2.5</sub> standard of  $12\mu\text{g}/\text{m}^3$  and a daily standard of  $25\mu\text{g}/\text{m}^3$ .

## Huge victory for polluters

*"This is a huge victory for big polluters, and a deadly setback for the breathing public. It is the single worst action the Bush administration has taken on air pollution. EPA's decision was based on political science, not real science,"* concluded Frank O'Donnell, president of Clean Air Watch. *"Why else would EPA disregard its own science advisers?"*

Industry groups also expressed disappointment with the new regulations. John Engler, President

of the National Association of Manufacturers, said: *"Manufacturers already spend considerably more on pollution abatement than their global competitors, and imposing excessive and needless new regulations would do nothing to fulfil the EPA's duty to protect environmental quality."*

## Tools for the states

According to the EPA, the clean air strategy established by the Bush administration gives states the tools needed to meet – and achieve reductions beyond – the national clean air standards. The largest projected health benefits are expected from the Clean Air Interstate Rule (CAIR) and Clean Air Nonroad Diesel Rule. CAIR requires the power sector to reduce fine particle-forming sulphur dioxide emissions in the eastern US by more than 70 per cent and nitrogen oxide emissions by more than 60 per cent, and is estimated to prevent an estimated 17,000 premature deaths annually. The Clean Air Nonroad Diesel Rule will require significant reductions in direct emissions of fine particles and emissions that contribute to particle pollution formation nationwide.

CHRISTER AGREN

**More information:** A press release from the EPA is available at: <http://yosemite.epa.gov/opa/admpress.nsf/a8f952395381d3968525701c005e65b5/92771013f7dda087852571f00067873d!OpenDocument>

A statements from the American Lung Association and Clean Air Watch can be found at: <http://www.lungusa.org/site/apps/nl/content3.asp?c=dvLUK9O0E&b=40407&ct=2948571>, and <http://cleanairwatch.pressroom.blogspot.com/2006/09/clean-air-watch-assails-epa-soot.html>. A statement from the National Association of Manufacturers is available at: [http://www.nam.org/s\\_nam/doc1.asp?CID=14&DID=237500](http://www.nam.org/s_nam/doc1.asp?CID=14&DID=237500).

## Dangerously high ozone levels

A recent report<sup>1</sup> by the European Environment Agency concludes that ground-level ozone continues to threaten human health across Europe. Although not as high as in the record year 2003, ozone pollution rose again in summer 2005, resulting in widespread exceedances of the various concentration thresholds and objectives laid down in the EU's 2002 ozone directive.

The highest one-hour ozone concentration in summer 2005 ( $361 \mu\text{g}/\text{m}^3$ ) was observed in Portugal. Other high hourly ozone concentrations – between 360 and  $300 \mu\text{g}/\text{m}^3$  – were reported from Greece, Italy, France, Romania and Spain.

The air quality "alert" threshold of  $240 \mu\text{g}/\text{m}^3$  was exceeded on 127 occasions, compared with 99 the previous year, and the EU long-term objective to protect human health, an ozone concentration of  $120 \mu\text{g}/\text{m}^3$  over eight hours, was extensively exceeded in the EU as well as in other European countries. The lowest ozone levels were recorded in the Baltic States and Scandinavia.

<sup>1</sup> **Air pollution by ozone in Europe in summer 2005.** EEA Technical report no. 3/2006. Available at: [http://reports.eea.europa.eu/technical\\_report\\_2006\\_3/en](http://reports.eea.europa.eu/technical_report_2006_3/en)



Danes just love them.

## Cleaner diesels take off in Denmark

In Denmark, the number of diesel cars sold with particle filters is booming, since the tax on these cars was reduced by about 1,000 euro as from January 2006. New figures from the Danish Road and Transport Agency show that the number of car models marketed with a particle filter has increased from 58 in 2005 to 255 after the tax reduction came into effect, i.e. more than 300 per cent.

Source: Danish Environment Newsletter no. 4, 2006

# Break in downward trends?

AIR POLLUTANT EMISSIONS from land-based sources in Europe are continuing to fall slightly, but considerably slower than in the 1990s. Some of the reductions on land are also countered by rising emissions from international shipping.

Since the early 1980s, total European emissions of sulphur dioxide ( $\text{SO}_2$ ) – the most significant acidifying pollutant – from land-based emissions sources have fallen by three-quarters, from around 53 million tonnes in 1980 to 12.5 million tonnes in 2004.

Emissions of nitrogen oxides ( $\text{NO}_x$ ), volatile organic compounds (VOCs) and ammonia also fell in Europe in the 1990s, although not by as much as emissions of  $\text{SO}_2$ . While the first two dropped by about 30–40 per cent since 1990, emissions of ammonia fell by less than a quarter.

The downward trend appears however to have flattened out for these three pollutants. Reports for the period 2000 to 2004 show largely unchanged total emissions from land-based sources. In the case of  $\text{NO}_x$ , small reductions in most countries were negated by an increase in Russian emissions of 600,000 tonnes over the same period.

Emissions from international shipping in European waters show a steady increase. Since 1990, ship emissions of  $\text{SO}_2$  have gone up from 1.8 to 2.6 million tonnes, and those of  $\text{NO}_x$  from 2.6 to 3.7 million tonnes – in both cases an increase of more than 40 per cent.

The data in the table on the opposite page is taken from figures reported by the countries themselves to the Convention on Long-range

Transboundary Air Pollution, and was compiled by EMEP<sup>1</sup>.

The Convention's EMEP programme is not confined to keeping track of emissions. Its main task is to model the ways in which emissions from one country affect the environment in others.

An overview of calculations for source-receptor relationships, covering acidifying, eutrophying, photo-oxidant, and particle pollution is presented in another recent EMEP report.<sup>2</sup>

CHRISTER AGREN



© ALAN SMILEY / FOTOLIA

The culprit?

<sup>1</sup> The data reported by individual countries to the Convention on Long-range Transboundary Air Pollution is

compiled by EMEP (the cooperative programme for monitoring and evaluating the long-range transmissions of air pollutants in Europe), and published both in printed form and on the EMEP website. Figures for other pollutants, such as particulates, heavy metals, and POPs (persistent organic pollutants), are also given. The title of this year's report is **Inventory Review 2006: Emission data reported to the LRTAP Convention and NEC Directive**. Technical Report MSC-W 1/2006. By V. Vestreng et al. Available at the EMEP website: [http://www.emep.int/index\\_facts.html](http://www.emep.int/index_facts.html)

<sup>2</sup> **Transboundary acidification, eutrophication and ground-level ozone in Europe since 1990 to 2004.** EMEP Status Report 1/2006. Also available at the EMEP website (see above).

## The table

(opposite page)

European emissions of sulphur dioxide, nitrogen oxides (as  $\text{NO}_2$ ), ammonia, and volatile organic compounds (thousand tonnes).



	Sulphur dioxide			Nitrogen oxides (NO <sub>2</sub> )			Vol. Org. Compounds			Ammonia		
	1980*	1990	2004	1980*	1990	2004	1980*	1990	2004	1980*	1990	2004
Austria	346	74	29	246	212	227	432	284	172	52	69	64
Belgium	828	361	154	442	382	298	399	305	165	89	112	74
Cyprus	28	46	45	13	19	19	14	16	12	8	5	6
Czech Republic	2257	1876	227	937	742	328	275	374	240	156	157	69
Denmark	451	176	23	307	266	171	261	166	116	138	134	98
Estonia	287	274	90	70	74	37	81	71	41	24	26	10
Finland	584	259	83	295	299	205	210	221	142	39	38	33
France	3213	1333	484	1989	1829	1218	2660	2414	1367	810	787	742
Germany	7514	5289	559	3334	2878	1554	3224	3584	1268	835	758	641
Greece	400	487	537	306	299	317	255	281	262	79	79	72
Hungary	1633	1011	240	273	276	190	215	252	172	157	124	74
Ireland	222	186	71	73	119	116	111	111	63	112	114	113
Italy	3441	1795	418	1585	1945	1244	2034	2023	1273	441	405	412
Latvia	96	97	4	70	69	39	121	73	64	52	47	13
Lithuania	311	263	40	152	158	55	100	136	67	85	82	49
Luxembourg	24	26	4	23	20	29	15	16	10	7	7	7
Malta	26	29	17	9	14	12	2	8	7	5	1	1
Netherlands	490	189	66	583	549	360	579	491	216	234	249	134
Poland	4100	3278	1286	1229	1581	804	1036	832	600	550	511	317
Portugal	253	317	203	158	243	271	189	273	287	96	55	64
Slovakia	780	542	97	197	215	98	252	122	91	63	66	28
Slovenia	234	198	55	51	63	57	39	53	46	24	25	17
Spain	2913	2166	1172	1068	1247	1519	1392	1135	1153	285	329	413
Sweden	491	117	47	404	306	197	528	443	255	54	55	56
United Kingdom	4841	3699	833	2652	2932	1621	2099	2396	1024	370	382	336
<b>Sum EU25</b>	<b>35763</b>	<b>24088</b>	<b>6784</b>	<b>16466</b>	<b>16737</b>	<b>10986</b>	<b>16523</b>	<b>16080</b>	<b>9113</b>	<b>4765</b>	<b>4617</b>	<b>3843</b>
Albania	72	74	32	24	23	25	31	30	32	32	23	23
Belarus	740	888	97	234	379	213	549	497	326	142	215	121
Bosnia & Herzegovina	482	484	427	79	73	52	51	48	42	31	21	17
Bulgaria	2050	2007	929	416	363	216	309	214	132	144	144	54
Croatia	150	178	85	60	88	70	105	105	122	52	53	53
Iceland	18	9	9	21	9	11	8	12	11	3	4	4
Norway	136	53	25	191	224	215	173	295	265	23	20	23
Macedonia	107	110	87	39	46	42	19	21	28	17	15	14
Moldova	308	175	15	115	131	38	105	123	33	53	61	26
Romania	1055	1310	685	523	527	346	829	517	404	340	289	266
Russia	7323	6113	1858	3634	3600	3093	3410	3659	2675	1189	1204	621
Serbia & Montenegro	406	593	341	192	165	149	142	158	147	90	74	66
Switzerland	116	42	17	170	156	87	323	262	98	77	68	58
Ukraine	3849	3921	1145	1145	1753	960	1626	1053	725	729	682	550
<b>Sum Non-EU</b>	<b>16812</b>	<b>15957</b>	<b>5752</b>	<b>6843</b>	<b>7537</b>	<b>5517</b>	<b>7680</b>	<b>6994</b>	<b>5040</b>	<b>2922</b>	<b>2873</b>	<b>1896</b>
<b>Sum Europe</b>	<b>52575</b>	<b>40045</b>	<b>12536</b>	<b>23309</b>	<b>24274</b>	<b>16503</b>	<b>24203</b>	<b>23074</b>	<b>14153</b>	<b>7687</b>	<b>7490</b>	<b>5739</b>
Int. ship: Baltic Sea	139	168	239	215	236	335	5	8	12	-	-	-
Int. ship: Black Sea	35	45	64	52	62	88	1	2	3	-	-	-
Int. ship: Mediterran.	725	858	1227	1000	1234	1765	21	41	59	-	-	-
Int. ship: North Sea	277	361	513	395	508	721	9	18	25	-	-	-
Int. ship: N.E. Atlantic	550	384	543	772	565	799	15	19	27	-	-	-
<b>Sum internat. shipping</b>	<b>1726</b>	<b>1816</b>	<b>2586</b>	<b>2434</b>	<b>2605</b>	<b>3708</b>	<b>51</b>	<b>88</b>	<b>126</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Sum Europe + ships</b>	<b>54301</b>	<b>41861</b>	<b>15122</b>	<b>25743</b>	<b>26879</b>	<b>20211</b>	<b>24254</b>	<b>23162</b>	<b>14279</b>	<b>7687</b>	<b>7490</b>	<b>5739</b>
Turkey	1030	1519	1792	364	691	932	359	636	554	321	373	407

\* ) Emissions in 1980 from EMEP MCS-W Technical Report 1/2005

# Slow progress in emission reductions

European emissions continue to fall, but reductions are considerably slower than in the 1990s.

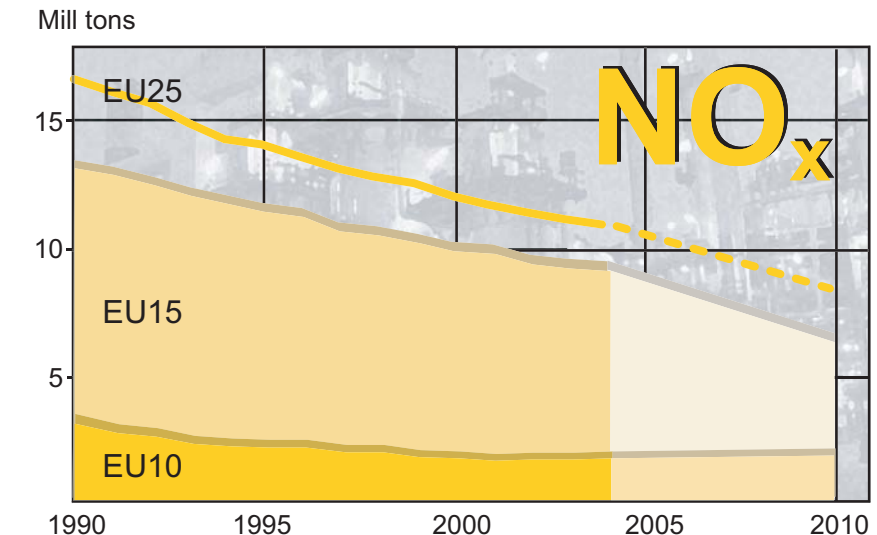
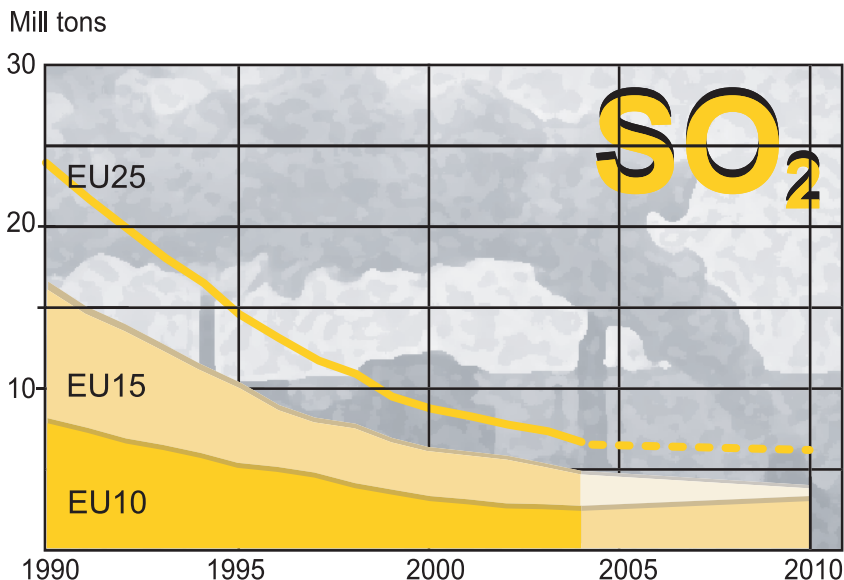
MORE THAN HALF OF THE EU member countries foresee difficulties in meeting their legally binding national emission ceilings (NEC) by 2010. The main problem seems to be nitrogen oxides. This became clear at a recent conference<sup>1</sup> on air pollution projections, arranged by the European Commission as part of the ongoing process for review and revision of the NEC directive<sup>2</sup>.

A closer look at the trends in reported emissions between 1990 and 2004 – as shown in the graphs – reveals the same picture. While emissions still continue to fall, it is clear that reductions are now considerably slower than in the 1990s.

## Ceilings to be reached 2010

By 2010 member states must limit their annual national emissions so that they do not exceed the emission ceilings laid down in the NEC directive, and they must ensure that these emission ceilings are not exceeded in any year after 2010.

Emissions of sulphur dioxide in EU15, EU10 and EU25 1990-2004 and target levels for 2010. Million tonnes.



Emissions of nitrogen oxides in EU15, EU10 and EU25 1990-2004 and target levels for 2010. Million tonnes.

According to the directive, by 1 October 2006 member states must prepare updated programmes for the progressive reduction of national emissions of the four pollutants

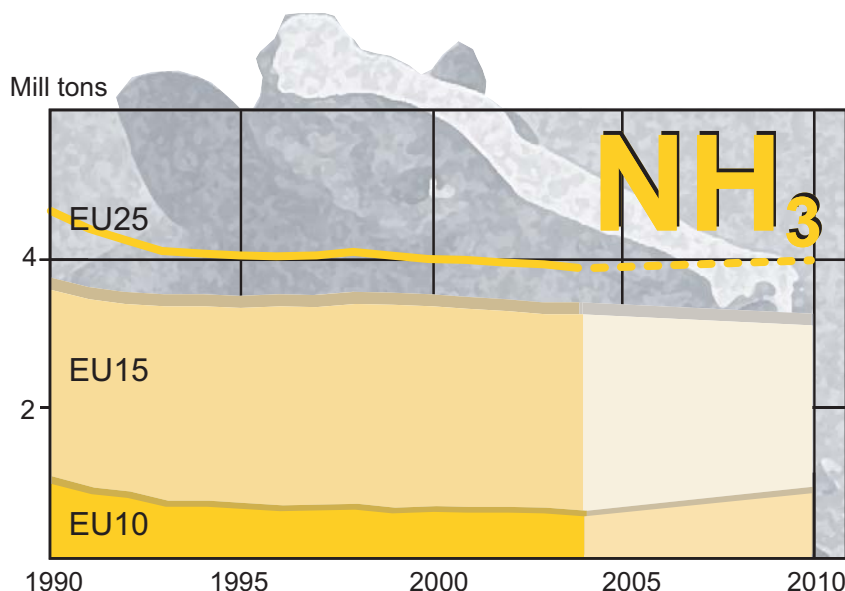
and present them to the Commission before the end of 2006. The programmes must provide information on measures and action taken at national level to attain the emission ceilings. Member states are obliged to make this information available to the public.

If prepared in accordance with the obligations, these programmes could provide useful information on national forecasts regarding future activity levels in the sectors of energy, transport, industry, and agriculture. Moreover, if member states produce and disseminate this type of information properly, the likelihood of compliance with other air quality legislation, such as the EU air quality standards, could be better evaluated.

## Revision process - an opportunity

The process of review and revision provides an opportunity to strengthen the existing 2010 NECs, but will more likely result in future





Emissions of ammonia in EU15, EU10 and EU25 1990-2004 and target levels for 2010. Million tonnes.

stepwise strengthening of the emission ceilings, e.g. by establishing new NECs for 2020. In any case it is obvious that the attainment of the long-term objectives will require significant further reductions in emissions of all four pollutants. Current developments also indicate that the NEC directive may also be extended to include national emission ceilings for fine particles (PM<sub>2.5</sub>).

#### Revision proposal 2007

Although the directive was originally scheduled for review and revision by 2004, slower than expected progress in the EU's Clean Air For Europe (CAFE) programme has led to some delay. The Commission now plans to

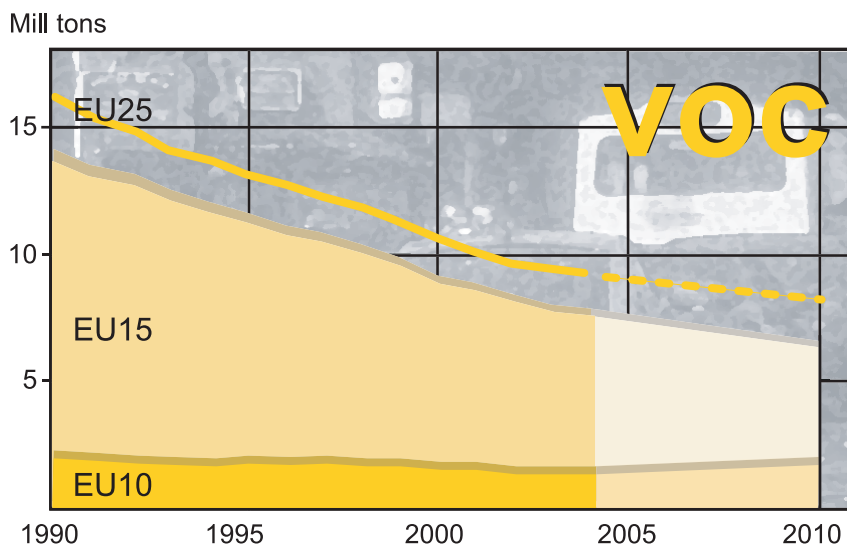
adopt its proposal for a revised NEC directive in summer 2007.

CHRISTER ÅGREN

<sup>1</sup> Conference on Air Pollutant and Greenhouse Gas Emission Projections for 2020, Brussels, 29 September 2006. For more information, see: [http://ec.europa.eu/environment/air/conf\\_air.htm](http://ec.europa.eu/environment/air/conf_air.htm)

<sup>2</sup> Directive 2001/81/EC on national emission ceilings for certain atmospheric pollutants sets national emission ceilings for four air pollutants, namely sulphur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), volatile organic compounds (VOCs), and ammonia (NH<sub>3</sub>). It is the key legislation for the achievement of the EU's air pollution objectives as well as for attaining the air quality standards for a number of pollutants, including PM, NO<sub>2</sub>, SO<sub>2</sub>, and ozone.

Emissions of volatile organic compounds in EU15, EU10 and EU25 1990-2004 and target levels for 2010. Million tonnes.



## EU carmakers under pressure

Carbon dioxide (CO<sub>2</sub>) emissions from new cars sold in the EU15 have decreased further, but major additional efforts have to be made by industry to meet its commitments to cut average CO<sub>2</sub> emissions to 140g/km by 2008/9, a reduction of around 25 per cent from 1995 levels. According to the European Commission's annual report on CO<sub>2</sub> emissions from new cars, published on 29 August, in 2004 average emissions were 12.4 per cent below the 1995 level.

Commissioner for Enterprise and Industry, Günter Verheugen, said: "The situation is not satisfactory. I urge industry to step up their efforts. We expect that industry sticks to its commitments." Verheugen underlined that if industry did not honour its commitments, the Commission would have to consider taking measures, including legislative ones, to ensure that the necessary CO<sub>2</sub> reductions were achieved.

The Commission's press release can be found at: [europa.eu/rapid/pressReleasesAction.do?reference=IP/06/1134](http://europa.eu/rapid/pressReleasesAction.do?reference=IP/06/1134)



© MATTHEW HAYWARD / FOTOLIA

Swedes like them green.

## Booming sales of green cars

In Sweden, some 13 per cent of the new cars sold during January to September of this year are classed as green vehicles. The best sellers among them are so-called flexi-fuel cars, which can run on ethanol (E85) – the most popular models being the Saab 9-5, Ford Focus, and Volvo V50. Also popular are the Volvo V70 bi-fuel (which can run on gas as well as petrol), Toyota Prius (a fuel-efficient hybrid car) and Toyota Aygo (a fuel-efficient petrol-driven car).

Source: Miljöbilens Värld, September and October 2006.

# Environmental costs often exaggerated

Industry estimates of costs for environmental measures in many cases turn out to be twice the actual cost - and occasionally exaggerates the costs tenfold, a new study reveals.

DISAGREEMENT ON the estimated cost of environmental action has been a constant feature of policy making in the EU and nationally, and green NGOs have repeatedly pointed to a general tendency for cost predictions to be overestimated.

## No reality check

Nowadays the European Commission must carry out impact assessments – including estimates of costs and benefits – for all major policy proposals. Unfortunately, there is no requirement to check the results afterwards, i.e. to compare these estimates with the actual outcome.

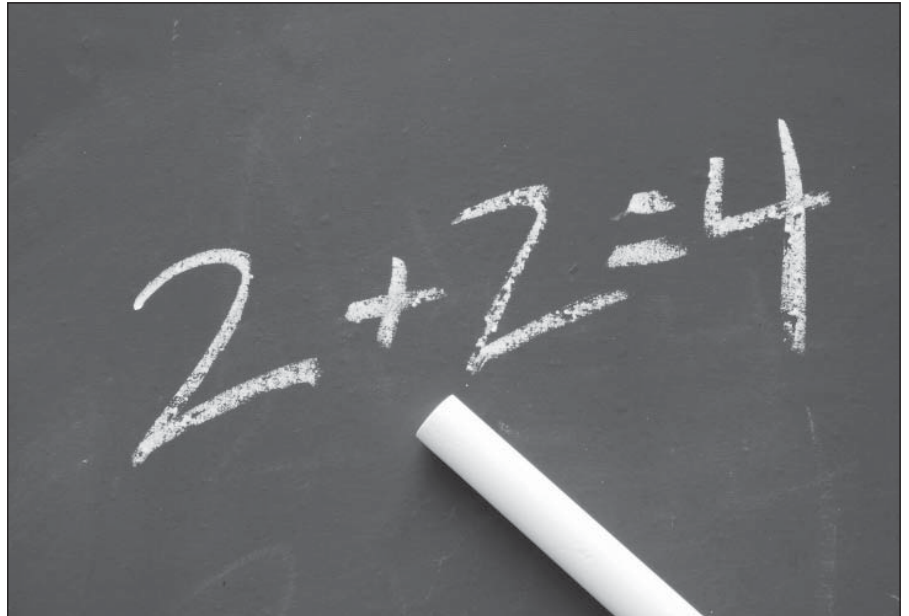
If real costs are shown to be lower than originally anticipated – which appears to be the most common case – this is a clear indication that the environmental ambition could have been set higher.

A recent study<sup>1</sup> for the European Commission investigated six case studies linked to EU environmental legislation, some of which included air pollution control measures (e.g. on large combustion plants and road vehicles).

## Overestimations common

According to the report, overestimation of costs is common. In many cases the industry estimates were shown to be about twice as high as the real costs. In some cases however the differences were much higher (more than ten times higher), and only in one case was there hardly any difference at all.

For example, controlling emissions of sulphur dioxide in the UK in order to implement the first large combustion plants directive adopted in 1988, was originally estimated to raise electricity prices by 25–30 per cent. A recent analysis charts a 2.5–5 per cent increase over 15 years. The overestimate is largely



Not the industry way of doing it.

put down to the development of the combined cycle gas turbines that led to a fuel switch from coal to gas, thus cutting the number of electricity producing plants that need to be retrofitted with flue-gas desulphurization systems.

---

*"Little evidence of industry knowingly providing biased cost estimates"*

---

In Germany, the industry's cost estimates for a similar, but much stricter, piece of legislation were twice those of the environment ministry. The ministry's estimates, based on interviews with technology providers, were later proved largely accurate, although these were also about 25 per cent too high. The fact that air pollution control technologies in Germany were implemented over a very short time period meant

that technology prices did not evolve much, and helps explain why the ministry's estimates were quite close to the real costs.

Original Dutch cost estimates for introducing catalytic converters on passenger cars were about double the level that emerged in practice. The overestimation is attributed to a failure to consider an annual reduction in the unit cost of environmental equipment of around 10 per cent through improvements in technology, efficiency and economy of scale.

According to the report, there seems to be little evidence of industry knowingly providing biased cost estimates. However, in the face of uncertain future technological developments, the industry in question is likely to come up with relatively high cost figures.

## Suggestions for the future

It is stated that the new trend towards more regulatory flexibility



could make accurate predictions even more difficult. Nevertheless, the authors propose a series of ways to improve the accuracy of cost estimates that could help reduce the sometimes gross overestimates of the cost of environmental policies. Among the suggestions are:

- Cost estimates should draw on as many sources as possible;
- Costs must be clearly defined and should always include costs that are eliminated, through lower energy usage, for example;
- Cost estimates should be updated frequently, as policy develops and targets are revised;
- A feedback process should be set up to update cost predictions in

light of experience;

- If possible, it would be useful to develop "rules of thumb" for factoring as yet unknown technological innovation, economies of scale and learning curve effects into initial cost estimates;
- Actual, as well as predicted, costs of policies should always be analyzed, so comparisons can be made and lessons learned. Before and after comparisons must compare like with like.

In conclusion, among the many reasons why the predicted costs of environmental legislation so often turn out to be pessimistic, failure to anticipate technological innovation and cost reductions over time

emerge as most important. This failure may have significant impact, since exaggerated cost estimates will inevitably influence the level of environmental ambition agreed by policy-makers.

CHRISTER AGREN

**Ex-post estimates of costs to business of EU environmental legislation.** Final report, April 2006. Produced for the European Commission's DG Environment by the Institute for Environmental Studies, Vrije Universiteit, Amsterdam, Netherlands. Can be downloaded from the website of DG Environment: [http://ec.europa.eu/environment/enveco/ex\\_post/costs.pdf](http://ec.europa.eu/environment/enveco/ex_post/costs.pdf)

**Note:** See also related articles in Acid News 1, 2005, pp. 20-21.

TRAFFIC AND AIR POLLUTION

# Why roadside NO<sub>2</sub> levels remain high

A DRAFT REPORT investigating unexpected trends in roadside nitrogen dioxide (NO<sub>2</sub>) concentrations and possible links with changes in vehicle technologies was published in August by the UK Air Quality Expert Group (AQEG). The report was commissioned by the UK Ministry of Environment to consider why, despite significant falls in annual mean concentrations of nitrogen oxides (NO<sub>x</sub>) in urban areas over recent years, roadside concentrations of NO<sub>2</sub>, which is a component of NO<sub>x</sub>, have not declined as expected.

The report "**Trends in Primary Nitrogen Dioxide in the UK**" has now been published for consultation, and views on the AQEG conclusions are invited. The draft report found that:

- The most likely explanation of the observed trend in NO<sub>2</sub> concentrations is a change in the percentage of road traffic NO<sub>x</sub> emissions directly emitted as NO<sub>2</sub>. Total



Part of the problem.

emissions of road traffic NO<sub>x</sub> have decreased at the same time;

- Emission measurements indicate that the increased proportion of primary NO<sub>2</sub> from road transport is related to the increasing number of light-duty diesel vehicles, especially cars fitted with oxidation catalysts, and the fitting of diesel particulate filters to heavy-duty vehicles, particularly London buses;

- The increase in the fraction of NO<sub>x</sub> emitted as NO<sub>2</sub> by road traffic is likely to have implications for the attainment of the air quality objectives for NO<sub>2</sub>.

AQEG highlights the importance of future choices of vehicle abatement technologies, particularly with regard to particulate matter (PM) reduction methods that may increase primary NO<sub>2</sub> emissions. Diesel oxidation catalysts and particulate filters are increasingly fitted to motor vehicles to comply with tighter vehicle emissions standards and to ensure compliance with air

quality standards for PM<sub>10</sub>. The best current evidence suggests that health effects from exposure to particulate matter are much more significant than those from NO<sub>2</sub>.

The final report is expected to be published in spring 2007. For more information see: [www.defra.gov.uk/environment/airquality/aqeg/index.htm](http://www.defra.gov.uk/environment/airquality/aqeg/index.htm)

# Shipping line announces fuel switch

Maersk's voluntary switching to low-sulphur fuel close to the coast is a significant break with the maritime industry. It will cut vessel-related emissions by hundreds of tonnes each year.

ALL MAERSK LINE SHIPS calling on Californian ports are switching to cleaner fuels within 24 miles of the coastline – a move that will cut 400 tonnes of air pollution each year.

The company announced on 26 May that Maersk Line cargo ships calling at the Ports of Los Angeles and Oakland will burn low-sulphur marine distillate fuel instead of dirty bunker oil in all main and auxiliary engines – exceeding new California state regulations that will come into effect in January 2007. The company's Sine Maersk vessel was the first to make the fuel switch on March 31.

## 400 tonnes less pollutants

Bunker fuel is a heavy petroleum product that typically has a sulphur content of 2.7 per cent, while the refined blend has a sulphur content of around 0.2 per cent. Maersk officials said the fuel-switching pro-

gramme would eliminate nearly 400 tonnes of vessel-related pollutants each year, including a 73-per-cent reduction in particulate matter, a 92-per-cent reduction in sulphur dioxide and a 10-per-cent reduction in nitrogen oxides.

The more distilled fuel costs about twice as much as bunker fuel, and the company will spend an additional US\$2 million to US\$3 million per year in additional fuel costs to implement the programme.

Along with the clean-fuel initiative, Maersk has outfitted one of its ships with catalytic converters (SCR equipment) that have removed approximately 90 per cent of nitrogen oxides during testing.

## Breaking with the industry

Maersk's voluntary actions represent a significant break with the maritime industry, which has been questioning the availability of low-

sulphur fuel and the potential cost of outfitting cargo ships with emission-control technology. Until now, some maritime industry lobbyists have even claimed that switching from bunker fuels to lighter marine fuels would cause ship engines to fail.

Last year, the California Air Resources Board passed a regulation that requires all ships to use marine distillate fuels in auxiliary engines within 24 nautical miles of the coast, beginning in January 2007. But main engines were left out of the rule.

## A bold action

*"Maersk's bold action marks the dawn of a new world order for shipping, where operating on cleaner fuels becomes standard practice,"* said Teri Shore, clean vessels campaign director for Bluewater Network, a division of Friends of the Earth.

*"Maersk is showing that shippers can clean up their smokestacks now and reduce human harm from diesel exhaust while safely delivering goods to port,"* said Shore. *"The company deserves high praise for this commitment."*

Even with Maersk's move to cleaner-burning fuel, the Ports of Los Angeles and Long Beach will continue to urge shippers to adopt so-called cold ironing, a technology that allows vessels to plug into shore-side electrical power rather than using their diesel engines for power at dockside.

## Improving harbour air quality

In the last several years, port officials, state regulators and environmental groups have been formulating plans to greatly improve air quality throughout the Los Angeles-Long

## Cargo vessels - a major emission source

LARGELY UNREGULATED, the world's fleet of cargo vessels has emerged as a leading source of sulphur and nitrogen oxide emissions, which have been linked to global warming, acidification, eutrophication, respiratory illness and premature deaths.

The global sulphur standard for marine bunker fuel set by the International Maritime Organization (IMO) is 4.5%, a limit critics view as useless because the average sulphur content of bunker fuel is about 2.7%. Bunker fuel is a remnant of the refining process for gasoline and diesel fuel. With a sulphur content of 2.7%, it is so dirty that it can legally contain some 3,000 times more sulphur than the fuel used in diesel trucks.

The IMO, which is composed of the world's shipping nations, is currently in



the process of reviewing its air pollution regulations, with the aim of developing proposals for revision before the end of 2007.



Beach harbour complex, which handles more than 40 per cent of the nation's international trade.

They are especially concerned because cargo volumes in both ports are expected to double, or even triple, in the next 20 years.

The proposals apply to auxiliary engines in ships and heavy equipment powered by diesel engines, including trucks, cranes, cargo-handling vehicles, locomotives and small craft such as commercial fishing boats and charter vessels.

Also in May, an agreement was approved between the Port of Long Beach and International Transportation Service Inc., which operates the third-largest cargo terminal at the port. This requires ships to use shore-side electricity and to replace cargo-handling equipment with technologies that will be more environmentally friendly and reduce emissions of nitrogen oxides and diesel particulates. The aim is to reduce air pollutant emissions by at least 90 percent.

CHRISTER AGREN

More information: See Bluewater Network press release at: [www.bluewaternet.org](http://www.bluewaternet.org)



© ELENA ULIKOVA / FOTOLIA

Maersk has found them.

AIR POLLUTION AND BIODIVERSITY

## Nitrogen emissions threaten biodiversity

GLOBAL EMISSIONS INTO the atmosphere of nitrogen compounds – primarily nitrogen oxides and ammonia – have increased in recent years as a result of human activities such as transportation, industrial processes, and agriculture. This has consequently enhanced the deposition of nitrogen compounds in terrestrial ecosystems.

The increase in nitrogen deposition poses a significant threat to biodiversity in natural and semi-natural ecosystems, as it affects the nutrient content of the soil. Increased availability of nitrogen results in a decrease in plant diversity, either due to nutrient enrichment, by causing soil acidification, or by making some plants more susceptible to other stress factors such as drought.

Nitrogen emissions from industrialized countries are stabilizing and nitrogen deposition is even declining in some regions, but in

developing countries emissions are rising due to rapid population growth and industrialization.

A group of scientists from around the world has recently analyzed the threat of nitrogen deposition to biodiversity at the global scale. Using global chemistry transport models, they estimated the rate, extent, and distribution of recent (mid-1990s) and future (2050) nitrogen deposition within the newly defined 34 world biodiversity hotspots. These biodiversity hotspots cover just 2.1 per cent of the Earth's land area, yet are home to half of its plant species.

The results suggest that the average amount of nitrogen deposited across these biodiversity hotspots was 5.3 kg nitrogen per hectare per year (kg/ha), which is almost 50 per cent higher than the global terrestrial average in the mid-1990s. By 2050, the average annual nitrogen deposition in hotspots is pro-

jected to have more than doubled, to 11.8 kg/ha.

By this year, 17 out of the 34 hotspots could have between 10 and 100 per cent of their area receiving more than 15 kg/ha, which is a critical level known to have damaged some European ecosystems. These seventeen hotspots contain 81,981 (27%) of the world's endemic plant species and include three of the top five hotspots for endemic plants: the Tropical Andes, the Mediterranean Basin and the Atlantic Forest (Brazil).

CHRISTER AGREN

Source: **Atmospheric nitrogen deposition in world biodiversity hotspots: the need for a greater global perspective in assessing N deposition impacts** (2006), by Phoenix G.K. et al. Published in *Global Change Biology* 12: 470–476. Summarized in: **Science for environment policy**, 18 May 2006. Published by European Commission, DG Environment. Link: [http://ec.europa.eu/environment/integration/research\\_alert\\_en.htm](http://ec.europa.eu/environment/integration/research_alert_en.htm)

# Ferries must install catalytic NO<sub>x</sub> reduction

A Swedish court ruling gives local authorities in port cities the right to impose environmental requirements on vessels that regularly visit the port.

ON 24 MAY THE SWEDISH Environmental Court of Appeal announced its precedent-setting decision on whether or not a local environmental authority may require ferries in international service to take measures to reduce their NO<sub>x</sub> emissions beyond what is required by international law.

The specific case involves the local environmental authority of Helsingborg in southwest Sweden, which for many years has tried to force the owners of ferries that travel between Helsingborg and the Danish city of Helsingør to install selective catalytic reduction (SCR) on their vessels.

Helsingborg has the busiest passenger terminal in Sweden, catering for around nine million passengers each year. A total of seven passenger ferries ply the sound between Helsingborg and Helsingør. The ferries are owned by three shipping lines: Scandlines, HH-Ferries and Sundsbussarna. Ferries from these lines visit the port of Helsingborg more than 45,000 times each year (125 times a day).

## Trying for ten years

For ten years the local environmental authority has been trying to persuade the shipping lines to install SCR on their ferries, since their emissions make a major contribution to the excessively high levels of nitrogen dioxide in central Helsingborg. Levels of nitrogen dioxide are so high that they exceed the environmental quality standard for nitrogen dioxide, i.e. the maximum permissible concentration for the protection of health and the environment. The high concentrations of nitrogen dioxide in Helsingborg contribute to respiratory diseases, elevated cancer risk, acidification and eutrophication.

By installing SCR, emissions of nitrogen oxides from ships will be cut by between 90 and 98 per cent. If the three shipping lines install SCR it is estimated that local emissions of nitrogen oxides will be reduced by more than 100 tonnes per year, and nitrogen dioxide levels in central Helsingborg will be reduced by one fifth. It should be mentioned that all three shipping lines use low-sulphur (0.1 per cent) gas oil as fuel.

## Taking the matter further

Following earlier negotiations between the port management company, Helsingborgs Hamn AB, and



© GUNTA KLAVINA / FOTOLA

Next target?

## Extended requirements

FOLLOWING THE SUCCESS of the city of Helsingborg in the Environmental Court of Appeal in May, when it was ruled that the city is entitled to impose environmental requirements on the ferries to Helsingør in Denmark, the local environmental authority in Helsingborg is now also planning to impose emission requirements on the ferries destined for the Norwegian capital Oslo.

Two large ferries owned by DFDS Seaways, the Pearl of Scandinavia and Crown of Scandinavia, produce local nitrogen oxide emissions of just over 51 tonnes each year. In an investigation commissioned by the environmental authority last year it

was calculated that nitrogen oxide emissions in Helsingborg from the Oslo ferries would be reduced by 45 tonnes annually, or 90 per cent, if the shipping line installed catalytic reduction on all its engines.

By comparison it can be mentioned that Helsingborg's new fleet of 61 gas-powered city buses will cut nitrogen oxide emissions by 10 tonnes per year.

The environmental authority therefore decided in August to investigate whether the same requirements should be applied to DFDS Seaways as to the other ferry lines.



two of the ferry lines (Scandlines and HH-Ferries), a temporary undertaking was given to use SCR. Despite this, the local environmental authority decided to take the matter further with one of the two shipping lines (HH-Ferries) and with Sundsbussarna, which had not given any undertaking at all.

A press release from the local environmental authority reported that:

- The ruling by the Environmental Court of Appeal is of the greatest importance to the health and environment of the people of Helsingborg. The ruling means that the SCR requirement will be made permanent and therefore apply to all future vessels and all three shipping lines.
- The ruling also makes it clear that a local environmental authority in a port city has the right to impose requirements on vessels that regularly visit the port, if this is required to protect people's health. In addition to nitrogen oxide emissions, shipping traffic can give rise to a number of other health problems, and this ruling is therefore invaluable for the future monitoring of the port city of Helsingborg.

- Because the Environmental Court of Appeal's ruling sets a precedent it will also be of considerable significance to other port cities in Sweden, and if others can also benefit from Helsingborg's ten-year battle for better emission control it will naturally be even more satisfying.

#### Clarified formal questions

The matter has clarified several formal questions; the most important being whether it is acceptable to locally impose special requirements on ferry traffic under the Swedish Environmental Code and the international MARPOL shipping convention signed by Sweden. And, if so, which authority has the right to impose such requirements – the local environmental authority, the county board, or the national maritime administration.

The Environmental Court of Appeal has now made clear that the demands of the local environmental authority are in agreement with the Swedish Environmental Code, and also in agreement with international shipping conventions.

CHRISTER AGREN

## MARPOL and UNCLOS

THE TWO INTERNATIONAL agreements referred to are MARPOL (The International Convention on the Prevention of Pollution from Ships) and UNCLOS (United Nations Convention on the Law Of the Sea). International air pollution requirements have been defined in MARPOL Annex VI, which was signed in 1997 and entered into force in 2005. Negotiations were recently initiated to revise and strengthen these requirements (see AN 2/06, p. 6-7).

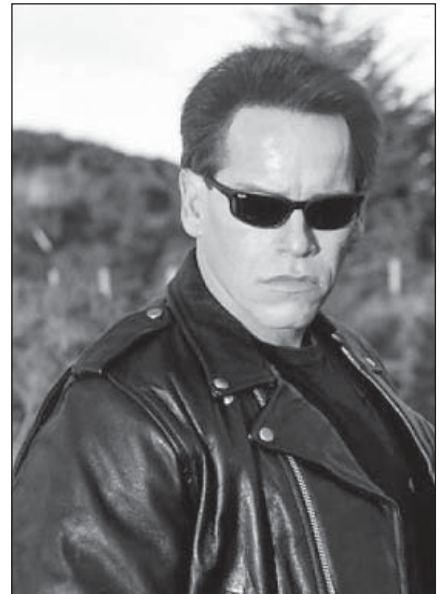
Countries' responsibilities under these two conventions depend on their various roles as flag states, coastal states or port states. While flag states are allowed to set stricter standards for their own fleets of ships, UNCLOS contains some restrictions on coastal states' rights to set stricter standards for foreign ships plying their waters.

Port states are allowed to set national environmental demands for foreign ships that voluntarily make port calls, but with some restrictions. Any such national demands must be supported by practical

reasons, and they must be non-discriminatory. Specific national demands must also be given due publicity and be announced to the competent international organization, which in this case means the UN International Maritime Organization.

The Swedish Environmental Court of Appeal found the requirements of UNCLOS do not prevent a Swedish authority that is acting as a representative of a port city from intervening against foreign vessels by requiring them to reduce emissions of nitrogen oxides to protect people's health. It also found that the MARPOL regulations do not provide any obstacle to imposing stricter requirements on those vessels that visit Swedish ports than required by the convention, if this is motivated by national environmental legislation. In summary, the court states that the injunctions imposed by Helsingborg local environmental authority are not in conflict with Sweden's international undertakings.

## CLIMATE NEWS IN BRIEF



Climate change Terminator.

## California takes action on global warming

On 27 September, California Governor Arnold Schwarzenegger signed a new law aimed at reducing the state's greenhouse gas emissions to 1990 levels by 2020 – a 25-per-cent cut. An executive order signed by Schwarzenegger calls for the state to ultimately cut emissions by 80 per cent below 1990 levels by the year 2050.

The new law requires the state's Air Resources Board to adopt regulations to enable a cap and trade program and gives the board the authority to enforce the regulations beginning in 2012. In the interim, the board will begin to measure the greenhouse gas emissions of those industries it determines to be significant sources of greenhouse gas emissions.

California has often been the environmental pioneer in the United States and it is the world's 12th largest producer of greenhouse gases. Ten other states and Canada have already adopted California's first global warming law – a statute that requires all new cars to emit 30 per cent less global warming pollution by 2016. Automakers have filed suit to block this regulation. Earlier in September California announced a new lawsuit against six US and Japanese auto manufacturers, alleging their vehicles' emissions have contributed significantly to global warming and harmed the economy and environment of California.

Source: Environment News Service, 28 September 2006.

## Cut energy use, cut CO<sub>2</sub>, and save billions

According to the European Insulation Manufacturers Association (EURIMA), a renewed, concerted effort to cut energy use in buildings across the EU25 would save Europeans about 270 billion euro a year. They call for an extension of the 2002 directive on energy performance of buildings to residential buildings smaller than 1,000 square metres, which currently fall outside the scope of the EU law. EURIMA estimates that these smaller buildings represent 90% of the potential energy, CO<sub>2</sub> and cost savings in the residential sector.

An extended directive could lead to CO<sub>2</sub> emission reductions of 460 million tonnes per year by 2032, and create 530,000 full time jobs in house renovation across the EU25, the EURIMA report points out.

Source: EURIMA (<http://www.eurima.org/270yeswecan/>)



© VARINA CHAPMAN / FOTOLIA

In control.

## Climate awareness campaign for schools

The European commission is targeting teachers and students in the second phase of its climate change awareness campaign "You control climate change" launched in May. The campaign offers a variety of tools for teachers to use in classroom activities. Students are encouraged to make small changes to their daily behaviour, such as turning down the heating at home, switching off the TV rather than putting it on standby, recycling waste and walking more often. They are also invited to pledge that they will make a personal effort to combat climate change. A campaign website provides access to the materials and an interactive forum for discussion. The campaign is being supported by television, press and Internet advertising.

For more information, see campaign web site: <http://www.climatechange.eu.com>, and the Commission website on climate change: [http://www.europa.eu.int/comm/environment/climat/home\\_en.htm](http://www.europa.eu.int/comm/environment/climat/home_en.htm)



© DOUG STACEY / FOTOLIA

Trafalgar Square in 2050, unless...

CLIMATE POLITICS

# UK urged to act on climate change

THE GOVERNMENT HAS only four years to implement a major new programme of action to cut carbon emissions if the UK is to play its part in keeping global temperatures below danger levels, warned a new report launched on 15 September by the Co-operative Bank and Friends of the Earth.

The report, "**The Future starts here: the route to a low carbon economy**" is based upon research commissioned from The Tyndall Centre for Climate Change Research. It is the UK's first comprehensive roadmap to a low carbon economy that would deliver on government commitments to keep temperatures from rising beyond a critical point.

The report suggests that a carbon budget of around 4.6 gigatonnes between 2000 and 2050 would allow the UK to play its part in keeping temperatures from rising two degrees centigrade above pre-industrial levels – the danger level. If emissions continue at the current rate the UK would emit close to double this amount by 2050.

The study also outlines what the government could do – and by

when – to keep within this carbon budget, and maps out how homes, business and transport in the UK could change as a result. The report demonstrates that:

- The UK can achieve the necessary carbon reductions if the government implements a major programme of action within the next four years. Delaying action will require much more drastic and less manageable cuts.
- The UK needs to achieve significant emission cuts – of around 70 per cent – within the next 30 years. Government targets for a 60-per-cent cut in emissions by 2050 are insufficient, as they do not provide for adequate reductions within the necessary timescale.
- UK carbon emissions have not fallen since 1990. Government calculations, which show a decrease, are misleading as they fail to take into account emissions from international shipping and aviation.

Source: FoE Scotland (<http://www.foe-scotland.org.uk/press/pr20060903.html>). The report is available at: [http://www.foe-scotland.org.uk/nation/climate\\_low\\_carbon\\_economy.pdf](http://www.foe-scotland.org.uk/nation/climate_low_carbon_economy.pdf)



# Personal carbon allowances underway?

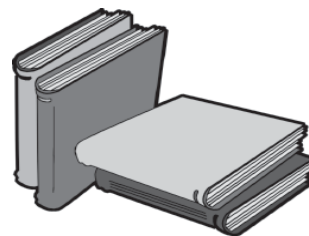
THE UK GOVERNMENT is contemplating issuing tradable personal carbon allowances to the public to combat rising emissions from the domestic sector, according to a statement from the Ministry of Environment on 19 July.

Individuals would be given a limited amount of carbon allowances, of which they could sell any surplus for cash should they opt to reduce their emissions. According to environment minister David Miliband, the scheme would be fairer than tax increases as it offers free entitlements and only penalizes those that exceed their entitlement. The government has ordered a feasibility

study, to report back in the first half of 2007.

Personal carbon tradable allowances is one of a number of ways the UK government is looking at how individuals can be better informed and involved in tackling climate change. Carbon loyalty cards, league tables, the use of carbon offsets at point of purchase for certain sectors, awareness raising through labelling, and carbon calculators are all being explored as potential long-term measures.

Source: Press release from the UK Ministry of Environment: (<http://www.defra.gov.uk/news/la-test/2006/climate-0719.htm>)



## Recent publications

### Clean solutions for ships (2006)

Booklet presenting a series of good examples of effective environmental solutions used on a selection of ships regularly calling at the port of Göteborg. Includes ships using cleaner (low-sulphur) fuels, equipped with selective catalytic reduction (SCR) to reduce NOx emissions, and connected to shore-side electricity.

16 pp. Produced by Projekt Grön Kemi, and available at: [www.gronkemi.nu](http://www.gronkemi.nu)

### The potential for further control of emissions of fine particulate matter in Europe (2006)

By using the RAINS computer model, the report analyzes three emission control cases: the situation in the year 2000, the current legislation case for 2020, and a case with further control measures. The analysis concludes that primary emissions of PM are expected to decline in Europe in the future due to current legislation – between 2000 and 2020 by approximately 40–45 per cent in the EU25 and by 8–9 per cent in the non-EU countries.

26 pp. Published by the International Institute for Applied Systems Analysis. IIASA Interim Report IR-06-011. Can be downloaded from: [www.iiasa.ac.at/rains/reports.html](http://www.iiasa.ac.at/rains/reports.html)

### Benefits of the Dutch air pollution policy in relation to damage to materials/monuments (2006)

Estimates that air pollution damage to materials in the Netherlands amounts to some 165 million euros annually for the year 2000, but concludes that there are large uncertainties, and that the above figure most probably is an underestimate. One of the main uncertainties is said to be the estimates of the stock-at-risk. The report was commissioned by the Dutch Ministry of Environment and prepared by the Dutch consultancy TNO.

65 pp. TNO report 2006-A-R0098/B. Published by TNO, P.O. Box 342, 7300 AH Apeldoorn, Netherlands ([www.tno.nl](http://www.tno.nl)).



The heat is on.

## Hottest in 12,000 years

THE WORLD'S TEMPERATURE has increased to levels not seen in at least 12,000 years, US climate scientists reported in the September issue of **"Proceedings of the National Academy of Sciences"**. Rapid warming has occurred in the past 30 years, the researchers said, and there is little doubt that human activities are the primary factor.

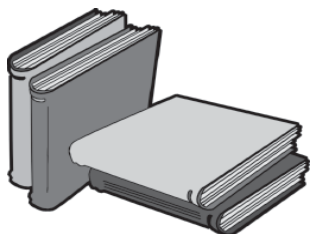
The study concludes the Earth is now reaching and passing through the warmest levels in the current interglacial period, which has lasted nearly 12,000 years. This warming is also forcing a migration of plant and animal species, the researchers said. Furthermore, the warming in

recent decades has brought global temperature to a level within about 1 degree Celsius of the maximum temperature over the past million years.

Worldwide instrumental temperature measurements during the past century show the planet warmed at a rate of 0.2 degree Celsius per decade for the past 30 years. This observed warming is similar to the warming rate predicted in the 1980s in initial global climate model simulations with changing levels of greenhouse gases, the researchers said.

Source: Environment News Service ([www.ens-newswire.com](http://www.ens-newswire.com)), 26 September 2006.





## Recent publications

### 2006 Air Quality Guidelines – Executive Summary

Given the increasing evidence of the health impact of air pollution, the World Health Organisation (WHO) has revised its existing air quality guidelines for Europe and expanded them to produce the first guidelines which are applicable worldwide. These global guidelines are based on the latest scientific evidence and set targets for air quality which would protect the large majority of individuals from the effects of air pollution on health.

22 pp. Can be downloaded from: [www.who.int/phe/health\\_topics/outdoorair\\_aqgl/en/index.html](http://www.who.int/phe/health_topics/outdoorair_aqgl/en/index.html)

### Air pollution, Environment and Future (2006)

Book about the problems of air pollution in general, and the knowledge gained from 35 years of acidification research in and around Lake Gårdsjön (in SW Sweden) in particular.

54 pp. Published by the Gårdsjö Foundation and Naturcentrum Consultants. Printed copies can be ordered from [ncab@naturcentrum.se](mailto:ncab@naturcentrum.se). Can be downloaded from: [www.gardsjon.org/gardsjoneng.pdf](http://www.gardsjon.org/gardsjoneng.pdf)

### Ship emissions and technical emission reduction potential in the northern Baltic Sea (2006)

Study evaluating the emissions and the technical reduction potential for SO<sub>2</sub>, NO<sub>x</sub>, CO, HC and PM from waterborne traffic in Finland and in marine areas near Finland in 2000 and 2015. Ship-based SO<sub>2</sub> and NO<sub>x</sub> emissions are expected to increase by 20 and 40 per cent respectively by 2015 if no further emission reduction methods are introduced. They could, however, be reduced significantly through introduction of effective reduction technologies, such as lowering the sulphur content of fuel, adding water to the combustion process, and selective catalytic reduction. The potential is substantial, especially for NO<sub>x</sub> emissions from cargo ships.

70 pp. Published by the Finnish Environment Institute (report 8/2006). Available online: [www.environment.fi/publications](http://www.environment.fi/publications)

# Parliament goes for weaker limits



© PETER GALBRAITH / FOTOLIA

MEPs care for SUVs. Conservatives and Christian Democrats think they must not be treated like ordinary cars.

VOTING IN BRUSSELS on 13 September, the European Parliament's environment committee agreed on several changes to the Commission's proposed Euro 5 standards for new passenger cars (see AN 1/05, p. 3). These include a slightly weaker NO<sub>x</sub> limit for petrol cars but a tighter one for diesel cars, and a call for the new Euro 5 standards to apply from 1 September 2009, with exemption options up to 1 January 2012 for certain categories of cars.

### SUV exemption maintained

The Commission wants to introduce the Euro 5 standards earlier, by mid-2008. Under the Commission's proposal, sport utility vehicles (SUVs) over 2.5 tonnes would have been subject to the same limits as all other cars for the first time. However, in order to secure the support of EPP party members (Conservatives and Christian Democrats), the committee agreed to maintain the exemption for SUVs.

The environment committee also called for a Euro 6 standard to be introduced as from 1 September 2014, containing somewhat tighter curbs on nitrogen oxides (NO<sub>x</sub>) – a “fuel neutral” 70 milligrams per kilometre NO<sub>x</sub> limit for all types of passenger car. Several member states also support the move to set

Euro 6 standards now, but this was resisted by EU industry commissioner Günter Verheugen.

### Clean cars go overseas

The European Federation for Transport and Environment (T&E) expressed great disappointment with the outcome, regarding both the delayed deadlines and the low ambition level of the standards. It pointed out that new rules coming into effect in California next year will require all new cars to emit less than 40 mg NO<sub>x</sub> per kilometre. Jos Dings, director of T&E, commented: “*The environment committee has approved a regime that will mean European car makers exporting their cleanest vehicles to overseas markets. Moreover, for the next four years – until 2011 – selling diesel cars without a particle filter would still be allowed in Europe.*”

The issue will next be subject to debate and vote in a plenary session of the European Parliament in late October. Then the Council of Ministers will arrive at a so-called common position. Should all three institutions arrive at an agreement, the new directive could be adopted as early as 2007.

For more information, see the T&E website: [www.transportenvironment.org/](http://www.transportenvironment.org/)

# Approaching the point of no return

FURTHER GLOBAL WARMING of 1°C defines a critical threshold. Beyond that threshold ecosystem changes in the north will probably trigger runaway climate change. Another decade of carbon emissions at present levels will be enough to bring us over this threshold.

These findings of a study from NASA's Goddard Institute for Space Studies are reported in the 30 September issue of *New Scientist*. The writer is Fred Pearce, one of the world's most renowned science writers in the field of environmental issues. For decades Pearce's reports from the frontlines of science have brought knowledge to the readers of *New Scientist* on what is happening to our natural resources and, not least, the global climate.

In the article mentioned above Pearce quotes the head of the Goddard Institute, Jim Hansen, who states that beyond the 1°C threshold *"we will likely see changes that make Earth a different planet than the one we know"*. A quote from Hansen is also found on the front flyleaf of **"The Last Generation"**, Fred Pearce's new book on climate change: *"We are on the precipice of climate system tipping points beyond which there is no redemption."*

"The Last Generation" opens far out in the Greenland Sea, at the most northerly reach of the Gulf Stream. This is where you find "the chimney", a giant whirlpool in the ocean, constantly siphoning water from the surface to the seabed. The chimney can also be described as the turning point of the great ocean conveyor belt, a global circulation system of critical importance to the

climate. Or, as Pearce puts it: the swirling waters of the chimney may be the switch that can turn the heat engine of the world's climate system on and off. Oceanographers estimate that there may have been twelve chimneys. In 2003 only two were left, one of them apparently dying. Due to the withdrawal of the Arctic ice sheet the warm surface

water of the Gulf Stream is no longer cooled down enough to sink to the ocean floor. The system seems to be very close to a tipping point, beyond which a positive feedback loop will start running.

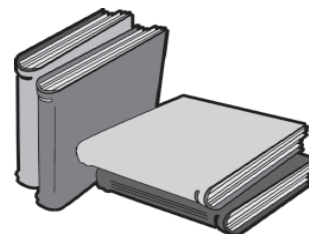
Most of the book is devoted to exploring a number of these tipping points. The burning rain forests. The ever more rapidly melting Greenland and Antarctic ice sheets.

The changing tundra landscape of Siberia and Canada, where melting permafrost will cause a massive release of the potent greenhouse gas methane into the atmosphere. These and other examples are basically telling the same story. Mankind's impact on the global climate is very close to the point of no return.

Pearce makes his points by taking his readers to the places on Earth where the changes are evident. He explains the background and looks into the consequences for the future. He sticks to the scientific facts and tells his story in a low voice. Even so, or perhaps because of this, his book makes very scary reading.

ROGER OLSSON

**Fred Pearce: The Last Generation.** How nature will take her revenge for climate change. Eden Project Books 2006.



## Recent publications

### Health risks of particulate matter from long-range transboundary air pollution (2006)

This report from the World Health Organisation Europe shows that long-range transport of particulate matter contributes significantly to exposure and to health effects, and concludes that international action must accompany local and national efforts to cut pollution emissions and reduce their effects on human health

97 pp. Can be downloaded from: [www.euro.who.int/air/activities/20050418\\_2](http://www.euro.who.int/air/activities/20050418_2)

### The Condition of Forests in Europe (2006)

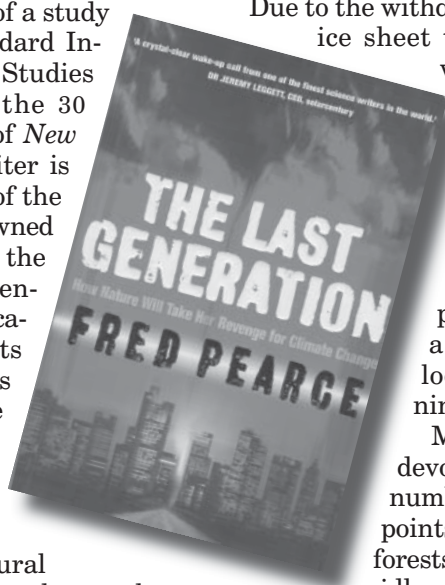
The influence of air pollution on forests in Europe has been monitored for more than 20 years by ICP Forest – an international scientific programme under the Convention on Long-range Transboundary Air Pollution. The 2006 Executive Report provides the most recent results from monitoring in some 40 European countries.

33 pp. The report was prepared by the German Federal Research Centre for Forestry and Forest Products, and published by the United Nations Economic Commission for Europe. Can be downloaded from: [www.icp-forests.org/pdf/ER2006.pdf](http://www.icp-forests.org/pdf/ER2006.pdf)

### The Use of Economic Instruments in Nordic and Baltic Environmental Policy 2001–2005 (2006)

Report commissioned by the Nordic Council of Ministers that reviews the use of economic instruments in environmental policy in the Nordic countries. The fifth in a regular series since 1994, it is the first that also covers the Nordic region's neighbouring Baltic states of Lithuania, Latvia and Estonia. The report discusses the latest developments in the application of economic instruments covering the time period 2001–2005.

295 pp. Report TemaNord 2006:525. Can be downloaded from: [www.norden.org/pub/sk/showpub.asp?pubnr=2006:525](http://www.norden.org/pub/sk/showpub.asp?pubnr=2006:525)



# Recent publications from the Secretariat

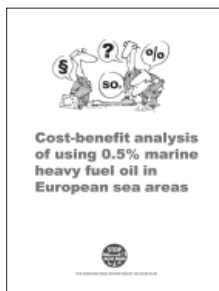
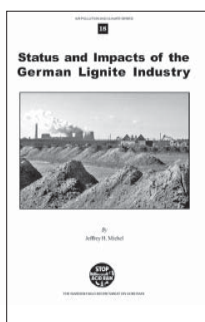


## Health Impacts of Emissions from Large Point Sources

This study combines the health impact assessment methodology used by EU's CAFE programme with an emissions database for European large point sources, to assess health damage linked to emissions of nitrogen oxides and sulphur dioxide on a plant by plant basis. It finds that the emissions from large point sources in Europe could be responsible for more than one million life years lost in Europe every year. Some of the worst polluting plants may each be responsible for the annual loss of between 10,000 and 20,000 life years. By Mike Holland, EMRC. Second Edition, March 2006.

## Status and Impacts of the German Lignite Industry

This report includes a historical treatment of German lignite use and discusses many of the hidden costs involved: excessive greenhouse gas emissions, depletion of groundwater resources, and destruction of hundreds of villages. Special consideration is paid to eastern Germany, where lignite accounts for up to 85 per cent of electrical power consumption in some regions. By Jeffrey H. Michel, April 2005.

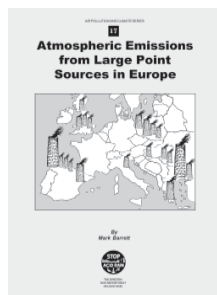


## Cost-benefit analysis of using 0.5% marine heavy fuel oil in European sea areas

A lowering of the sulphur content of marine heavy fuel oil to 0.5 per cent would reduce SO<sub>2</sub> emissions from international shipping around Europe by more than three quarters by 2010. The benefits of such a measure clearly outweigh the costs, according to this study. By Christer Ågren, January 2005.

## Atmospheric emissions from large point sources in Europe

This report identifies and lists the 200 largest emitters of sulphur dioxide and the 200 "best" fossil-fuelled power stations, in terms of SO<sub>2</sub> and NO<sub>x</sub> emissions per useful output. By Mark Barrett, SENCO. Published 2004.



**HOW TO ORDER.** Single copies of the above mentioned material can be obtained from the Secretariat (free of charge within Europe). Please call for quotation if more copies are required. Can also be downloaded in pdf format from [www.acidrain.org](http://www.acidrain.org)

## Electronic subscription?

Would you like to help us reduce expenses, and at the same time get Acid News sooner? We can offer electronic subscriptions free of charge.

Subscribers will receive an e-mail notifying them of publication and giving brief notices of the articles in the issue. At our website you can then either read

the whole issue on-line, or download it in pdf format. If you are interested, send an e-mail with your name and e-mail address to: [info@acidrain.org](mailto:info@acidrain.org). You can, if you wish, continue to receive the printed version while at the same time subscribing electronically. Just let us know if you want both.



## Coming events

For the latest news and direct links, please visit [www.acidrain.org](http://www.acidrain.org).

**Convention on Long-range Transboundary Air Pollution: Workshop on technology change, emission trends and projections.** Beijing, China, 18–20 October. Information: [www.unece.org/env/ltrap](http://www.unece.org/env/ltrap).

**EU Council of Environment Ministers.** Brussels, Belgium, 23 October.

**United Nations Climate Change Conference.** Second meeting of the Parties to the Kyoto Protocol (COP/MOP 2), and twelfth session of the Conference of the Parties to the Climate Change Convention (COP 12). Nairobi, Kenya, 6–17 November. Information: [unfccc.int/2860.php](http://unfccc.int/2860.php)

**Energy Future in an Interdependent World – 20th World Energy Congress.** Rome, Italy, 11–15 November. Organized by the World Energy Council. Information: [www.rome2007.it/](http://www.rome2007.it/)

**IMO Intersessional Meeting of the BLG Working Group on Air Pollution.** Revision of MARPOL Annex VI. Oslo, Norway, 13–17 November. Information: [www.imo.org](http://www.imo.org)

**Cost-effective control of urban air pollution.** Workshop of the Convention on Long-range Transboundary Air Pollution. Laxenburg, Austria, 16–17 November. Information: [www.iiasa.ac.at/rains/meetings/TFIAM/index.html](http://www.iiasa.ac.at/rains/meetings/TFIAM/index.html)

**Convention on Long-range Transboundary Air Pollution: Executive Body.** Geneva, Switzerland, 11–15 December. Information: [www.unece.org/env/ltrap](http://www.unece.org/env/ltrap)

**EU Council of Environment Ministers.** Luxembourg, 18 December.

**European Renewable Energy Policy Conference.** Brussels, Belgium, 29–31 January 2007. Information: [www.ere-renewables.org](http://www.ere-renewables.org)

**World Sustainable Energy Days 2007.** Wels, Austria, 28 February – 2 March, 2007. Including: European Pellets Conference; European Energy Efficiency Conference; Conference "Energy Future 2030". Information: [www.wsed.at](http://www.wsed.at)