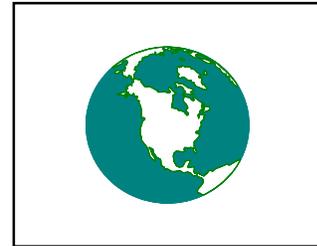


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CAR LINES

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EUROPE

1. German Agency Attacks Aviation Subsidies

Germany's environment agency has detailed subsidies enjoyed by air transport and repeated a call for higher taxes on the industry to internalize its external environmental costs. The intervention comes at a particularly difficult time for the world aviation sector, which has been hit by the war in Iraq and the flu-like Sars epidemic.

The agency's report reveals extensive, mostly indirect subsidy of aviation in case studies on three European airlines and airports in France, Germany and the Netherlands. Aircraft manufacturer Airbus is shown to have received very significant direct subsidies over three decades.

Reacting to the study, agency president Andreas Troge regretted that "the transport mode producing most pollution should be the most highly subsidized". Mr. Troge repeated the agency's call, made also last October, for aviation's tax privileges to be ended and for aircraft landing charges to be related to pollution and greenhouse gas emissions.

The study has been released shortly after EU leaders reiterated a commitment to reform subsidies with "considerable negative effects" on the environment "and that are incompatible with sustainable development".

Produced by Dutch and German consultancies, the study first proposes a model for defining aviation subsidies. It acknowledges that any such framework is going to be controversial.

Using the model, it concludes that the airlines KLM, Lufthansa and Air France

receive indirect subsidies amounting to 20% of operating revenue. The sources are VAT exemption on international tickets, fuel tax exemption and duty-free sales on board aircraft. The study notes that Air France enjoyed additional substantial direct government support until at least 1996.

Airports receive indirect support at lower levels, the study shows, through duty-free sales and a variety of other tax exemptions. For a range of German airports, overall subsidy is put at 1% of turnover or higher. Amsterdam's Schiphol airport, on the other hand, is reportedly enjoying indirect subsidies to the tune of 9% of turnover.

Focusing on Airbus, Europe's flagship aircraft maker and chief competitor of America's Boeing, the study puts accumulated direct financial support over 30 years at US\$30bn (€27.3bn), equivalent to 11-13% of turnover. Possible subsidy to the firm's 1,500 suppliers has not been taken into account, it says. Final ticket and freight prices are about 1.5% lower due to the subsidies, it concludes.

2. Ministers Push For Faster Sulphur-Free Fuel Timetable

Transport ministers from over 40 European countries have stressed the need for rapid introduction of sulphur-free road fuels at a meeting in Brussels. Europe's road transport industry association (IRU) went further, urging in addition tax cuts on the cleanest vehicles designed to run on sulphur-free diesel. A resolution on sulphur-free fuels was adopted at the latest meeting of the European conference of ministers of transport (ECMT), held on 23-24 April. Noting that the EU has already agreed a legal timetable for their introduction, ministers underlined the importance of ensuring availability across the continent

"as quickly as possible" to prevent east-west barriers to trade.

IRU focused its demands on the EU area. New emission standards for diesel-powered vehicles that will effectively demand the use of sulphur-free fuels will take effect four years before member states are bound to make the fuels universally available, it complained. The timetable for introducing sulphur-free fuels should therefore be brought forward.

Specifically, IRU called for "geographically balanced availability" of the cleaner fuels in 2004, whereas EU law requires that "limited" supplies must be on the market by 2005. It also wants the deadline for universal distribution brought forward from 2009 to 2008, when the EU's most stringent Euro 5 heavy-duty diesel vehicle emission norms will take effect.

Other environmental policy topics at the ECMT meeting included a general debate on sustainable transport policy and formulation of a policy on reforming transport taxes and charges. Ministers also adopted a resolution on assessment and decision-making for integrated transport and environment policy.

3. Danes Raise New Alarm On MTBE In Water

Over a quarter of Denmark's drinking water reserves could be contaminated by the fuel additive methyl tertiary butyl ether (MTBE) despite a voluntary phase-out of the substance in 2001, according to a report by the Danish environmental protection agency (EPA).

Most Danish drinking water is abstracted from ground waters. Of the 450m cubic meters drawn annually, up to 120m cubic meters could be

contaminated with MTBE above a limit value of 30 micrograms per liter (ug/l), according to the EPA. Its calculations were based on a survey last year of 43 polluted sites on the island of Funen where MTBE exceeding 30 ug/l had been found "either in the secondary groundwater aquifers or the primary groundwater aquifers or in nearby drinking water wells". From January this year, the limit has been reduced to five ug/l.

From May 2001, the Danish oil industry voluntarily banned the use of MTBE entirely from 92 and 95-octane petrol, and cut supplies of 98-octane - essential to some older car models - by 90%. It was also decided for the first time to focus Denmark's next annual round of clean-ups of former petrol stations on sites thought to be contaminated by MTBE.

4. UK Challenges Car Makers To Design A Green Family Car

The UK Government is asking carmakers to design and build a new affordable, ultra low carbon family car, Alistair Darling Secretary of State for Transport has announced. Although development work has started on a new generation of fuel-efficient cars - hydrogen powered for example - these are likely to be 15 to 20 years from production. As a stepping stone towards that, more urgent improvements are needed according to Darling. So, under a new project called the Ultra Low Carbon Car Challenge, the motor industry is being asked to submit proposals for a new car which is capable of traveling 1,000 miles before needing a refill and of being mass produced within 4 to 8 years.

More than one proposal may be taken forward under the Department for Transport's New Vehicle Technology

Fund which has a budget of £10 million over 3 years. The money will go towards the costs of building a demonstration vehicle.

The successful demonstration vehicles will be:

- A full size family car
- Affordable and capable of being mass produced within a near to medium term timescale
- Have tail pipe CO2 emissions of less than 90 grams per kilometer (compared with over 175g/km for a similar new petrol car today)
- Be fuel-efficient and travel around 1000 miles between refills, with today's 12 gallon tank.
- Capable of doing 80miles per gallon or more, compared to today's average of 36 miles per gallon.

The challenge comes at the same time as the Department for Transport together with DEFRA, The Treasury and the DTI, announced the launch of 'Driver Cleaner, Drive Cheaper'. The brochure is aimed at car drivers and shows how they can benefit from the low taxation on greener fuels and vehicles and Government grants.

The funding is available under the New Vehicle Technology Fund. The fund is a Department for Transport program, helping companies to design, build and road test new vehicle technologies. It links up with the DTI Foresight Vehicle program, which supports ideas through the research stages. Both programs form part of the Government's Powering Future Vehicles Strategy, published in July 2002, to promote the UK's shift to low carbon vehicles and fuels, and to ensure that the UK automotive industries secure competitive advantage in the global market place for clean vehicle technologies.

Current New Vehicle Technology Fund

projects include the 'Electricity' micro-turbine bus developed by Wrights of Northern Ireland, hybrid diesel buses and an LPG-fuelled urban delivery van.

The ultra-low carbon car competition is not technology specific - the requirements are specified in terms of the level of well to wheel CO2 emissions to be achieved, car size and motoring performance, and affordability. Ultra-low carbon cars could use a range of technological advances, including lightweight materials, advanced transmission and gear systems, and 'hybrid' engine systems which use a combination of internal combustion engines and battery power to get maximum overall engine efficiency at every level of speed, with energy used in braking captured and recycled instead of being thrown away in waste heat, and the engine switches off automatically when the vehicle is at rest.

One hybrid car is currently on sale in the UK - the Toyota Prius, which has CO2 performance of 120 grams per kilometer. A Honda Civic hybrid (115g/km) goes on sale in the UK shortly. Purchasers receive a Government grant of £1,000.

The competition is a challenge to the auto industry to move a further large step beyond today's best fuel economy and carbon performance.

5. Europeans Lagging in Greenhouse Gas Targets

A report prepared by the European Environment Agency shows that the union's greenhouse gas emissions have risen for the second year running, with Ireland, Spain and Portugal the worst offenders. The union's largest economies, Germany and Britain, have cut such emissions by more than the agreed amount, while France just

reached its goal.

But Italy, Spain, the Netherlands, Belgium, Greece, Austria, Portugal, Finland, Ireland and Denmark are all falling short of the targets.

Margot Wallstrom, the union's environment commissioner, said: "The European Union is moving further away from meeting its commitment to achieve a substantial emissions cut under the Kyoto Protocol. The progress we have made already needs to be backed up by additional measures. The member states that are not on track in reaching their targets urgently need to take additional action."

As a group, the union is supposed to reduce emissions of six gases compared with levels in 1990. Several nations — especially those with less mature economies, like Spain, Greece, Portugal and Ireland — are only supposed to hold increased emissions to a set level. But all four have exceeded targets, with annual emissions in Spain rising by 32.1 percent instead of 15 percent, and in Ireland by 31.1 percent rather than 13 percent.

The commission did note "for the first time in five years, Spain's emissions decreased by 1 percent compared with its figures for 2000. This was the result of a greater production of hydropower, which reduced the need to burn fossil fuels for power and heat."

Spain now has the fifth largest economy in Europe, and in 2001 it produced 382.8 million tons of greenhouse gases, compared with 70 million tons in Ireland, another country transformed by economic growth in the 1990's.

Germany's emissions also rose 1 percent between 2000 and 2001, but the country, the union's biggest polluter, has

cut gas emissions by 44 percent since 1990, partly through the revamping of polluting industries in the former East Germany.

Britain has also cut emissions beyond the Kyoto targets, in part because of the switching from coal-fired to gas-fired power stations.

6. Greenhouse Gases 'At Record Levels'

British scientists say greenhouse gases are at the highest background levels ever recorded in the atmosphere. They say stabilizing the amount of atmospheric carbon dioxide (CO₂) will be harder, because a warming world will trigger feedback mechanisms. Their report says the UK exceeded its international target for cutting greenhouse emissions by 2000. The UK Government says the scientists' findings show much more needs to be done to reduce emissions.

The report, the Global Atmosphere Research Program 2000-2002, is published by the Department for Environment, Food and Rural Affairs (DEFRA). It provides the results of Defra's research program on climate change and stratospheric ozone, based at the UK's Hadley Center for Climate Prediction and Research.

Launching the report the Environment Minister, Michael Meacher, said: "This report does show that the UK is making good progress to tackle its greenhouse gas emissions. "But much more needs to be done if we are to stabilize concentrations in the atmosphere at a safe level. "However, this report does also show that the UK more than met our target under the United Nations Framework Convention on Climate Change (UNFCCC) to return emissions to 1990 levels by 2000. "And we are on

track to exceed our Kyoto Protocol target of a 12.5% cut in emissions below 1990 levels by 2008-12."

The report's key findings include:

- Atmospheric concentrations of many greenhouse gases reached their highest-ever levels in 2001
- The three hottest years on record were 1998, 2001 and 2002
- Positive carbon cycle feedbacks from forests and vegetation could sharply speed up future warming. A positive feedback occurs when warming sets off a further warming trend - when thawing permafrost, for example, releases a greenhouse gas
- Action being taken in the UK could reduce its total greenhouse gas emissions to 23% below 1990 levels by 2010
- The world's protective ozone layer should recover by mid-century.

Mr. Meacher said the world faced "a serious wake-up call". A second report says DEFRA has already made adaptation to climate change a reality in some areas, but needs to include it in long-term policy development. The report, *Climate Change: The Implications for DEFRA*, is an audit carried out by a unit of the UK Department of Transport. It praises DEFRA for including climate change as a factor in flood management and water resources policies.

But it says: "Climate change will need to be factored into the long-term development of a wide range of Defra's policies, including on agriculture, biodiversity and animal health."

Mr. Meacher's acknowledgement that the UK - government, industry, and the whole of society - needs to do much more to face up to climate change will

be welcomed by scientists who argue for cuts of more than half in CO2 emissions over the next 50 years.

7. Europe's Environmental Progress At Risk

The state of the environment across Europe has improved in several respects over the past decade, but much of the progress is likely to be wiped out by economic growth because governments have yet to make significant strides towards decoupling environmental pressures from economic activity. This is one of the key messages from the European Environment Agency's latest assessment of the environment in Europe.

Europe's Environment: the third assessment has been prepared for the 'Environment for Europe' ministerial conference taking place in Kiev, Ukraine, on 21-23 May under the auspices of the United Nations Economic Commission for Europe (UNECE). The two previous assessments were published by the Agency in 1995 and 1998 for the conferences held in Sofia, Bulgaria, and in Aarhus, Denmark. The new report covers a total of 52 countries, including for the first time the whole of the Russian Federation and the 11 other Eastern European, Caucasus and Central Asian (EECCA) states.

It shows that most of the progress towards environmental improvement continues to come from 'end-of-pipe' measures to limit pollution or as a result of economic recession and restructuring in many parts of Europe.

"We know from the past that these gains will be lost again if economic growth continues to be based on traditional, environmentally damaging activities, still prevalent, rather than on more

sustainable, eco-efficient options," said Gordon McInnes, EEA Interim Executive Director. "This is a particular risk for the EU accession countries and the EECCA states, to which large amounts of manufacturing industry have been transferred from Western Europe and elsewhere," Mr. McInnes added.

While highlighting wide differences in the environmental situation between and within the different regional groupings, the report confirms that environmental policies, when properly developed and implemented, have in several fields led to significant improvements in the environment and to lower pressures on it.

For example, substantial reductions have been achieved in Europe's emissions of substances that damage the atmospheric ozone layer. Decreases in acidifying emissions to air and in emissions to water from point sources - such as factories - have generally improved the quality of both media. Protection of the habitats of biologically important plant and animal species has brought some improvement in their situation.

In contrast, environmental policies to curb waste have made no significant headway, and pressures are still increasing on some natural resources, especially fish stocks, top soil and land. Emissions to water from diffuse sources such as agriculture remain a problem. Economic and social transition since the early 1990s - with Western Europe developing into a more service-oriented society and the rest of the continent moving towards a market economy, albeit at different speeds - has resulted in environmental improvements in some fields but degradation in others.

Europe, overall, has seen reductions in its emissions of greenhouse gases. In Central and Eastern Europe and

EECCA there has been less pressure on water resources from agriculture and industry. In these countries economic restructuring has also been the major driving force behind reductions in emissions of air pollutants.

On the negative side, land abandonment due to economic restructuring in Central and Eastern Europe and EECCA is threatening biodiversity. Economic growth is making it more difficult for many western European countries to meet their national targets for limiting greenhouse gas emissions.

Urban development and transport infrastructure is covering over large areas of productive soil and fragmenting major animal and plant habitats in many places across the region. Over fishing is threatening marine natural resources.

As environmental improvements in these areas are mainly determined by the general economic situation, much of the progress seen to date is unlikely to be sustained under conditions of continuing or renewed economic growth. At the same time, many of the negative impacts are likely to be exacerbated.

This trend is already apparent in the field of transport, where a marked shift towards road and aviation in place of more environment-friendly modes is under way, increasing energy consumption and greenhouse gas emissions.

Human health continues to face a range of environment-related threats. Generation of hazardous waste is increasing across Europe. The quality of drinking water remains a concern throughout the region, **while exposure to particulate matter is now the biggest threat to human health from air pollution in western European cities.**

The report concludes that the formulation and implementation of policies that take full account of environmental concerns needs to be accelerated if Europe is to ensure proper protection of its environment and succeed in making the transition to more sustainable development.

8. EU Accuses States Of Failing to Carry Out Three Air Laws

The European Commission launched legal proceedings April 9 against several members over their alleged failure to carry out different laws addressing carbon dioxide emissions reporting, ozone layer protection, and greenhouse gas emissions reductions.

"Air pollution is a problem that has local, regional, national, and global implications," said Environment Commissioner Margot Wallström. "I urge member states to cooperate fully in meeting commitments to improve the quality of Europe's air and to address the global problems of climate change and ozone layer depletion."

The Commission accused Spain, Greece, Italy, and Portugal of failing to report carbon dioxide emission information that it said is crucial to monitoring European Union compliance with the greenhouse gas reduction requirements of the Kyoto Protocol to the United Nations Framework Convention on Climate Change.

Background

The case revolved around the alleged failure of all four member states to provide to the Commission with required data on their national carbon dioxide emissions and CO₂ removal by sinks for the year's 2001 and 2002.

"Based on this information, the Commission must then report each year on whether actual and forecasted progress made with respect to fulfilling the commitments made in the framework of the United Nations Framework Convention on Climate Change and the Kyoto Protocol is sufficient," Wallström said.

The requirement for the member states to provide the CO₂ emissions data is based on Council Decision 93/389 for a Monitoring Mechanism of Community CO₂ and Other Greenhouse Gas Emissions, which was approved by the Council of Ministers after the Earth Summit in 1992.

Council Decision 1999/296 amended decision 93/389 in 1999, in line with agreements reached at the Kyoto Protocol negotiations. The EU committed to reduce greenhouse gases by 8 percent by 2012 from 1990 levels and split the burden of achieving this reduction among its member states.

Sulfur Content of Fuels

The Commission also accused Austria, Greece, and Luxembourg of failing to properly implement Council Regulation 1999/32 amending Directive 93/12 Relating to a Reduction in the Sulfur Content of Certain Liquid Fuels. "By June of each year, member states are required to report on the sulfur content of fuels used in their territory during the previous calendar year," the Commission said. "Despite a reminder sent on Nov. 25, 2002, Austria, Greece, and Luxembourg have yet to provide the necessary information for 2001."

Ozone Layer Protection

The Commission also accused Portugal, Greece, and Spain of not "doing enough to control the use of ozone-depleting substances." The Commission said the

three countries failed to carry out requirements set under Regulation 2037/2000 on Substances that Deplete the Ozone Layer, the measure issued to implement the terms of the Montreal Protocol.

The regulation requires member states to supply information on measures taken to promote the recovery, recycling, reclamation, and destruction of controlled substances such as chlorofluorocarbons, hydrochlorofluorocarbons, halons, and methyl bromide. In addition member states must provide data on what has been done to make organizations and users responsible for carrying out these activities, the Commission said.

"An assessment of reports provided by Portugal, Greece, and Spain indicates ... they have not provided adequate information on how controlled substances are recovered, recycled, reclaimed, or destroyed," the Commission said. "They have also failed to do enough to prevent or minimize methyl bromide leakages. It also appears that Greece is not respecting the prohibition on small canisters of methyl bromide."

The legal action against all the aforementioned member states takes the form of a "letter of formal notice," which is the first of three legal steps the Commission must pursue when bringing a member state before the European Court of Justice. The second step is a "reasoned opinion." If the Commission is still not satisfied a member state is in compliance, it must file a case before the court.

9. Norway's GHG Emissions Down in 2002

Norwegian greenhouse gas emissions declined in 2002 compared with 2001,

but longer-term trends point to increasing emissions that will exceed the country's emissions limit under an international treaty, an April 1 emissions inventory reported. The inventory, produced by Statistics Norway and the Norwegian Pollution Control Authority, revealed emissions from six greenhouse gases decreased 2.5 percent between 2001 and 2002 but increased 5 percent from 1990 to 2002.

Under the United Nations Framework Convention on Climate Change's Kyoto Protocol, Norway's emissions of six greenhouse gases--carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride--cannot increase more than 1 percent by 2012, based on 1990 emissions.

Data show the 2001-2002 decrease was tied to a decrease in industrial output. Carbon dioxide emissions, for instance, decreased in 2001-2002 due to decreased production in alloy metal production, less use of diesel fuel in offshore natural gas extraction activities, and reductions in nautical traffic, the report said.

Nitrous oxide emissions from automobiles rose, meantime, because of a higher percentage of Norwegian cars equipped with catalytic converters. Catalytic converters reduce a car's carbon monoxide and other harmful emissions but increase N₂O emissions. More diesel cars on Norwegian roads increased carbon dioxide emissions as well, the report said.

Despite the increasing trends and the fact that Norway will exceed its Kyoto target, the government expects to meet its Kyoto obligations by using the "flexible mechanisms" contained in the Kyoto accord which permit countries to gain emission reduction credits through emissions trading or reducing emissions

abroad through investments.

10. Economic Interests Delaying Russia's Kyoto Protocol Ratification

The Russian Federation's plan to ratify the Kyoto Protocol to the United Nations Framework Convention on Climate Change is being held up by "economic powers" who argue that adherence to the treaty may not be in the country's interest, Russian Deputy Minister of Natural Resources Irina Osokina said April 27. Discussion of Russia's fence-sitting over the climate change treaty was one of the principal topics of conversation on the sidelines of the April 25-27 Group of Eight environment ministers summit. While the issue was not on the official agenda of the meeting--attended by environment ministers from the G-7 countries of Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States, alongside Russia--it dominated discussions in bilateral talks as well as a meeting April 25 with nongovernmental organizations.

Under the Kyoto Protocol, Russia is required to stabilize its greenhouse gas emissions at 1990 emissions during the 2008-2012 period. The country has been under tremendous political pressure to ratify from pro-Kyoto forces, particularly in the European Union, who note that Russian ratification is critical to the climate change treaty becoming international law.

For the protocol to enter into force, it must be ratified by at least 55 countries, representing 55 percent of the developed countries' greenhouse gas emissions, as calculated in 1990. With major industrialized powers like Australia and the United States refusing ratification, Russian approval is now essential, as it accounts for 17.4 percent

of the 1990 emissions.

Osokina admitted April 27 that opposition was now focused on the low prices Russian economists and others believe will dominate a proposed market for tradable emissions credits.

Russia is expected to reap a financial windfall from the treaty, as it has a huge surplus of emissions credits linked to now-closed industrial sites that it could use in the planned emissions trading system.

Osokina suggested that Putin and fellow heads of state may reach some form of agreement on the issue during the June 1-3 Group of Eight summit meeting in Evian-les-Bains, France.

In Moscow, Mukhamed Tsikanov, deputy minister of the Ministry of Economic Development and Trade, said Russia will not be able to ratify the Kyoto Protocol before December. The ministry's spokesman said that the bureaucratic process set up the Constitution and Russian laws for ratifying a document requires several months. The compilation of laws required for the protocol's ratification was sent to the government at the end of March, and the Cabinet is expected to take at least six months to review them. If the Cabinet rejects any of the documents' clauses, it will have to send them for reworking to the ministries of Natural Resources and of Economic Development and Trade. In that case, the process could take even longer than six months. Upon final approval by the government, the final documents will be sent to the two houses of the Russian parliament and then on to the president for signature.

11. U.K. Budget Freezes Environmental, Air Passenger Taxes

U.K. Chancellor of the Exchequer Gordon Brown April 9 announced a freeze in tax rates for air passengers, climate change, and fuel consumption as part of the nation's 2003-2004 budget, a document generally welcomed by business but labeled disappointing by environmentalists. Brown cited the current global economic downturn as the reason behind "some important tax freezes to help maintain business competitiveness. However, the government is committed to tackling environmental problems, by ensuring the polluter pays and introducing new incentives for more environmentally friendly behavior."

Environmentalists called this year's budget in Britain "deeply unambitious and disappointing" after Brown announced the freeze in tax rates for air passengers, climate change, and fuel consumption.

The climate change tax was introduced two years ago to help meet Britain's targets for cutting emissions of greenhouse gases. The revenue raised by the tax is recycled back to business, primarily through the 0.3 percentage point reduction--worth around £1.7 billion (\$2.66 billion) in 2003-2004--in employers' National Insurance Contributions tax. Exemption from the climate change tax for energy used in certain environmentally friendly industrial recycling processes was introduced last July.

Other measures include a new tax differential for **sulfur-free fuels** from Sept. 1, of 0.5 pence (0.78 cents) per liter relative to the rates for ultra-low sulfur fuels, to encourage the use of these fuels; an increase in the taxes for rebated gas oil and fuel oil--which have higher levels of sulfur than road fuels--by 1 pence (1.56 cents) per liter; and a new tax incentive for bioethanol used as a road fuel, set at 20 pence (31 cents)

per liter below the prevailing rate for sulfur-free fuel, from Jan. 1, 2005.

12. UK Challenges Critics Of LPG

Energy Minister Brian Wilson underlined the Governments continued commitment to Liquefied Petroleum Gas (LPG) as an alternative to petrol and outlined its environmental benefits over other fuels. LPG is half the price of petrol and reduces carbon dioxide emissions and other air pollutants. Around 25,000 new LPG vehicles or conversions are produced a year and numbers are growing all the time as more filling stations stock the fuel and grants are made available for conversions.

Speaking at the 2003 conference of the Liquefied Petroleum Gas Association (LPGA) Mr. Wilson said: "My strong support for LPG is founded on its environmental benefits, and the necessity to increase low carbon transport. "A fuel that reduces air pollution and costs half the price of petrol or diesel is something motorists can't afford to ignore. But LPG has its critics, and their arguments need to be challenged. "There is no doubt that LPG is a more environmentally friendly fuel than its competitors. The benefits of lower CO2 emissions and the reduced oxides of nitrogen and particulate matter from LPG are two of its overriding benefits above any current alternatives.

The Energy White paper clearly identifies LPG as one of the fuels to contribute to lower carbon transport and that reflects the cross-government view. The government launched the Boost LPG initiative in April to increase the availability of the fuel in rural areas like the Scottish Highlands and Islands; East Anglia and Cornwall, by giving grants to garages to help them become

accredited LPG converters.

More than 5 million drivers worldwide use LPG and in the UK numbers are increasing as more motorists learn of the benefits. In the UK, from a small start of 3,500 at the end of 1998 to nearly 100,000 vehicles today and, with the Government fiscal incentives continuing, it is forecast that numbers will increase to around 250,000 by the end of 2005.

Compared with petrol LPG typically gives up to a 12% reduction in Carbon Dioxide emissions, and compared with diesel it offers significant reductions in emissions of particulates and oxides of nitrogen - the two air pollutants of most concern in the UK. Owing to its environmental benefits, the duty on LPG was reduced by 29% in the 1999 Budget and 40% in the 2001 Budget, and the Government has pledged to freeze the

duty level in real terms until at least 2004. This has resulted in a retail price on the forecourt of around half that for petrol and diesel. LPG cars may also receive discounts under the company car tax system in which the rate of tax paid is linked to the level of CO2 emissions.

13. Denmark's Tax System For Vehicles and Fuels

A. Vehicle tax

From 1 July 1997 the yearly tax has been based on energy consumption, measured according to Directive 93/116. Before that date it was based on weight. Twenty-four classes are defined for both gasoline and diesel cars. Examples of selected classes (basis 2000) are given below (the figures will be increased with inflation plus 1.5% every year):

Examples of Danish Tax Incentive System (year 2000)

| Vehicle Class | | Fuel Consumption (km/l) | Annual Tax (DKK) |
|---------------|----|-------------------------|------------------|
| Gasoline | 1 | > 20.0 | 460 |
| | 11 | 10.0 – 10.5 | 5,040 |
| | 24 | < 4.5 | 16,920 |
| Diesel | 1 | 25 > 22.5 | 1,860 |
| | 12 | 10.2 – 11.3 | 9,000 |
| | 24 | < 5.1 | 23,340 |

From 1st January 2000 three new classes for diesel passenger cars were defined. The annual tax (DKK) is:

| | <u>2000</u> | <u>2001</u> | <u>2002</u> |
|----------------|-------------|-------------|-------------|
| > 32.1 km/l | 140 | 200 | 280 |
| 28.1-32.1 km/l | 700 | 780 | 860 |
| 25-28.1 km/l | 1280 | 1380 | 1460 |

From 1st of January 2000 a supplementary reduction in purchase tax for energy efficient passenger cars was introduced:

| <u>Diesel</u> | <u>gasoline</u> | <u>2000-2005</u> | <u>2006-2010</u> |
|---------------|-----------------|------------------|------------------|
| > 45 km/l | > 40 km/ | 4/6 | 3/5 |

| | | | |
|----------------|----------------|-----|-----|
| 37.5-45 km/l | 33.3-40 km/l | 3/6 | 2/5 |
| 32.1-37.5 km/l | 28.6-33.3 km/l | 2/6 | 1/5 |
| 28.1-32.1 km/l | 25-28.6 km/l | 1/6 | - |

This means that a diesel car running more than 45 km/l in the period 2000-2005 will have to pay a purchase tax which is 2/6 of the normal tax - and so on.

future EURO 3 (2000) or EURO 4 (2005) standards, before they became mandatory. The reference is the figures given in the Commission proposal COM (97) 61, dated 20th of February 1997 (directive 98/69).

B. Light commercial vehicles

In the new system incentives were given to light commercial vehicles for which it can be demonstrated that they meet the

The Danish system operates with 4 classes based on gross vehicle weight. Examples on the reduction in the yearly taxes for class 1 and 4 are given below:

| Class | | EURO 3 (Dkr) | EURO 4 (Dkr) |
|--------------------|-----------|--------------|--------------|
| 1 (below 1,000 kg) | 1998-2000 | 350 | 450 |
| | 2001 | 0 | 100 |
| | 2002-2005 | 0 | 100 |
| 4 (2,500-3,500 kg) | 1998-2000 | 1,150 | 1,600 |
| | 2001 | 1,150 | 1,600 |
| | 2002-2005 | 0 | 450 |

The system entered into force 1st of January 1998.

C. Fuels

i. Gasoline

Since 1995 incentives (Dkr 0.03 pr liter) have been given to gasoline delivered from stations equipped with vapor recovery systems (even if it has become mandatory for stations with a yearly capacity 500 m3 or more from 2000).

A benzene limit of 1% was introduced from 2000 (directive 98/70)

ii. Diesel fuel

From 1st of June 1999 a tax incentive was introduced in order to promote auto diesel with low sulphur content (defined as sulphur below 50 ppm). The incentive is 0.18 DKK pr liter. As a result all auto diesel sold on the Danish market from

that date has met the low sulphur spec.

D. Recent Developments

During the last year two inter governmental groups have worked with different problems.

1. Change in registration fee for passenger cars from a value-based system (app. 200%) to a system based on energy consumption (CO₂). A report was published in April 2003 following which the government decided not to make any changes to the current system. The concern was that an increase in the number of more environmental friendly cars would reduce the revenue of fuel taxes.

2. Promotion of vehicles with reduced particulate emission. A report is

expected in June 2003. The group has looked at the following options:

- a) Requirement (legal) of filters on existing trucks and busses,
- b) Subsidies to owners of trucks and busses if filters are installed,
- c) Tax incentives for Euro 4-trucks and busses,
- d) Tax incentives for sulphur free fuels,
- e) Introduction of environmental zones in the biggest cities, and
- f) Tax incentives for passenger cars with filters

The report gives an update of the health aspects in relation to emission of particles. It is estimated, that installation of filters on all heavy-duty trucks in Denmark will result in a reduction of premature death of 450 per year.

14. International Workshop Concludes More Needs To Be Done in EU

An International Workshop on the implementation of the EC Air Quality Directives within the framework of the CAFE Program was hosted by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety and the German Federal Environmental Agency in Berlin on 1 - 3 April 2003

The outcome of the workshop was summarized as follows:

Since the 1980/90's, air quality has significantly improved in the EU Member States, Accession Countries and other European countries. European air quality daughter directives, new vehicle emission standards, the improvement of fuel quality, the Directive on National Emission Ceilings (NEC), the Directive concerning Integrated Pollution Prevention and Control (IPPC) and the

Large Combustion Plants Directive (LCP) as well as the Gothenburg Protocol are major steps towards the improvement of regional air quality. However, some recently set European air quality standards are still not met.

Presently, the main problems in meeting European air quality standards concern PM10, and NO2, especially in densely populated areas and next to other specific emission sources. Relevant sources causing non-compliance have been identified:

- Road traffic, especially heavy duty vehicles (HDV):
 - Exhaust emissions, and
 - Non-exhaust emissions (i.e. secondary sources such as road dust and tire abrasion, e.g. concerning PM10);
- Off-road machinery;
- Other combustion engines (e.g. machinery on construction sites);
- Households (i.e. domestic heating, e.g. by fire wood);
- Some specific industrial plants; and
- Agriculture and stock farming (e.g. NH3 and secondary aerosols).

During the workshop, several approaches towards implementing air quality directives by establishing air pollution abatement plans and programs were presented. It was found that it is still too early to assess to what extent these upcoming plans and programs will be sufficient to reach compliance with the required air quality standards. As was noted in the presentations, most of the measures in the plans focus on traffic management, competitive advantages for environment friendly public transports, charges and financial incentives and technical measures such

as diesel exhaust filters as well as low emission vehicles. Another objective of several plans and programs is the improvement of domestic heating (i.e. fuel change or replacement).

It was noted that there is clearly a need to further take into account the cost-effectiveness of the measures and to include more new specific technical solutions into the planning process. While plans and programs on the local level can contribute to solving air quality problems, the potential measures on the local level are limited. In addition, stricter emission standards for transport and industrial plants and products have to be set on the national or European level. Future progress of common actions on the local, regional, as well as national and European levels will be important.

A main problem seems to be the inclusion of all relevant stakeholders in the co-operation process in order to implement plans and programs. Moreover, it has been demonstrated that without the necessary public and political pressure the establishment and the enforcement of ambitious and effective air pollution abatement plans and programs is extremely difficult. Public discourse on this matter is urgently needed.

Even though the establishment of plans and programs is still at an early stage of development, the workshop has shown that much progress has been made regarding the assessment of air quality. Thus, more attention should be given to the establishment of air pollution abatement plans and programs in the future.

Furthermore, on the European level several issues remain to be tackled, inter alia:

- Monitoring of progress made with the air pollution abatement planning;

- Further development and harmonization of the different tools to estimate contributions from main source categories;
- Improvement of modeling, especially with regard to particles;
- Reflection of black carbon and nanoparticles in the revision process of the first daughter directive, e.g. boosting of monitoring activities;
- Consideration of problems related to agglomerations;
- Assessment of the implementation of the ozone directive.

Last but not least, based on the experiences of the Bruges and the Berlin workshops, a follow-up workshop would be another welcomed occasion to discuss the progress in the above mentioned topics.

15. New Dutch Government to Chart Policies That Are Greener But Still Economics-Based

The new Dutch government was sworn into office May 27, and while its environmental policies remain economics-based, they are said to be a little "greener" than those of the previous Cabinet. Still, environmental groups said the environmental policy unveiled as part of a new coalition agreement May 16 is "one-sided" because economic interests seem to take precedence over environmental concerns.

On the one hand, the new government said it plans to introduce a kilometer tax for trucks in a bid to reduce vehicle-related air pollution and to halt drilling for gas in the Wadden Sea for the next 10 years, both clearly pro-environmental stances. On the other hand, the new Cabinet under command of Christian Democratic Prime Minister Jan Peter Balkende also said it plans to chart an environmental course that is "cost-effective" and preserves economic

growth.

For example, the new coalition government said that, unless a specific problem demands a specific, tougher solution for the Netherlands, the country will not introduce environmental measures or standards that are stricter than those imposed by the European Union, a bow to industry concerns that stricter Dutch rules make their products less competitive elsewhere in the EU.

The new government also said it plans to meet about 50 percent of its greenhouse gas reduction commitments under the Kyoto Protocol using the climate change treaty's so-called flexible mechanisms rather than via further emissions reductions at home.

As in the previous Cabinet, a secretary of state rather than a minister will manage the Netherlands' environmental portfolio. This means the official responsible for environmental policy is not of Cabinet rank and therefore does not attend ministers' meetings and has less influence. Thus, Secretary for Environment Pieter van Geel will work under Minister for Housing, Urban Development, and Environment Sybilla Dekker. Van Geel also held this post in the previous Cabinet.

In addition to charting environmental policies that are no stricter than those of the EU, the new government said it would allow the nation's last nuclear power plant to continue operating until the end of its technical life span rather than closing it this year, as the government originally had decided in 1994. Thus, the Borssele nuclear plant will not be closed until 2013, largely because the problem of nuclear waste storage has yet to be solved.

On the climate change front, the new Cabinet stressed that the Netherlands will meet its Kyoto Protocol obligations

in the fastest, but most cost-efficient, ways that it could. Because making environmental and greenhouse-gas reduction investments in other countries is less costly than making further emissions reductions domestically, the Netherlands plans to meet 50 percent of its Kyoto target via investments in projects overseas. Under an EU burden-sharing agreement, the Netherlands is required to reduce its greenhouse gas emissions 6 percent.

In close consultation with the transport sector, the Cabinet also hopes to introduce a "kilometer charge" for trucks. The government's aim with this variable-priced road tax is to reduce traffic, which is responsible for many of the nation's most serious environmental problems, including air pollution, acid rain, and greenhouse gas emissions. This Cabinet scrapped an earlier version of the proposed "kilometer charge" that would have applied to all vehicles.

16. EU Meps Bid To Clean Up EU Shipping Fuels

The European Parliament has voted almost unanimously for strict sulphur limits in marine fuels going far beyond proposals tabled by the European Commission. A 1.5% limit on marine fuel sulphur content should initially apply throughout the bloc, said MEPs, with an even stricter limit of 0.5% two years later. Current marine fuel sulphur content is around 2.7%.

Before the first reading vote a series of compromise amendments had been negotiated with the support of all parties. Rapporteur Alexander de Roo said the parliament's position would cut shipping sulphur emissions by 80% compared with just 10% forecast under the Commission's proposals. "The parliament has shown it is determined to tackle air pollution from boats," he said.

The Commission proposals were limited to the implementation of a "Marpol" agreement on a 1.5% sulphur cap just in three special zones: the North and Baltic seas and the English channel. The restrictions would come in twelve months after the directive enters force. But the parliament voted for a lower sulphur limit, to take effect six months earlier, and to be extended to all EU waters by 2010. Furthermore, there would be a second stage of cuts, to 0.5% sulphur, applicable from 2008 in the three pollution control zones and on ferries, and from 2012 in all EU waters. The limits would apply to shipping registered anywhere in the world and regardless of their originating port.

The parliament's position could well spark conflict with EU ministers, and if confirmed in law then with major flag states at the International maritime organization.

17. Denmark Puts Economic Instruments Center-Stage

The Danish government has signaled a major shift in environmental policy making towards greater use of market-based approaches. The move is in line with recommendations from the official Institute for environmental assessment (IMV), created by the center-right administration to look at ways to "get more environment for the money".

According to a report from the environment ministry, economic instruments provide "a more positive and efficient approach to environmental policies than traditional regulation, authority approval, supervision and control". Examples of such instruments include tax measures, tradable quotas, ecolabelling, partnerships, and technological development and innovation, the ministry added in its

latest newsletter.

The government's controversial proposal earlier this year for a new national climate strategy involving extensive use of the Kyoto protocol's flexible mechanism to buy carbon emission quotas and credits abroad was "the first concrete example of the green market economy approach", the ministry says.

It goes on to pledge greater use of economic instruments in many other policy fields, stating: "In the years to come, initiatives along these lines will be introduced in the water, waste, chemicals and nature sectors and the water and the waste sectors will be liberalized and rendered more efficient".

Producer responsibility should be extended in several fields, including chemicals, electronic equipment and cars; on conservation projects, "economic partnerships will ensure better use of resources and increased co-ownership".

Led by "skeptical environmentalist" Bjørn Lomborg, IMV has championed economic analysis of environmental policies and controversially challenged existing approaches. Denmark's environmental protection agency has also embraced economic analysis of green issues, for example the options for managing municipal biowaste.

18. First Draft of EU Constitution Blasted For Weakening Environmental Protection

Delegates to the Convention for the Future of Europe as well as a host of prominent environmental organizations have attacked the draft version of the European Union Constitution because they said it would weaken the bloc's commitment to environmental protection

and sustainable development. The most prominent issues raising concerns by the critics are nuclear power, qualified majority voting on environmental issues, and the need for greater promotion of sustainable development in the Constitution.

Following the release May 26 and 27 of the first draft of an EU Constitution, Convention President Valery Giscard d'Estaing and the inner circle of presidium members proposed that the EU's Euratom Treaty be made part of the Constitution.

In addition, the draft Constitution does not extend qualified majority voting in the Council of Ministers on issues such as environmental taxes, as well as a few other remaining issues that are not currently covered by qualified majority voting as outlined in the EU's current governing legal framework, the Nice Treaty. A qualified majority is the number of votes required in the Council for a measure to be adopted. Until Nov. 1, 2004, the threshold for a qualified majority is 62 votes out of 87 (71 percent), with member states' votes weighted on the basis of population.

Unanimous consent requires unanimous approval of a measure debated in the Council of Ministers, which represents the 15 EU member states. Draft text maintaining that EU environmental issues must be decided by unanimous consent, as currently outlined in the Nice Treaty, is extremely controversial and unacceptable for some convention delegates and for the Green 8. These issues include environmental taxes; town and country planning; quantitative management of water resources or affecting, directly or indirectly, the availability of those resources; land use, with the exception of waste management; and measures significantly affecting a member state's choice between different energy sources

and the general structure of its energy supply.

Currently, the Council of Ministers must give unanimous approval for measures in these areas to be adopted, which can drag out the legislative process for years. Legislation on energy taxes, for example, has been blocked for more than 10 years, even though a majority of current EU member states favor it.

This is likely to be an even bigger problem when 10 new nations are added to the EU's membership roster in May 2004, and qualified-majority voting could ease the process on environmental legislation, delegates and environmentalists said.

Draft text that would maintain the unanimous consent requirement for environmental taxes drew particular criticism from a number of delegates.

The Green 8 also said the draft Constitution did not put environmental protection on equal footing with the economic and social components of sustainable development. The environmental groups said this imbalance could be rectified if framers of the new Constitution were to adopt a proposal by Environment Commissioner Margot Wallström, which called for a protocol to the Constitution outlining in detail the EU's commitment to sustainable development.

The Convention for the Future of Europe must complete its work on a draft Constitution by June 20, when it will be handed over to EU heads of state and government at a summit in Greece.

In October, an Intergovernmental Conference made up of EU member states is due to be launched. At that time, text of the Constitution will be finalized. The Intergovernmental Conference is due to conclude before

May 2004, when 10 new member states join the EU.

19. **Putin Tells Government To Get Environment Act Together**

Russia must rethink its environmental policy if it is to overcome a Soviet-era legacy of heavy industrial pollution, acid rain and tons of nuclear waste, President Vladimir Putin told top officials.

Putin called for a single body to manage Russia's environmental policy - currently spread across at least five ministries and a myriad of intermediate government bodies.

During the last years of communist rule, Soviet leader Mikhail Gorbachev pledged to clean up the Soviet Union's worst ecological mistakes - ranging from a decision to drain the Central Asian Aral Sea to dumping toxic waste into Lake Baikal. But with the collapse of communism and the financial turmoil of the 1990s, few initiatives came to fruition.

"Up to 15 percent of Russia's regions are in critical or near-critical condition," Putin was quoted by Russian news agencies as saying.

Millions of Russians still live in areas where levels of air pollution exceed international health norms. Millions more live in ecological disaster zones including the industrial wastelands of the Urals and Siberia. An official report published last year found that some 300,000 Russians die annually from pollution-related diseases.

Putin said companies themselves should be held responsible for the ecological cost of their production. Russia is home to some of the world's worst polluters, including sprawling

heavy industry and mining conglomerates.

"In Russia there is effectively no legal mechanism which allows us to extract compensation from companies for ecological damage," he was quoted by Interfax as saying. "Because of this, we run into chronic lack of funds for ecological programs"

In its report to Putin, the advisory council on which sit the governors of the country's 89 regions called for Russia to ratify the U.N. Kyoto protocol on carbon dioxide emissions before a Moscow climate conference set for September.

20. **Report Sees Possibility for 50 Percent Cut In European Power Plant Emissions by 2020**

European Union power producers can achieve a 50-percent cut in their emissions of carbon dioxide by 2020 through a policy promoting effective programs for reducing energy demand and increased reliance on renewable energies, according to a "blueprint" report issued May 6 by the environmental group WWF International. Noting that the power sector accounts for 37 percent of Europe's carbon dioxide emissions, the biggest single source of greenhouse gas emissions, the report said reform in the sector "is crucial in making deep CO₂ cuts over the next two decades" and reversing the EU's contribution to global warming.

Large power companies "are in a prime place to move the world along that track," WWF argued. "In Germany, for example, where 50 percent of old power stations are due to be replaced in the near future, the question is whether the new stations will use dirty coal or clean and efficient renewable energy."

The report was commissioned by WWF

from the Dutch-based consultancy firm Ecofys. WWF said the estimated potential for renewable electricity production in the EU is 587 terawatt-hours (TWh) in 2010 to 1158 TWh in 2020. This translates to an overall share of 25 percent for renewables by 2010 and approximately 60 percent renewables by 2020. A terawatt-hour is equal to a trillion watt-hours.

The environmental group said the challenge for policymakers will be to design and stimulate an effective market and implement programs for energy efficiency and renewable energy technologies such as wind, sustainable biomass, and solar energy power.

Although switching to renewables is expected to lead to higher energy production costs, the end cost to consumers can be offset through strong efforts by governments to improve energy efficiency, the report said.

21. Swedish Environment Budget to Increase; Green Taxes to Rise

The Swedish Environment Ministry's 2004 budget is expected to increase 18.5 percent, with a focus on increasing environmental and environment-related consumer taxes and on enhancing sustainable development programs. According to Sweden's spring budget plan released April 15, the ministry's 2004 budget will be 3.8 billion Swedish kronor (about \$460 million), up from the 3.2 billion Swedish kronor (about \$400.8 million) appropriated to the ministry in 2003.

A chief environmental budgetary issue is the "green tax shift" introduced in 2000, which aims to collect \$3.7 billion in taxes from a variety of new and existing environmental taxes instead of capturing that amount from income taxes. The

concept aims at influencing consumption patterns to be less damaging to the environment. About \$1 billion was shifted to environmental taxes 2000-2002, an April 15 Finance Ministry report stated. In 2002, for instance, the personal tax deduction was raised by \$114 to \$1,400, while taxes on electricity, energy, and waste management increased. Carbon dioxide emission taxes increased about \$0.10 per ton in 2003.

Two other budget highlights are sustainable development promotion and biodiversity protection, including forestland enhancement. About \$63 million is allocated to promote various sustainable development projects; biodiversity projects receive additional funding as well.

The budget for the national climate investment program will increase 13 percent, to about \$42 million. The investment program provides federal money to municipalities, which then fund programs to mitigate climate change effects, such as programs to cut greenhouse gas emissions.

22. European Parliament Approves Air, Noise Limits for Pleasure Boats

The European Parliament May 14 approved by a show of hands legislation that for the first time sets exhaust and noise pollution standards for pleasure craft sold in the European Union. As of Jan. 1, 2005, new boats ranging from jet skis to cruisers up to 24 meters in hull length, must comply with EU-wide emission standards for carbon monoxide (CO), hydrocarbons, nitrogen oxides (NOx), and particulates. The limits vary widely, depending on engine type (two-stroke, four-stroke, and compression ignition) and their rated engine power. For NOx, the limits range

from 9.8 grams to 15 grams per kilowatt hour (kWh); for hydrocarbons, from 0.5 g/kWh for compression engines to 100 g/kWh for the most polluting two-strokes; for CO, zero for compression ignition engines to 600 g/kWh for two-strokes.

Noise emission limits also will be introduced, ranging from 67 decibels to 75 dB depending on engine type. Boats with twin or multiple engines will be permitted to exceed those limits by 3 dB.

The final version of the legislation was agreed March 12 in negotiations between the Parliament and the EU Council of Ministers, representing the 15 national governments. The two sides settled their differences over amendments introduced by the Parliament at earlier stages of the legislative process

Overall, the legislation will affect around 4 million craft sold in the EU each year.

There are currently no restrictions in EU law on emissions from recreational craft, although Austria and Germany have introduced local regulations in collaboration with Switzerland--which is not a member of the EU--in order to control pollution on lakes and rivers at their frontiers.

The new directive must be transposed into national law by the 15 EU member states by June 30, 2004, to come into force beginning Jan. 1, 2005.

The EU legislation has been developed in consultation with the U.S. Environmental Protection Agency. Craft built to standards laid down in the new measure will benefit from easier access to U.S. markets, under the terms of a transatlantic Mutual Recognition Agreement (MRA) on product standards concluded in June 1997.

In the final round of negotiations, parliamentarians secured further amendments, including the 3-dB noise limit allowance for multi-engine boats and a nonbinding provision requesting states to encourage use of synthetic biodegradable lubricating oil, to reduce water pollution.

23. EU Biofuels Directive Enters Into Force

A new EU directive aimed at promoting the use of biofuels and other renewable fuels in transport took effect on 17 May, when it was published in the EU's official journal. The text sets indicative targets for increasing the use of biofuels with the aim of reducing transport greenhouse gas emissions.

Member states must transpose the directive into national law by 17 December 2004. It asks each country to achieve 2% biofuels penetration in petrol and diesel by December 2005, rising to 5.75% by December 2010. Governments will have to report annually on their progress.

National targets for 2005 will be indicated in the first report, those for 2010 in the 2006 report. Derogations to these targets are allowed on the grounds of "limited national potential" for biofuels production, use of biomass for other energy uses, or production of transport fuels from other renewable sources.

Starting in 2006, the Commission will issue a biannual report evaluating implementation of the directive. Having addressed specific issues such as cost-effectiveness of measures taken, economic and environmental impacts of further increasing biofuels penetration, sustainability of crops used to produce biofuels and their impact on climate

change, the report may eventually form the basis for new Commission proposals on targets.

24. EU Public Concern For The Environment Increasing

THE COMMISSION'S environment directorate has canvassed some 16,000 inhabitants of the EU on their attitude to various matters concerning the environment according to *Acid News*. The last time such a survey had been made was in 1999.

A new trend this year was that southern Europeans were worrying more than their counterparts in the north, with Greece topping the poll in this case, followed by Italy (also Luxembourg). Least concerned were people in the Netherlands, and then in Finland and Sweden – although people in these northern countries did feel that they were on the whole well informed on environmental matters.

As then, public confidence turned out to be the greatest for environmentalist organizations, this time with a show of 48 per cent. Next came scientists and consumer associations. Trust in the EU itself was much lower, only 13 per cent noting it, as against 12 per cent for national governments and 10 per cent for political parties in general. Only 1 per cent was shown to have any trust in business corporations.

Public concern over environmental issues has grown since 1999, 44 per cent of respondents being “very worried” about air pollution, as against 35 per cent in the previous survey. Climate change was now worrying 39 per cent.

NORTH AMERICA

25. ARB Modifies Zero Emission Vehicle Regulation

The California Air Resources Board (ARB) has voted to make significant modifications and upgrades to the state's zero emission vehicles (ZEV) regulations. The most important modification creates a new ZEV pathway, giving manufacturers a choice of two options for meeting their ZEV requirements.

1. Auto manufacturers can meet their ZEV obligations by meeting standards that are similar to the ZEV rule as it existed in 2001. This means using a formula allowing a vehicle mix of 2 percent pure ZEVs, 2 percent AT-PZEVs (vehicles earning advanced technology partial ZEV credits) and 6 percent PZEVs (extremely clean conventional vehicles). The ZEV obligation is based on the number of passenger cars and small trucks a manufacturer sells in California.
2. Or, manufacturers may chose a new alternative ZEV compliance strategy, meeting part of their ZEV requirement by producing their sales-weighted market share of approximately 250 fuel cell vehicles by 2008. The remainder of their ZEV requirements could be achieved by producing 4 percent AT-PZEVs and 6 percent PZEVs. The required number of fuel cell vehicles will increase to 2,500 from 2009-11, 25,000 from 2012-14 and 50,000 from 2015 through 2017. Automakers can substitute battery electric vehicles for up to 50 percent of their fuel cell vehicle requirements.

With the ZEV regulations on hold for 2003-04 because of automaker lawsuits, the above requirements will not fully go into effect until 2005. However, automakers can receive credit for any ZEV, PZEV or AT-PZEV vehicles they choose to sell or lease in 2003-04.

ARB will appoint an independent review panel of technology/industry experts with no financial ties to motor vehicle manufacturers to report on ZEV technology progress, costs and consumer acceptance. In addition, ARB staff will report annually on the progress of the ZEV program.

Chairman Lloyd continued, "Over the last 13 years since the ZEV mandate was first adopted, we've seen the near impossible accomplished with gasoline vehicles: zero evaporative emissions, exceedingly clean exhaust – cleaner, in some cases, than the outside air entering the cabin for ventilation purposes, and emission control systems that are twice as durable than their conventional fore bearers, forecasted to last an astonishing 150,000 miles."

ZEV Rule Vehicle Types

Zero Emission Vehicle (ZEV): A vehicle that essentially produces no emissions as it operates. Currently, this would mean a pure battery electric (not a hybrid) or a hydrogen fuel cell vehicle.

Advanced Technology Partial Zero Emission Vehicle (AT-PZEV): An AT-PZEV is a vehicle that uses some ZEV technology. Currently, there are no AT-PZEVs available to consumers. Staff expects that certain gasoline/electric hybrid vehicles and natural gas vehicles will be certified in the AT-PZEV class. A plug-in hybrid could also qualify as an AT-PZEV.

Partial Zero Emission Vehicle (PZEV): These are vehicles that have achieved

the ARB's cleanest tailpipe emission standard -- the Super Ultra Low Emission Vehicle (SULEV) standard. In addition, they have nearly zero evaporative emissions and their emission control equipment is warranted for 15 years/150,000 miles. There are at least 10 vehicles currently eligible to earn a partial ZEV credit.

26. NHTSA Studies CAFE Overhaul for Trucks, Cars

The Bush Administration is preparing proposals to revise federal fuel economy standards and how they're applied to light trucks, sport utility vehicles and passenger cars beginning in 2008, according to reports. The changes may include reclassifying vehicles according to weight or design characteristics, in order to close the so-called sport utility vehicle (SUV) loophole. They may also include increasing the authority of the National Highway Traffic Safety Administration (NHTSA), allowing it to reclassify vehicles, which it cannot do currently. This poses a mixed blessing to environmentalists, for while it encourages the manufacture of more efficient mid-size vehicles rather than large trucks and SUVs, it could also discourage very fuel-efficient small cars. Both very large and very small vehicles are regarded as less safe than mid-sized cars.

27. Appeals Court Affirms EPA Mobile Source Toxics Rule

United States Court of Appeals for the District of Columbia Circuit rejected challenges from environmentalists and a trucking lobby to an EPA rule on controlling hazardous air pollutants from mobile sources. The court, however, did remand the issue of whether on-board diagnostics should be in place on very heavy, heavy-duty vehicles -- a proposal

that EPA had rejected.

The April 25 court decision is based on the EPA rule, *Control of Emissions of Hazardous Air Pollutants from Mobile Sources*. After EPA issued the March 2001 rule, Sierra Club and other environmental groups along with the states of New York and Connecticut challenged it by seeking greater stringency. Meanwhile, the International Truck Corporation launched an opposing campaign to remove the language “diesel particulate matter and diesel exhaust organic gases” from EPA’s list of toxics.

Calling the first set of petitioners’ challenges to be “ill founded,” and ITC’s argument “unripe,” the court upheld all aspects of the rule except one. The court remanded EPA’s decision not to require new heavy-duty vehicles over 14,000 pounds to have on-board diagnostic equipment. In fact, EPA had established the requirement for vehicles under 14,000 pounds and had said it “expected to propose similar requirements for all other heavy-duty vehicles in the near future.” The agency had previously disclosed existing technical barriers to the implementation of OBD requirements for large vehicles. EPA had explained that in 1999 a relatively high proportion of large heavy-duty vehicles such as cement mixers and refrigerator trucks have “power take-off units” which use engine energy to operate ancillary equipment that users keep running much of the time. Because EPA’s OBD rules for covered vehicles (i.e. ones under 14,000 pounds) allow diagnostics to be disabled during such power take-off operations, EPA argued that imposing the same regulation on the larger vehicles would be “ineffective.” In addition, EPA had said the lack of vertical integration in the field made it hard to coordinate the engine, transmission, chassis and safety-related diagnostics.

But the court asserts EPA failed to provide these arguments in the rulemaking, depriving petitioners the opportunity to offer rebuttal or show that some sort of requirement makes sense. The court notes the EPA implicitly conceded to the OBD when it referenced likely future proposals. The court remanded EPA’s decision for further explanation, though not necessarily further notice-and-comment rulemaking.

28. ARB Holds Technical Workshop on California SIP

On April 22, 2003, ARB staff held a technical workshop in Sacramento, CA to discuss proposed State and federal control measures for inclusion in regional State Implementation Plans (SIPs). Measures under consideration include:

Light- and medium-duty vehicles.

Two emission reduction measures are proposed: 1) replace or upgrade emission control systems on existing passenger vehicles (pilot program) (adopt 2005; implement 2007-2008) and 2) improve Smog Check (action 2003-2009; implement 2003-2010).

On-road heavy-duty vehicles. ARB’s main focus is on pursuing approaches to clean up the existing and new truck and bus fleet through 1) PM in-use emission control, 2) engine and software upgrades, 3) on-board diagnostics, 4) manufacturers’ in-use compliance, and 5) reduced idling. These measures would be adopted in 2003-2005 and implemented in 2004-2010.

Off-road CI engines. ARB proposes to 1) set lower emission standards for new off-road CI engines (adopt 2004; implement 2007-2015), 2) to clean up the existing heavy-duty off-road equipment fleet through retrofit controls (adopt 2004-2008; implement 2006-

2010), and 3) implement registration and inspection program for existing heavy-duty off-road equipment (action 2006-2009; implement 2010).

Off-road large SI engines (25 hp and greater). ARB has identified three strategies: 1) set lower emission standards for new off-road gas engines (adopt 2004-2005; implement 2007), 2) clean up existing off-road gas equipment through retrofit controls (adopt 2004; implement 2006-2012), and 3) for forklifts with lift capacity <8,000 lbs, require new purchases and rentals to be electric (adopt 2003; implement 2005-2010).

Small off-road engines (under 25 hp). Two proposed measures are on the table: 1) set lower emission standards for new handheld lawn and garden equipment (adopt 2003; implement 2005) and 2) set lower emission standards for new non-handheld lawn and garden equipment (adopt 2003; implement 2006).

Other proposed strategies include:

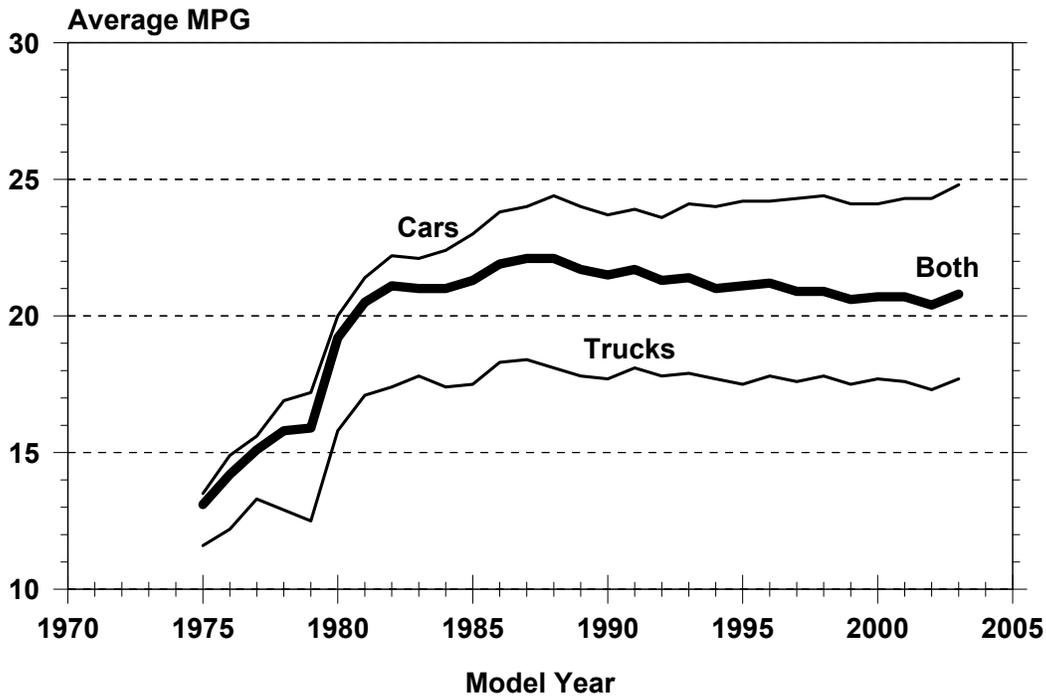
lower U.S. EPA national emission standards for new and remanufactured locomotive engines, additional marine reductions (including alternatives to dockside power and propulsion in/out of port and operational controls), and reduced emissions from vehicles traveling to and from airports.

Post-2010 measures already planned include low-emission vehicle (LEV III) standards for light-duty vehicles, exhaust and evaporative standards for off-road motorcycles, and more stringent standards for personal watercraft and outboard engines.

29. US Fuel Economy Hit 22-Year Low

The average fuel economy of the nation's cars and trucks fell to its lowest level in 22 years in the 2002 model year, the Environmental Protection Agency has reported.

Fuel Economy by Model Year



The technological and engineering leaps of the last two decades have been poured into everything but fuel economy, according to the agency's statistics. Since 1981, the average vehicle has 93 percent more horsepower and is 29 percent faster in going from 0 to 60 miles an hour. It is also 24 percent heavier, reflecting surging sales of sport utility vehicles.

But over the same period, fuel economy has stagnated, contributing heavily to the nation's rising oil consumption. Cars and light trucks — S.U.V.'s, pickups and minivans — account for about 40 percent of the nation's oil consumption and a fifth of its carbon dioxide emissions, which many scientists see as the leading contributor to global warming.

The report also said that fuel economy could have improved 33 percent since 1981 if performance and weight of

vehicles had been held constant.

Further worsening fuel economy statistics are the aggressive moves by Asian automakers into S.U.V.'s of all sizes, with the next battleground being drawn over the last stronghold of Detroit, the pickup truck.

In the 2002 model year, fuel economy averaged 20.4 miles a gallon, the lowest since the fleet averaged 19.2 miles a gallon in 1980. Fuel economy peaked at 22.1 miles a gallon in 1988 but has mostly fallen since.

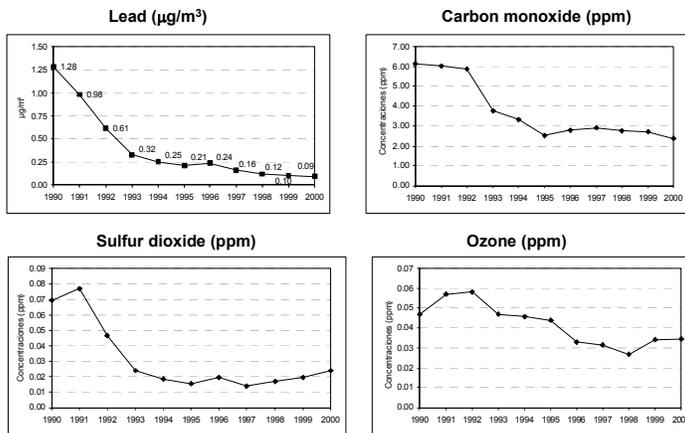
The agency predicts fuel economy will rise to 20.8 miles a gallon in the 2003 model year, with a 0.5 mile a gallon margin for error. Cars are expected to average 24.8 miles a gallon, compared with 19.6 for minivans, 17.8 for S.U.V.'s and 16.8 for pickups.

30. Motor Vehicle Pollution

Control in Mexico City.

At the beginning of the 1990's the

natural gas in power plants and in the majority of the large industrial facilities within the valley.



Trends of annual concentrations of pollutants at a downtown station (Merced)

Despite these efforts, ozone still exceeds the standard on at least 85% of the days and both the daily and annual standards for PM10 are still violated. Although no PM2.5 routine measurements exist in Mexico, it is estimated that the proposed 24 h standard (65 µg/m³) will be exceeded in about one fifth of the days of the year and the annual mean of fine particles will be at least 30 µg/m³ (twice the proposed annual standard).

ambient concentrations of lead, carbon monoxide, sulfur dioxide and nitrogen dioxide were very frequently above the standards. These four pollutants are now under control and very rarely violate the norms. However the annual concentrations of sulfur dioxide have been increasing again over the last three years.

Ozone peaks have also experienced a substantial reduction over time. Ten years ago ozone levels used to exceed the standard by three fold on more than 50 days per year while today, on less than 30 days a year the ozone concentrations are double the standard.

These substantial improvements in air quality are the result of four major decisions regarding the introduction of cleaner fuels and vehicles:

- Introduction of unleaded gasoline in 1991, reaching a complete phase out of leaded gasoline in 1997;
- Introduction of 3-way catalyst in new vehicles from the 1993 model year;
- Ban of the use of fuel oil in the city (any fuel with more than 1% sulfur);

- Liquid fuels substitution for

In 1999 Mexican authorities finally persuaded car manufacturers to meet emission limits similar to those adopted by the USA in 1994 (EPA 94 or Tier 1). However, full compliance with a US durability standard or extended warranty is still pending. The auto manufacturers recently agreed in principle to a gradual phase in of a durability standard at 80,000 km, from 2001 to 2005. In the US, where the average sulfur content of gasoline is around 300 ppm (about half of the average content of sulfur in Mexican gasoline), a durability standard of 160,000 km is mandatory since 1996. A similar commitment will be requested in Mexico when the sulfur content in gasoline is comparable to that of the US.

Some car manufacturers that dominated the compact size, family van and delivery van niches of the auto market for years strongly opposed the introduction of the new emission limits. Their lower manufacturing cost and subsequent commercial success was partially due to perpetuating obsolete engine technologies and using pollution control devices that barely met the

outdated environmental standards.

Since environmental authorities can not introduce obligatory standards without the consent of the trade and commerce authorities (who were supportive of the auto manufacturers position), an innovative scheme was developed to push compliance with Tier 1 emission limits without the need of a mandatory standard. This consisted in granting a 2-year waiver of the semiannual emission test to 1999 model year vehicles that meet Tier 1 standards.

This scheme gave a competitive advantage to cleaner vehicles over dirtier vehicles. Consumers would be given the choice between buying a car that did not have to be inspected in two years versus a car that had to be inspected twice a year. The anticipated damage to the image of companies lagging behind in environmental

performance as well as the potential market share losses were estimated to be so large that all automobile companies decided to make the necessary investments to move swiftly to comply with the new standards in their 1999 model year vehicles.

In most cases, incremental costs for car manufacturers were marginal while environmental benefits were substantial. For some of the most popular vehicles the 1999 model year were at least 50% cleaner than vehicles of the previous model year. Additionally, it should be noted that 1999 and 2000 were the years with the highest sale numbers in the decade. Conservative estimates suggest that emission savings from Tier 1 vehicles sold in 1999 and 2000 will be of at least 500 tons of hydrocarbons and 1,000 tons of nitrogen oxides per year thanks to the upgrading of their pollution control technology.

| Tailpipe emission limits for light-duty vehicles (g/km) | | | |
|----------------------------------------------------------------|--------------|-----------------|-----------------|
| | Hydrocarbons | Carbon monoxide | Nitrogen oxides |
| USA federal emission limits | | | |
| 1972 | 2.2 | 24.2 | Not required |
| 1975 | 0.9 | 15.0 | 1.94 |
| 1981 | 0.25 | 2.13 | 0.62 |
| 1994 (TIER 1) | 0.16 | 2.13 | 0.25 |
| 2004-2007 (TIER 2) | 0.08 | 1.07 | 0.13 |
| Mexican federal emission limits | | | |
| 1976 | 2.1 | 24.2 | Not requested |
| 1991 | 0.7 | 7.0 | 1.4 |
| 1994 | 0.25 | 2.13 | 0.62 |
| 1999 (TIER 1) | 0.16 | 2.13 | 0.25 |
| 2006-2009 (TIER 2) | 0.08 | 1.07 | 0.13 |

In 2000, the auto manufacturers in Mexico agreed to introduce Tier 2 compliant light duty gasoline vehicles with a two-year lag, starting in 2006 to reach 100% compliance by 2009. Although this agreement was reached without considering a particular timing for introduction of low sulfur gasoline, the Energy Ministry has recently stated that Pemex is intending to introduce two

new types of gasoline in the year 2006: a 50 ppm sulfur content gasoline for the Tier 2 vehicles and a 300 ppm sulfur gasoline for all other vehicles. Discussions concerning future standards for sulfur content of diesel and diesel engine emissions are pending.

31. EPA Proposes Guidelines

For Ground-Level Ozone Plans

EPA has proposed a rule that outlines steps that polluted areas will have to take to clean up their ground-level ozone air pollution. The proposed rule would establish guidelines for state and tribal authorities to implement the 8-hour national air quality standard for ozone, first enacted by EPA in 1997 and upheld by the U.S. Supreme Court in 2001. The proposal seeks public comment on options for planning and control requirements for states and tribes, as well as on options for making the transition from the 1-hour ozone standard to the 8-hour standard. The new 8-hour standard is more protective of public health than the current 1-hour standard, because it more accurately reflects people's exposure to ground-level ozone. The proposed rule describes options for classifying nonattainment areas; however the proposal does not make any attainment designations.

A nonattainment area violates the ozone standard or contributes to violations of the standard in a nearby area. Designations for nonattainment areas will occur by April 15, 2004 under a separate process. EPA will take comments on this proposed rule for 60 days following publication in the Federal Register. The Agency will also hold three public hearings across the country on the proposed rule (Dallas, Texas on June 17; San Francisco, Calif. on June 19; and Alexandria, Va. on June 27).

Litigation delayed implementation of this important standard for several years. This proposed rule marks the last action the courts required EPA to take before implementing the standard.

This rule proposes a roadmap for what areas need to do to meet the new standard. This rule also proposes

options for how areas would transition from attaining and maintaining the 1-hour standard to implementing the 8-hour standard. EPA is seeking comment on options for how states should apply ozone control requirements when developing plans known as state implementation plans, or SIPs.

The Clean Air Act contains different sets of control requirements that areas should include in their SIPs. One set contains general requirements that can be applied in a flexible manner. The second set contains specific requirements that must be applied according to the seriousness of the ozone problem in an area. While EPA has proposed a number of options for implementing the new ozone standard, the Agency prefers the option that provides the most flexibility to state, local and tribal air agencies.

Background

Ground level ozone pollution (commonly referred to as smog) is formed when volatile organic compounds (VOC) react with nitrogen oxides (NOx) in the presence of sunlight. In 1997 EPA revised the national ambient air quality standards for ground-level ozone, setting it at 0.08 parts per million averaged over an 8-hour time frame.

A number of events delayed the implementation of the new 8-hour ozone standard.

- EPA's new standards were challenged by the American Trucking Association, the U.S. Chamber of Commerce and other state and business groups.
- The Transportation Equity Act for the Twenty-first Century (TEA-21) revised the deadline to publish nonattainment designations to provide an additional year (to July 2000).
- EPA's appropriation bill in 2000 restricted the Agency's authority to

spend money to designate areas until June 2001 or the date of the Supreme Court ruling on the standard, whichever came first.

There is no legally mandated deadline for EPA to issue a strategy to implement the national 8-hour ozone air quality standard. However, after EPA issues a new or revised standard, the Clean Air Act allows the Agency two years to designate areas that do not meet the clean air standards.

In February 2001 the Supreme Court upheld EPA's authority under the Clean Air Act to set national air quality standards that protect the American public from harmful effects of air pollution. However, the Supreme Court also determined that EPA's original strategy for implementing the 8-hour standard was unreasonable and left it to EPA to develop a more appropriate strategy. The Supreme Court also sent the case back to the D.C. Circuit Court of Appeals on several issues.

In March 2002, the DC Circuit Court rejected all remaining challenges to the 8-hour ozone standard, paving the way to begin implementation of the requirements.

In setting the revised 8-hour ozone standard, EPA considered information about ozone's chronic adverse health effects. Breathing elevated levels of ozone causes a wide range of health problems, including:

- Decreased lung function (primarily in children active outdoors);
- Increased respiratory symptoms (particularly in highly sensitive individuals);
- Increased hospital admissions and emergency room visits for respiratory causes (among children and adults with pre-existing respiratory disease such as asthma);

- Inflammation of the lungs; and
- Possible long-term damage to the lungs.

The state and local air agencies are working on recommendations for areas not meeting the national air quality standard for 8-hour ozone. Their recommendations are due to EPA by July 2003. States and local air agencies also will use this proposal as they develop those recommendations. EPA is required by consent decree to designate areas by April 15, 2004.

32. Ontario Proposes to Toughen Diesel Smoke Standards

The Ontario government April 25 proposed to toughen opacity standards for heavy-duty trucks and buses powered by diesel fuel. Once implemented in 2004, the proposed new standards for exhaust emissions from heavy-duty diesel trucks and buses operating in Ontario would be the most stringent in North America, provincial Environment Minister Chris Stockwell said in announcing the proposal. The new standards for heavy-duty diesel vehicles, which follow on a review of the province's "Drive Clean" vehicle emissions testing program and evaluation by the Drive Clean Multi-Stakeholder Advisory Council, would be implemented in stages in April 2004 and April 2005, Stockwell said in a statement.

The provincial government will also encourage owners of heavy-duty vehicles to achieve emissions lower than those in the new standards by requiring such vehicles to only be tested every two years, rather than annually, he said.

The proposed amendments to Ontario Regulation 361/98 under the Environmental Protection Act and to

Regulation 628 under the Highway Traffic Act would put in place new standards for the province's Drive Clean Heavy-Duty Vehicle Program, said a Ministry of Environment background document. Vehicles covered by the Drive Clean program must be tested to ensure that they meet required emissions standards before they are licensed or transferred from one owner to another. Testing of heavy-duty vehicles is based on their opacity--the amount of light blocked by exhaust emissions during a snap-acceleration test.

Current standards permit 55 percent opacity for exhaust emissions of vehicles from 1990 or older model years and 40 percent for those of model year 1991 and newer, a formula that is accepted across North America as the test standard for diesel vehicles, the background document said. The amendments would reduce, as of April 1, 2004, the permitted opacity level for emissions from diesel-powered heavy duty vehicles to 35 percent for 1991 and newer vehicles and to 45 percent for 1990 and older vehicles. Effective April 1, 2005, the permitted opacity levels would decrease to 30 percent and 40 percent, respectively, it said. School buses would be required to meet the lower of the annual standards by April 1, 2004.

The new standards would be roughly equivalent to current standards for light-duty vehicles, which were tightened by 11.5 percent in 2003 and are scheduled to be tightened by a further 11.5 percent in 2005, it said.

A recent independent analysis of the heavy-duty vehicle component of the Drive Clean program showed that it has already reduced particulate matter emissions in diesel exhaust by 898 metric tons in 2000 and 2001 from 1999 levels, more than double the original

reduction target of 220 tons per year, the background document said.

33. U.S. EPA Rule on Ocean-Going Vessels Challenged

An environmental conservation group filed a lawsuit April 28 in federal court challenging a U.S. Environmental Protection Agency final rule establishing standards for emissions of nitrogen oxides from the largest category of ocean-going ships. The San Francisco-based Bluewater Network, represented by Earthjustice, said the EPA regulation is "essentially meaningless" because the standards are already met by most ships and, "by EPA's own admission, do not satisfy the Clean Air Act's requirement to 'achieve the greatest reduction in emissions achievable' with available control technology." Earthjustice also said the rule ignores foreign ships, which make up the bulk of large ships plying U.S. waters.

The petition for review was filed in the U.S. Court of Appeals for the District of Columbia Circuit.

At issue is a final rule promulgated Feb. 28 setting emission standards for certain marine engines built after Jan. 1, 2004. The standards are identical to those adopted by the International Maritime Organization under Annex VI to the International Convention on the Prevention of Pollution from Ships, also known as MARPOL Annex VI of 1997.

In the final rule, EPA said the standards would apply until the agency adopts a second tier of standards in a future rulemaking. EPA said it expects to complete that rulemaking no later than April 27, 2007, and will consider the state of technology, which may permit deeper emission reductions, and the status of international action for more stringent standards.

EPA intends to argue for more stringent standards as the administration prepares for the next round of negotiations on a treaty regulating emissions from this category of marine engines. However, EPA is only one agency that would have to clear such a position. Other departments and agencies would have to be on board.

Affected by the rule are companies and persons that manufacture, sell, or import into the United States new marine compression-ignition engines for use on vessels flagged or registered in the United States; manufacturers of U.S.-flagged or registered vessels that use such engines; and the owners or operators of such U.S. vessels. These specific engines have a displacement of weight or volume at or above 30 liters per cylinder, or those known as Category 3 marine diesel engines. These large marine engines are used primarily for propulsion on ocean-going vessels such as container ships, tankers, bulk carriers, and cruise ships.

According to EPA annual estimates in the United States, the engines subject to the new standards emit about 28,000 tons of nitrogen oxides, 1,000 tons of hydrocarbons, 2,000 tons of carbon monoxide, and 2,500 tons of particulate matter.

However, Earthjustice claims in its brief that EPA ignored all foreign ships, which make up 95 percent of large-vessel traffic in U.S. ports and thus contribute significantly to U.S. air pollution. EPA said in the final rule that it would consider requiring the second tier standards to apply to foreign vessels entering U.S. ports and may include fuel requirements.

The regulation itself resulted from a settlement reached in 2001 with Bluewater, formerly known as Earth

Island Institute, that challenged EPA for its failure to set any standard for ozone-forming emissions under the Clean Air Act from this category.

34. Canadian Greenhouse Gases Lower During 2001

Canada's total emissions of greenhouse gases decreased 1.3 percent in 2001 to 720 megatons of carbon dioxide equivalent, the first decline since 1991-1992 and the first time since 1990 that the nation's emissions have fallen during a period of economic expansion, Environment Canada said April 22. The 2001 emissions of greenhouse gases represented an 18.5 percent increase from 1990, the base year for Kyoto Protocol reduction commitments. However, Canada's economy grew by more than 33 percent over that period, the department said in a background document on its latest report to the U.N. Framework Convention on Climate Change, officially delivered April 15.

"In other words, we are seeing the bending of the curve as Canada prepares to meet its 'demonstrable progress' requirement at the COP-11 (11th Conference of the Parties to the UNFCCC) in 2005," it said. Canada is committed under the Kyoto Protocol to a 6-percent reduction in greenhouse gas emissions from 1990 levels by 2008-2012.

While a milder-than-usual winter and fewer temperature extremes during the summer contributed to the 2001 reduction in the emissions, there are also concrete examples of how emissions can be reduced through innovative industrial strategies, the government said in an April 22 statement accompanying release of the background document.

Canada's pulp and paper sector has

reduced its greenhouse gas emissions 26 percent since 1990 while increasing production 21 percent; Daimler-Chrysler Canada Ltd. has reduced the greenhouse gases emitted for each vehicle produced by 42 percent; and U.S.-based United Technologies Corp. has reduced its greenhouse gas emissions by 13 percent over the past three years while boosting its earnings per share by nearly 60 percent, the statement said.

The 1.3-percent reduction in Canadian greenhouse gas emissions in 2001 accompanied a 1.4 percent increase in Canada's gross domestic product, and it followed an emissions increases of 3.4 percent in 2000, 2.4 percent in 1999, 1.1 percent in 1998, and 1.4 percent in 1997, which had accompanied GDP increases of 4.7 percent, 5.3 percent, 3.9 percent, and 4.2 percent, respectively, the background document said.

The overall intensity of emissions by the Canadian economy, based on the amount of greenhouse gases emitted per unit of economic activity, dropped 2.6 percent in 2001 from 2000, and greenhouse gas intensity has now declined the annualized equivalent of 1 percent per year since 1990, it said.

Emissions from industrial processes, agriculture, and construction fell 3.7 percent, 1.4 percent, and 6.6 percent, respectively, offsetting increases in some other sectors due to increased electricity usage, oil and natural gas exports, and personal transportation, it said.

"Significant growth in exports of natural gas to the United States resulted in a dramatic increase in the emissions associated with the production and transportation of natural gas. In 2001, these emissions were 31.7 megatons, a 150-percent increase from the 1990

level of 12.7 megatons," it said. "It is important to note that Canada's natural gas exports work to offset the use of more emissions-intensive fuels in the United States, like coal and oil, thereby helping to lower overall U.S. and world emissions."

By comparison, greenhouse gas emissions in the United States totaled 6,904 megatons of carbon dioxide equivalent, a 1.2 percent decrease from 2000 and the largest percentage annual decline in U.S. emissions since 1990, putting U.S. emissions at 11.9 percent above 1990 levels, the background document said.

35. Canada Unveils Program To Commercialize Fuel Cell Technology

The release of a Canadian plan for the commercialization of fuel cell technology is a key step in the movement toward the development of a hydrogen economy that holds significant potential for environmental benefits, Industry Minister Allan Rock said April 15. The Canadian Fuel Cell Commercialization Roadmap outlines how Canadian governments, companies, and institutions can plan investment decisions, industrial development activities, and research and educational programs to accelerate the commercialization of the fuel cell and hydrogen technologies, Rock said in a statement.

The fuel cell technology plan, developed through the collaboration of 45 organizations led by Industry Canada and Fuel Cells Canada, cites stimulating market demand, improving product quality while lowering costs, gaining increased access to capital, and creating a support infrastructure as the key elements in improving Canada's leadership position on fuel cell

development, Fuel Cells Canada President Ron Britton said April 15 in a statement.

Fuel cell technology is widely seen as a viable clean air alternative to the internal combustion engine and other conventional power supply technologies, particularly as fuel cells running on hydrogen produce no emissions of greenhouse gases, the roadmap document said. Depending on the source of fuel for hydrogen production, fuel cells are expected to produce up to 50 percent less GHG emissions "from well-to-wheels," or cradle-to-grave, than internal combustion engines, it said.

Government and industry must act now to promote the development of fuel cell technology, as Canada's current position at the forefront of the new industry is not guaranteed now that the superior efficiency of fuel cell technology, and its environmental and social benefits, have attracted the attention and investment of governments and industry in most industrialized countries, the document said.

The U.S. government, for instance, has proposed spending \$1.8 billion over the next five years on hydrogen and fuel cell research, while European countries plan to spend \$2.2 billion between 2003 and 2006 on renewable energy, mostly on hydrogen and fuel cells.

Japan plans to spend more than \$258 million per year on fuel cell research, development, and commercialization, it said.

Actions proposed in the Canadian Fuel Cell Commercialization Roadmap include:

- Creation of financial incentives for fuel cell products and services;
- Development of a strategy to

ensure sufficient supply of skilled resources;

- Incorporation of training components in demonstration projects;
- Development of demonstration projects to showcase fuel cell technologies and validate product reliability and output;
- Development of early purchase programs to encourage product procurement and benchmarking;
- Identification of product performance and cost barriers; and
- Promotion of collaborative research and development of materials and components.

36. ALA Reports That California Improves But Still Smoggiest State

Nearly half of California's counties flunked federal ozone standards in 2002, making the Golden State the nation's smog capital, according to a report by the American Lung Association. The report, "State of the Air: 2003," measured ground-level ozone and the number of high-ozone days in each area to come up with a letter grade.

Twenty-eight of California's 56 counties earned a failing grade of "F," and the state was home to 14 of the nation's 20 smoggiest U.S. counties, the report said. But the state made some progress since last year's report, with nine counties raising their grades. One of them, San Luis Obispo, went to the head of the class by raising its failing grade from 2001 to an "A" this year, partly because smog from the neighboring San Francisco Bay area, which drifted south, was also lighter.

The Los Angeles metropolitan area placed seventh on the smog production

scale, compared to New York City's 14th place finish, the study showed. The study said that the health of 33 million Californians is threatened by ground-level air pollution - up more than 10 percent since last year.

The study also showed that 70 percent of Americans with lung ailments live in the smoggiest areas.

American Lung Association officials hope the study results will convince Americans to invest in alternative fuel vehicles and clean energy technology - something that local governments are beginning to adopt. The association also hopes to stave off proposed federal challenges to California's sweeping auto emissions legislation.

37. Canada Extends Exemption For Use of Leaded Gasoline in Racing Cars

Finalized amendments to the Gasoline Regulations under the Canadian Environmental Protection Act extend to Jan. 1, 2008, an exemption for gasoline used in racing vehicles from the lead content standards that would otherwise apply, Environment Canada said April 9. Leaded gasoline has been prohibited since Dec. 1, 1990, but an exemption has been maintained for gasoline imported and used for racing purposes, the department said in a regulatory impact analysis statement published with the final amendments in the April 9 issue of the *Canada Gazette*, Part II. The most recent extension expired Dec. 31, 2002.

Based on extrapolation of worst-case data in the most recent air sampling data available, exposure to lead for toddlers, adolescents, and pregnant women caused by maintaining the exemption would be below the levels recommended by the World Health

Organization, Environment Canada said.

Environment Canada will continue, however, to monitor the racing sector through reporting of quantities of leaded racing gasoline produced, imported, and sold in Canada and the development of environmental fuel requirements in the United States, and it will take additional control actions if necessary, the department said.

About 1 million liters of leaded racing fuel were imported into Canada in 2001, representing less than 0.01 percent of the 36 billion liters of gasoline--mostly unleaded--consumed annually in Canada.

38. Whitman Resigns As The Administrator Of The U.S. EPA

EPA Administrator Christie Whitman has resigned as Administrator of the U.S. Environmental Protection Agency, effective June 27, 2003. In a letter to President Bush, Mrs. Whitman said the reason for leaving was her desire to return to her home life in New Jersey.

Some of the steps taken by Whitman that were most cheered by environmentalists included upholding the 2007-2010 emissions standards for diesel trucks and buses, which were originally adopted by the Clinton administration. During Whitman's tenure, the EPA also developed a proposal for Tier 4 emissions standards for mobile nonroad diesel engines, which is now in the comment period. Both diesel rules--the 2007-2010 regulation for highway vehicles and the Tier 4 proposal for nonroad engines--bring the most stringent emissions standards worldwide for the respective engine categories and have been designed to force the use of advanced emission controls, such as diesel

particulate filters and NOx control catalysts, on new heavy-duty diesel engines.

Perhaps the biggest setback for Whitman was the rejection of the Kyoto Protocol on greenhouse gas emission control by the USA. She had assured the European allies that the U.S. administration was committed to reduce greenhouse gas emissions, only to have President Bush renounce the Protocol.

39. Health & Environmental Groups Compel EPA to Schedule Air Quality Standards Update

A court settlement has been announced between the US Environmental Protection Agency and a coalition of environmental and public health groups that offers the prospect of improved air quality standards across the country. In the settlement, EPA agreed to a schedule for reviewing national standards for soot (particles) and smog (ozone) and strengthening them if appropriate in light of recent scientific evidence.

The air quality standards to be reviewed were set in 1997, in response to data showing that the previous standards were inadequate to protect public health and welfare. The Clean Air Act requires that these health-based standards be reviewed and as appropriate, revised every five years to ensure that they reflect the latest scientific research.

Soot and smog cause the most widespread public health damage of any air pollutants, for example by aggravating respiratory ailments such as asthma and chronic bronchitis. Of particular concern is the standard for short-term exposure to soot or particulate matter. Soot pollution is currently held to both an annual average as well as a daily average. Public health

advocates point to scientific evidence showing that the daily average is too lenient and still allows for short-term spikes drastic enough to cause premature death.

Particulate matter has been linked to a variety of heart and lung ailments, leading to premature deaths, hospitalizations, emergency room visits, respiratory symptoms, and missed work and school days. The elderly and the young are especially vulnerable to these profound health effects. Ozone (smog) has been associated with asthma attacks, reductions in lung function, coughing, shortness of breath, increased susceptibility to respiratory infection, and pulmonary inflammation. Those with preexisting respiratory conditions such as asthma or chronic bronchitis, the young, and the elderly are particularly vulnerable to the effects of ozone pollution.

The proposed settlement was filed in United States District Court for the District of Columbia (Docket No. 03-778 ESH). The agreement lays out the following schedule for the completion of the review; EPA obligations are shown in italics.

Particulate Matter

By June 30, 2003 -- 4th draft Criteria Document issued

By August 31, 2003 -- 1st Draft Staff Paper and Risk Assessment issued

By August 31, 2003 -- CASAC meeting to review 4th draft Criteria Document

By November 30, 2003 -- CASAC meeting to review 1st draft Staff Paper and Risk Assessment

December 19, 2003 -- Final Criteria Document issued

By April 30, 2004 -- 2nd draft Staff Paper and Risk Assessment issued

By July 31, 2004 -- CASAC meeting to review 2nd draft Staff Paper and Risk Assessment

By September 30, 2004 -- Final Staff Paper and Risk Assessment issued
March 31, 2005 -- Proposed rule (including review of PM standards, any revisions, and new standards) signed for Federal Register
December 20, 2005 -- Final Rule signed for Federal Register

Ozone

By September 30, 2003 -- 1st draft Criteria Document
 By June 30, 2004 -- 2nd draft Criteria Document and 1st draft Staff Paper and Risk Assessment
 By October 31, 2004 -- CASAC meeting to review 2nd draft Criteria Document and 1st draft Staff Paper and Risk Assessment
December 20, 2004 -- Final Criteria Document issued
 By March 31, 2005 -- 2nd draft Staff Paper and Risk Assessment
 By June 30, 2005 -- CASAC meeting to review send draft Staff Paper and Risk Assessment
 By September 30, 2005 -- Final Staff Paper and Risk Assessment issued
March 31, 2006 -- Proposed rule signed for Federal Register
December 20, 2006 -- Final rule signed for Federal Register

Proposed and Final rules must be published in Federal Register 10 days after the rules are signed.

40. EPA, EMA Agree On In Use Truck Test Program

The U.S. Environmental Protection Agency (EPA) and the Engine Manufacturers Association (EMA) have reached a settlement agreement that will result in a manufacturer-run, in-use emissions testing program for heavy-duty diesel trucks. The in-use testing program will measure exhaust emissions from diesel engines using

portable onboard emission measurement systems. EPA will propose the detailed regulatory provisions for this program within approximately one year. As part of the agreement EPA will issue guidance documents that will provide engine manufacturers additional certainties and details of the requirements they must meet in testing and certifying their engines.

EPA has issued four rules regarding diesel engines since 1999. These include the 2004 and 2007 Heavy-Duty Diesel Motor Vehicle Engines Rules, Recreational Marine Diesel Engines Rule and the Commercial Marine Diesel Engines Rule. EMA and some manufacturers challenged parts of the rules regarding legal authority and technical feasibility of certain emission standards called the Not-To-Exceed Standards (NTE). EPA, the California Air Resources Board (ARB), and EMA, along with its member companies, have worked cooperatively to reach an agreement.

The new testing program will assess in-use exhaust emissions from heavy-duty diesel trucks using portable emission measurement systems for the first time. Previously, engine emissions testing involved removing the engine from the truck and testing the engine in a laboratory on an engine dynamometer. Starting in the mid-1990s EPA facilitated research into portable systems by developing and using prototype systems in its compliance programs. Portable systems were placed inside vehicles to measure emissions performance during real-world operating conditions. It became clear that these systems offered advantages over conventional approaches to assess in-use exhaust emissions from engines for design improvement, research, modeling, and compliance purposes.

In a largely unprecedented example of proactive government and industry

cooperation, prior to any formal rulemaking initiative, manufacturers have agreed to implement this new type of in-use emission testing program. The resulting collaborative program is a significant step forward for both parties in helping ensure that heavy-duty diesel engines comply with applicable emission standards throughout their useful lives while reducing overall compliance burdens.

Key Elements of the Manufacturer-Run, In-Use Emissions Testing Program

- **Applicable to 2007 and later model-year engines**
- **Proposed rulemaking in approximately one year**
- **Monitors in-use emissions of diesel vehicles with portable emission measurement systems**
- **Testing will be conducted on in-use vehicles, under real-world driving conditions, within the engine's useful life to monitor for NTE compliance and to help ensure overall compliance with the emission standards.**
- **Emissions to be measured: Hydrocarbons (HC), Carbon Monoxide (CO), Nitrogen Oxides (NOx) and Particulate Matter (PM)**
- **Testing conducted and paid for by manufacturers with EPA and ARB oversight**
- **Pilot program for 2005 and 2006 model years will allow EPA, ARB and the manufacturers to gain the necessary experience with in-use testing protocols and generation of in-use test data using portable emission measurement systems.**
- **Fully enforceable program beginning in the 2007 model year**
- **A nonroad diesel engine in-use testing program is**

- **expected to be patterned after the heavy-duty truck program ARB will adopt a parallel in-use testing program for California.**

Under the program, manufacturers will test fleet or customer-owned, in-use trucks. Manufacturers will tap into existing customer relationships and create new lines of communication with customers, all of which is expected to fortify the engine development process. This will enhance the manufacturer's ability to catch any problem engines early on, and encourage future engine designs that are cleaner and more durable.

Manufacturers will monitor compliance by testing in-use diesel engines during normal vehicle operation. If noncomplying engines are identified, the manufacturer will test more engines for the purpose of determining if any further action is necessary. EPA will likewise use the in-use data to make independent evaluations about the possible need to pursue further actions. The in-use test data, which have never been collected on this large of a scale, will be used by EPA and ARB to assure that emission standards are being met, and by manufacturers to improve their engine designs. The data will also be available to the public.

Representatives of EPA, ARB, and EMA have also agreed to begin a collaborative effort aimed at developing an outline for a manufacturer-run, in-use emission-testing program applicable for diesel nonroad engines. The program will have features similar to the heavy-duty diesel truck-testing program. The implementation date for the nonroad equipment-testing program may be as early as 2011.

Finally, EPA will provide a set of guidance documents to engine manufacturers with important details for certifying their diesel engines to the NTE emission standards. These documents

will clarify a number of issues relating to how manufacturers certify heavy-duty diesel truck engines and diesel marine engines, and will address manufacturers' concerns regarding technical issues of complying with the NTE requirements.

41. **Research Group Says US Must Cut Auto Greenhouse Gases**

U.S. automakers could nearly halve output of heat-trapping greenhouse gases by 2030 with new technology and more fuel-efficient models, a needed step to reverse growing emissions from the world's No. 1 transportation sector, an environmental think tank said.

The U.S. transportation sector - comprising all cars, trucks, airplanes and ships - generates more greenhouse gases than any other nation's total economy except for that of China, according to the Pew Center on Global Climate Change.

Transportation vehicles produce a third of all U.S. greenhouse gases, the Pew Center said in a report.

The report called on the United States to impose limits to rein in emissions of carbon dioxide, which scientists have linked to global warming. The White House previously rejected a cap on carbon dioxide in favor of voluntary industry efforts.

New technology for cleaner diesel engines and hybrid vehicles could cut gasoline use by 50 to 100 percent by 2030 without reducing vehicle weight or performance, the report said. In the short term, fuel economy for new cars and light trucks could be boosted by 25 to 33 percent over the next 10 to 15 years with existing technology, the report said.

Booming popularity of sport utility vehicles has dropped the average fuel economy of new U.S. vehicles from 25.9 miles per gallon in 1988 to 24 mpg in 2002, the center said. U.S. automakers have resisted stricter fuel standards, saying that would mean using lighter, flimsier materials that make vehicles less safe.

The Bush administration's initiative to build a hydrogen-powered car could bear fruit in the long term, but immediate action is needed, the Arlington, Virginia-based group said.

42. **Activists Criticize California Interest In Advanced Diesel Technology**

Environmentalists are concerned that two key California agencies are recommending Fischer-Tropsch diesel as an answer to reducing the state's petroleum dependence in a new recently released report, arguing that the diesel option actually increases greenhouse gas (GHG) emissions and flies in the face of a new state law to reduce GHGs. In the report, *Reducing California's Petroleum Dependence*, the California Air Resources Board and California Energy Commission recommended Fischer Tropsch -- a process that converts natural gas to diesel -- as a key near-term option.

In three separate tables in the report, Fischer Tropsch pales in comparison to other fuel alternatives in terms of GHG reduction, said the environmental group Bluewater Network of San Francisco. One table outlines estimated emissions reductions for various pollutants from 2002-2030. Fischer Tropsch actually increases GHG emissions by 23 million tons, while a 20 percent blend of biodiesel (B-20) reduces GHGs by 127 million tons. A second chart recommends fuel-efficient options --

fuel-efficient tires, government fleets and vehicle maintenance -- to reduce various emission during the same time frame. While environmentalists agree with the options, they contend all of them combined do not equal the amount of emissions reductions accomplished by biodiesel. The third chart showed Fischer Tropsch creates the highest number of grams per unit of GHGs among fuel alternatives. Fischer Tropsch produces 12,900 grams per unit compared to 6,300 for E-85 (85 percent ethanol, 15 percent gasoline), 10,800 for E-10 and 11,000 for B-20.

The major barrier for Fischer Tropsch is cost -- about 10 cents more per gallon to produce, the report said. Retail prices are expected to be 15 to 25 cents per gallon higher than conventional diesel. But state officials see this changing due to new air quality goals and state and federal fuel specifications that will likely increase the cost of conventional diesel. Under the new scenario, the incremental cost increase is shaved by 5 to 10 cents per gallon. When blended at 33 percent by volume into diesel fuel, Fischer Tropsch can be less expensive than conventional California diesel, and can be used directly in the existing retail fueling infrastructure. The diesel is imported into California today and used in small quantities as a blending agent. Further, the lower aromatic content and higher cetane level of Fischer Tropsch makes it attractive in California due to the state's more restrictive fuel quality specifications.

The recommendations are based on Assembly bill 2076 that the California legislature passed in 2000. The bill directed CEC and CARB to make recommendations to the legislature and governor on how to reduce the state's petroleum dependence.

ASIA-PACIFIC

43. Toyota: Hybrid Battery Life, Technology Improves Rapidly

According to a Toyota expert, improvements in hybrid-electric drivetrain technology indicate battery pack life should match projected vehicle life, up to 15 years. Katsuhiko Hirose, project manager of Toyota's Power Train Development Center in Japan said hybrid technology had advanced more quickly than he anticipated over the last five years. Current flow management has been improved, ensuring proper charging and discharging and maximizing battery life. Increasing the power output of the Prius - nearly a third without an increase in displacement or size - would have taken at least a decade in conventional engines. Toyota's new Hybrid Synergy Drive powertrain used in the new "Prius" could be used with a lighter and more efficient gearbox, and with reduced current flow; the required inverter is both cheaper and smaller. As a result, the new, larger Prius boasts not only more power but also greater fuel economy. On fuel cell vehicles, Hirose echoed a common complaint, that acceptance would depend largely on fuel supplies, specifically a cost-effective method for producing hydrogen without producing excess CO₂.

44. Japan Tightens Fuel Specifications Again

On 24th April, Japanese METI held a sub-committee on Quality of fuel products. At that time, the representative of the Petroleum Association of Japan made a presentation about their sulfur free fuel plan. Sulfur free fuel means gasoline and diesel oil that contains sulfur less than 10ppm. From 2005 some oil companies (like Nippon Oil Corporation, Showa-Shell, Idemitsu, Cosmo, Japan Energy, maybe Exxon-Mobile Japan)

will begin to supply sulfur free fuels. And all products will be replaced before 2008.

The Petroleum Association of Japan indicated that they have no technical problem to make sulfur free diesel oil. All diesel oil will change to sulfur free by 2007. They also indicated that have some technical difficulty to reform heavy oil to sulfur free gasoline.

In the Japanese market, some premium gasolines (like "Vigo" of Nippon Oil Company, "Pura" of Showa-Shell) are already sulfur free. But regular gasoline has 50 - 70 ppm sulfur. All gasoline will change to sulfur free gasoline before 2008.

If there are some subsidies, the sulfur free schedule will get faster.

45. Australia MVEC Issues Vehicle Emissions And Fuel Standards Review

The Australian Motor Vehicle Environment Committee (MVEC) is undertaking a review of vehicle emissions and fuel standards for Australia in the post 2006 period. The Commonwealth Department of Transport and Regional Services (DOTARS) and Environment Australia (EA) on behalf of the MVEC are jointly managing the review.

A Working Group has been established by the MVEC to oversee the review. The Working Group has representatives from DOTARS, EA, the Australian Greenhouse Office, the Commonwealth Department of Industry, Tourism and Resources, the National Road Transport Commission, the National Environment Protection Council Service Corporation, the NSW Environment Protection Authority, the NSW Roads and Traffic

Authority, and the Victorian Environment Protection Authority.

The review is comprised of the following main elements:

- Consideration of the vehicle emissions standards post 2006;
- Consideration of the fuel standards required to support any new emissions standards; and
- Examination of complementary measures, including non-regulatory policy options.

Following consultation with relevant Government and key industry stakeholders, a discussion paper has been developed. The release of this discussion paper signals the commencement of the public consultation process of the review. The paper provides a stimulus for public comment, which will assist the setting of appropriate fuel quality and emissions standards for Australia. These standards will also provide the legal framework for initiatives to support cleaner vehicles and fuels, including the Commonwealth Government's Budget announcement on incentives to promote cleaner fuels.

46. South Korean Parliament Urging New Air Quality Legislation This Year

In an unprecedented show of nonpartisan support for the nation's top environmental cause, South Korea's National Assembly has adopted a resolution calling for government action to reduce air pollution in Seoul and areas surrounding the capital city. Citing "serious" pollution levels in the region, lawmakers urged the government to act on its proposed legislation to introduce special measures aimed at increasing central-government control over air

quality in the region. The resolution was issued April 29.

The proposed Special Act on the Improvement of Air Quality in the Capital Region drafted by the Ministry of Environment and announced last October has not yet reached Parliament because of opposition from industry and the pro-business Ministry of Commerce, Industry, and Energy.

"Ministerial differences must be resolved to clear the way for the air quality improvement program this year," lawmakers said in the resolution adopted across party lines.

The level of atmospheric particulate matter in Seoul is 3.5 times and 1.7 times as high as in London and Tokyo, respectively, contributing to serious health problems, they said.

The capital region--which is the size of a single province--is home to much of the country's population and commerce. Nonetheless, the existing Air Quality Preservation Act is increasingly inadequate to address the worsening air pollution problem in the region because it applies the same level of regulation nationwide at the discretion of local governments.

The proposed special law calls for increased involvement by the central government in setting emissions limits specific to a province, a city, a county, a factory, and even an automobile. As a market-oriented enforcement mechanism, businesses in the affected region would be allowed to buy and sell emissions rights.

The environment ministry is pushing hard for its passage into law this year for implementation in 2004. Industry groups and the commerce ministry, however, are favoring a "go-easy" approach, saying that full compliance with the law

would be prohibitively expensive for businesses. The Federation of Korean Industries, the country's most powerful economic organization, insists that the economic cost of compliance will exceed the expected benefit.

Public opinion is overwhelmingly in favor of the special law, according to a survey released by the environment ministry April 18. About 80.5 percent of 1,000 residents in the capital region surveyed said they support the legislation. In addition, 60.1 percent rated air pollution in their region as "serious" or "very serious."

47. Japanese Proposal Would Cut Emissions From Motorcycles by 2007

The Ministry of the Environment April 22 released for public comment a proposal for what it expects to be the world's toughest motorcycle emissions regulations, part of the ministry's drive to reduce emissions causing respiratory ailments and photochemical smog. The proposed regulations call for reducing:

- Nitrogen oxide emissions from motorcycles (with four-stroke, reciprocal engines) of all engine sizes to 0.15 grams per kilometer by 2007, compared with 0.51 grams under a 1999 regulation;
- Hydrocarbons to 0.3-0.5 grams from the present regulation of 2.93 grams by 2007; and
- Carbon monoxide from 20 grams to 2.0 grams by 2007, according to the ministry's announcement.

The proposed regulations did not cover particulate matter.

Hydrocarbons released from motorcycles driven in Japan account for up to 20 percent of total hydrocarbon emissions from all motor vehicles,

according to an official of the ministry's Environmental Administration Bureau.

Motorcycles used on Japanese roads must be able to meet the new targets after 24,000 kilometers (15,000 miles) of use, instead of the present requirement of 12,000 kilometers (7,500 miles), the statement said. Motorcycles must be able to meet the targets under Japan's 15-mode test procedure, which includes idling, acceleration, and deceleration modes.

There is no single motorcycle model today that can meet the new emission regulations, a ministry official said. Importers of foreign-made motorcycles expressed concern that they may not be able to develop emission technologies to clear the targets by the implementation date. Based on past practice, the ministry is likely to offer a grace period--perhaps up to two years--for foreign-made motorcycles

48. Australian Industry Advances GHG Plans; Cabinet to Draft Parameters for New Policy

Australia needs a nationally consistent approach to reining in greenhouse gas emissions rather than the emerging patchwork of state government initiatives, according to a suite of reports prepared by more than 40 industry associations. The set of five reports are now being considered by the national government as it develops a revamped set of greenhouse gas policy measures, due for release in a few months time.

Made available by the Australian Greenhouse Office on April 14, the reports conclude a process established seven months ago by the government to garner business views on appropriate policy measures. The reports call for financial incentives to be provided to business to abate emissions, with

industry in return offering to establish negotiated abatement agreements with government, and to report actual and projected emissions regularly to a national emissions inventory.

The reports were prepared by associations representing the energy and resources sector, energy-intensive manufacturing, the agriculture and land management sector, and transport and transport infrastructure. The suite of reports comprises four sectoral reports augmented by a report prepared by a cross-sectoral group.

Cabinet to Huddle on Issue

The documents represent "a high water mark" in consultations with business on the planned overhaul of the nation's greenhouse gas policy, Brett Janissen of the Australian Greenhouse Office told a greenhouse policy conference in Sydney on April 29. Janissen said the two ministers involved in the dialogue process, Environment Minister David Kemp and Industry Minister Ian Macfarlane, would brief senior government ministers on the outcomes at an upcoming Cabinet meeting. The Cabinet is expected to formulate a new set of greenhouse gas policy measures over the next few months.

Key issues to be taken into account during the Cabinet's deliberations include the number of disparate state-based initiatives either in place or proposed, he said.

Frustration at the rise of disparate state government initiatives is a common theme in the reports, which all stress the need for a nationally consistent approach.

The reports of the working groups also urge the government to use incentive measures to achieve further greenhouse gas abatement. By providing a price

incentive rather than a cost penalty, fiscal incentives "would not be expected to damage the international competitiveness of Australia's trade-exposed industry," says the report of the cross-sectoral group. Recommended incentive measures include a proposal that the government seek bids for the task of greenhouse gas abatement, with companies submitting abatement projects for possible funding to the government. The government could then provide funding to the projects that deliver abatement at the lowest cost, the cross-sectoral report says.

This "greenhouse gas abatement acquisition scheme" would operate in a manner similar to the existing greenhouse gas abatement program, an initiative through which the government has funded a number of major abatement projects.

Other Recommendations

The cross-sectoral group says tax breaks should be provided for greenhouse gas related research and development and calls for the introduction of an R&D grants scheme.

The group also calls for the development of a national energy efficiency framework "underpinned by a mix of voluntary programs, appropriate regulatory intervention, and financial incentives."

It also recommends the development of a national greenhouse gas inventory, with all enterprises above a specified emissions threshold reporting annually on actual and forecast emissions.

In comments on the international context, the cross-sectoral group calls for the development of more bilateral agreements, similar to the "climate action partnership" between the United States and Australia. It urges the

Australian government to adopt a policy that any verified international emissions credits be able to be used in Australia to meet domestic requirements. The government should also "seek to establish an agreed set of transaction rules that allow trading between parties and non-parties to the Kyoto Protocol," it says.

Industry Agreements, Emissions Trading

The cross-sectoral group says "negotiated agreements" between government and industry sectors could also be a useful policy measure. Any such agreements should include offset clauses allowing firms to purchase or exchange abatement with other participants, it says.

The cross-sectoral group says it supports "in principle" an international emissions trading scheme, although it is "not satisfied the necessary conditions exist to propose the adoption of a national emissions trading scheme at this time." However, if an international trading scheme emerges, then consideration could be given to a national trading scheme that covers all sectors and all greenhouse gases, it says.

The proposal that any national trading scheme cover all sectors is somewhat at odds with the recommendation of the report of the energy-intensive manufacturing working group. The report of this group says that if companies enter into negotiated agreements, they should then be exempt from any other broad-based schemes that impose a cost on industry—a description that would encompass emissions trading.

The government has been careful not to rule out emissions trading as one of the policy measures that could emerge in

the forthcoming package. However, it also has not expressed open enthusiasm for the option. Janissen described the Australian Greenhouse Office as being "agnostic" on the issue.

Alternative Views

Environment Business Australia, the industry association representing the environment sector, was a member of the cross-sectoral group, but it submitted a dissenting report favoring ratification of the Kyoto Protocol and the introduction of emissions trading.

49. Thai Environment Ministry To Revamp Impact Assessment Process

A radical overhaul of Thailand's environmental impact assessment (EIA) process could result as early as next year from Minister of Natural Resources and Environment Praphat Panyachartrak's establishment of a special panel in early April tasked with improving the rules governing the conducting and approval of EIAs. The panel would "review the entire EIA process," introducing measures to boost public participation in large-scale environment-related projects and to limit the time frame for the approval of EIAs, said Wanee Samphantharak, panel chair and director general of the Ministry of Natural Resources and Environment (MONRE) Office of Natural Resources and Environment Policy Planning (ONREPP). The ONREPP is the government agency responsible for approving EIAs.

Though the review would "not be short term," Samphantharak said it would take "no longer than one year."

Panyachartrak ordered the panel to concentrate on five key problem areas:

- The lack of public participation in EIAs;
- Lack of accountability among the consultants and academics hired to conduct the assessments;
- Inadequate legal stipulations that subject only the EIAs for state, not private, projects to the scrutiny of the Senate's National Environment Board (NEB);
- Time and budgetary constraints on expert committees evaluating and approving the studies; and
- Insufficient long-term monitoring of the mitigation plans proposed in EIAs to deal with the environmental effects of projects.

50. Thai Agencies to Step Up Action Against Diesel Vehicles

The Ministry of Natural Resources and Environment's Pollution Control Department (PCD) is mulling tough new measures to remove polluting buses and trucks from Bangkok's streets but is likely to stop short of declaring a total ban on the offending vehicles. Speaking after an April 26 meeting with Bangkok police and Land Transport Department (LTD) officials, PCD Deputy Director General Supat Wangwongwatana said the three agencies would propose new regulations to the Thai government that would empower LTD officers to ban large vehicles with diesel engines from inner city Bangkok. Current legislation allows the LTD to take action against polluting vehicles only in Bangkok's suburbs.

PCD, LTD, and police representatives also agreed at the meeting to boost cooperation in enforcing the emissions standards currently applied to vehicles, and PCD officers would assist police forces in identifying and taking action against diesel buses, vans, and trucks that exceeded these standards, Wangwongwatana said. The new

regulations could come into effect as early as June after approval by the Thai Cabinet, he added.

PCD officials said that, in the short term, the rules were likely to result in "the Land Transport Department working more rigorously, inspecting such vehicles more inside Bangkok and not just in outlying areas." Vehicles that failed inspections were likely to be spray-painted with special marks for easy identification by police and PCD officials rather than removed from the streets instantly.

51. Australia to Boost Fuel Excise Duties To Stimulate Low Sulfur

The Australian government will boost excise levels on gasoline and diesel fuels in order to speed the use of low-sulfur gasoline and diesel, Treasurer Peter Costello announced in his May 13 budget speech for the 2003-2004 fiscal year. From Jan. 1, 2006, the government will increase the excise duty on gasoline for two years so as to fund grant payments for the production or import of low-sulfur gasoline (less than 50 parts per million sulfur). Similar arrangements will come into force on Jan. 1, 2007, to fund grants for importing or producing low-sulfur diesel (less than 10 ppm).

Rates have yet to be set. However, the government has outlined "indicative" increases of 0.7 cents per liter on all diesel and 0.06 cents per liter on all gasoline in order to fund grants of 1 cent a liter for 10 ppm diesel and 1.1 cents a liter for 50 ppm gasoline.

Announcement of the new excise arrangements comes just a few weeks before the start of an excise differential scheme that will discriminate against diesel with high sulfur levels (above 50

ppm). First flagged in 1999, this scheme will see an excise surcharge of 1 cent a liter imposed from July 1 on diesel with more than 50-ppm sulfur, with the surcharge increased to 2 cents a liter from Jan. 1, 2004.

As part of his budget revamp of the fuel excise regime, the treasurer also announced an excise duty would be imposed for the first time on liquid petroleum gas (LPG). This fuel has previously been exempt from excise duties as part of efforts to promote its use and improve urban air quality. Excise taxes also will be imposed for the first time on liquid natural gas (LNG) and compressed natural gas (CNG). The excise rate, to be imposed from July 1, 2008, will be determined later this year. In the year that the excise tax is first introduced, the newly covered fuels will receive offsetting subsidies. These will continue at a gradually declining level, dropping to zero after five years.

A slightly different arrangement will apply to ethanol, although the effect will be similar. Ethanol is currently subject to excise duties, but Australian producers receive an offsetting production subsidy because the use of ethanol as an additive in gasoline results in reduced greenhouse gas emissions. From July 1, 2008, both domestic producers and importers will receive subsidies, with the subsidy levels declining to zero over a five year period.

52. Australian Ministers OK National Standard For Reporting Fine Particulate Matter Levels

Australia's federal, state, and territory environment ministers on May 23 approved a national reporting standard for fine particles with a diameter of 2.5 micrometers or less (PM-2.5).

The standard obliges states and

territories to report any identified occurrences of PM-2.5 levels in ambient air exceeding a one-day average of 25 micrograms per cubic meter or an annual average of 8 micrograms per cubic meter. Reports on any such occurrences must be submitted annually to the ministerial council that approved the standard, the Environment Protection and Heritage Council (EPHC). States and territories must also report any action they take to deal with high levels of PM-2.5.

The reporting standard aims to collect nationally consistent data on PM-2.5 levels and to help communicate information to the community on fine particle pollution. Each state and territory must have at least one PM-2.5 monitoring station operational by 2005.

The reporting standard for PM-2.5 will be introduced as a variation to the existing national environment protection measure (NEPM) on ambient air quality. The air quality NEPM already contains a standard for slightly larger particles (PM-10), however health studies indicate that finer particles (PM-2.5) penetrate deeper into the lungs and can therefore have more serious health consequences.

Like the other standards set under the Ambient Air Quality NEPM, the PM-2.5 standards are designed to apply to entire regional air sheds and are not intended to be used as standards near major industry or heavily trafficked roads.

The May 23 EPHC meeting also released a draft national environment protection measure on air toxics. The draft measure specifies investigation standards for five substances. For benzene, it proposes an annual average of 0.003 parts per million (ppm). For polycyclic aromatic hydrocarbons, it proposes an annual average of 0.3

nanograms per cubic meter, and for formaldehyde it proposes a one-day average of 0.015 ppm. A 24-hour standard of 2 ppm is proposed for toluene, and a 24-hour standard of 0.2 ppm is proposed for xylenes.

The draft standard proposes that each state and territory identify sites where significantly elevated concentrations of one or more of these substances is likely to occur (stage 1 sites) and further identify at which of these there is potential for significant population exposure (stage 2 sites). This information should be used to establish a monitoring regime for the five substances.

States and territories must report annually on their identification of stage 1 and stage 2 sites, and on the results of their monitoring and any action taken to deal with elevated levels.

53. Mazda Reduces Diesel Emissions With PM Filter

Mazda Motor Corporation has developed a clean diesel engine that significantly reduces the amount of particulate matter (PM) and nitrogen oxides (NOx) in exhaust gas emissions. Using small commercial Bongo vans powered by the new diesel engine, the automaker has begun test drives aimed at commercial production. This is the first time such tests have been carried out in Japan for the small commercial vehicle segment.

The newly developed engine is a 2.0-liter, inline-4 cylinder, common-rail direct



injection turbo diesel. Based on the "MZR-CD," mounted in the European specification Mazda6, the new engine is equipped with an all-new diesel particulate filter (DPF) and an improved engine control unit. This has resulted in a more than 75 percent reduction of PM and 25 percent reduction of NOx, compared to diesel engines used in the current Bongo.

In order to reduce the amount of PM emitted in the air, Mazda used a DPF that is coated with an oxidation catalyst. The ceramic DPF traps PM, and when the amount of PM in the filter has reached the designated level, it is removed through the combined effect of the catalyst and combustion temperature controlled by the common-rail injection system. In an effort to reduce NOx, the combustion temperature is optimally controlled through cooled EGR. It is also helped by improved combustion efficiency with fuel injected at high pressure from the common-rail.

As part of the development process, the engine's performance will be monitored in tests conducted on public roads using the small commercial Bongo van. Mazda will test one van itself, while enlisting the help of business partners to monitor additional vehicles. This will allow Mazda engineers to collect a variety of data under different driving conditions. The results will then be utilized to further enhance the engine in preparation for commercial production.

Under new, stricter emissions regulations for diesel engines, the first of which will come into force in Japan this October, automakers are being asked to reduce NOx and PM emissions by about 30 percent of levels set in the current standards. Mazda is aiming to meet these standards, those of the 'Automobile NOx/PM Law' covering metropolitan areas, and the Tokyo

Metropolitan Government's diesel vehicle regulations with its cleaner new diesel engine.

54. **Japan Predicts \$500 Billion Market For Environmental Business by 2020**

Commercial introduction of fuel cell and gasoline-electric motor vehicles; increased recycling and industrial waste, personal computers, and other products; and growing emissions trading will help enlarge Japan's environmental business market to nearly \$500 billion, the Ministry of Environment said May 29. In a report forecasting the expansion of the environmental business market, the MOE estimated that the market will soar to ¥58.376 trillion (\$492.19 billion) in 2020, roughly double the market's size of ¥29.944 trillion (\$252.45 billion) in 2000.

The latest forecast is also solidly up from the ¥47.226 trillion (\$398.11 billion) market projected for 2010, MOE said.

The nearly ¥30 trillion eco-business market in 2000 represented about 6 percent of Japan's nominal gross national product. That share of GDP--the nation's output of goods and services--will grow further in 2010 and 2020, officials of the ministry's Environmental Economy Division said June 2.

This report marks the first time the ministry has forecast the size of the eco-business market in 2020. Previously, ministry forecasts had gone up to just 2010.

The latest report reflected forecasts of business expansion related to fuel cell motor vehicles, housing renovations, electric appliance and computer recycling and reuse, and emissions trading--areas which were not included

in the 2000 report and which contributed to market growth, ministry officials said.

Areas most likely to register strong growth in coming years are: the manufacture of air-pollution prevention and general contamination prevention equipment, and energy conservation and energy administration equipment, such as fuel cell vehicles, fuel cells, and new energies, the report said.

GENERAL

55. World's Largest Fuel Cell Project Launched

Dow Chemical and General Motors have reached "initial understanding" on the world's largest fuel cell transaction to date, the two companies recently announced. The intent is for GM to commercialize its hydrogen fuel cell technology to generate electricity from hydrogen created as a by-product at a Dow chemical plant in Texas. A final agreement between the two companies is expected within a few months.

If tests proceed according to plan, Dow could eventually use up to 35 megawatts of power generated by 500 GM fuel cell units on an ongoing basis. This is enough electricity to power 25,000 homes for a year and is more than 15 times bigger than any other known fuel cell transaction. The test is expected to begin during the fourth quarter of 2003 and to run through 2005, with plans to commercialize starting in 2006.

GM and Dow, respectively the world's largest automotive and chemical companies, depicted the initiative as a "small but significant step on the path to a more sustainable energy future".

In a simultaneously announced move, BP, the world's third largest oil firm, launched the world's first commercial

hydrogen fuel cell-powered bus in Madrid. The launch is part of a project to bring 30 such buses to 10 European cities. BP is involved in 75 percent of the world's hydrogen pilot projects, including projects in Europe, the US and Australia.

56. International Groups Exploring Ways To Calculate, Curb Aircraft Emissions

The International Civil Aviation Organization, the European Union, and industry groups are attempting to identify new standards for calculating greenhouse gas emissions caused by aviation while seeking ways to reduce future emissions caused by aircraft. The ICAO, a United Nations body responsible for setting international aviation standards and regulations, and others are currently exploring ways to control emissions, including introducing new taxes. A second issue regarding aviation emissions currently under discussion is the need to set standards for counting aviation emissions.

Aircraft emit carbon dioxide, methane, and nitrous oxide, all regulated by the U.N. Framework Convention on Climate Change's Kyoto Protocol. They also emit pollutants such as carbon monoxide, non-methane volatile organic compounds, sulfur dioxide, particulate matter, and nitrogen oxides.

Meanwhile a March 11 Danish Environmental Protection Agency report on greenhouse gas emissions from aviation sources stated the growth rate of aviation emissions is outpacing technical advances that improve aircraft fuel efficiency. Without both voluntary and regulatory actions taken by business and government, aviation emissions will continue to increase, the EPA report concluded.

While aviation sources accounted for 3.5 percent of global greenhouse gas emissions in 2000, or about 635 million tons of CO₂, "aviation, due to the prospects for future growth in demand for air travel and freight volumes, may become a more significant source of emissions of greenhouse gases in the future," the Danish report stated.

One idea being discussed is establishing an emissions trading scheme according to ICAO spokesman Denis Chagnon. Under the envisaged scheme, airlines would receive emissions credits that would allow them to emit greenhouse gases to a certain limit. If the airline wanted to exceed its limit it would need to buy or trade for additional credits. The International Air Transport Association, the Geneva-based civil aviation industry group, favors setting up an emissions-trading scheme according to IATA Aviation Environmental Department Director Philippe Rochat. Such a scheme should be open, allowing airlines to buy and sell credits with other industrial sectors, he said.

Creating such an emissions-trading scheme likely will be discussed by the UNFCCC's Subsidiary Body for Scientific and Technological Advice at its 18th meeting, to be held June 4-13 in Bonn, according to UNFCCC spokesman Michel Smitall.

The Danish report noted another option that could be used to reduce emissions is the introduction of new regulations, such as new passenger- or jet-fuel taxes. IATA is decidedly against new regulation, Rochat said. Using a trading scheme would guarantee lower emissions at an unknown cost--preferable to reducing emissions by an unknown amount but raising a guaranteed amount of money, Rochat said.

The Danish report reveals that CO₂ emissions from aviation activities doubled between 1971 and 2000. By 1998 global air travel per capita totaled approximately 500 kilometers--more than 10 times the amount registered in 1960, the report stated. Worse still, a 1999 IPCC report concluded airplane engines may alter atmospheric conditions that in turn create cirrus clouds and trigger condensation trails, which may increase the emissions' global warming potential to as much as three times that of CO₂ emissions.

The United States in 2000 was by far the world's greatest emitter of aviation greenhouse gas emissions, alone responsible for about 39 percent of CO₂ emissions from aviation, the report stated. The United States, however, was ninth--behind countries such as Luxembourg, Singapore, and Iceland--when emissions were measured per capita.

57. Report Says Smallest Pollutants Get Trapped In Body

Tiny airborne particles, invisible to the eye, may be causing more damage to our bodies than scientists previously believed. Studies presented at the American Thoracic Society annual meeting in Seattle suggest that the particles, called PM 2.5, are linked to a variety of ailments -- including altering heart rhythms, an increase in heart attacks and an increase in deaths.

The evidence indicates PM 2.5 is a problem around the world:

- In Germany, doctors discovered that when air pollution and the quantity of small particles in the air was high, there was a three-fold increase in the amount of heart attacks.
- In Japan, researchers

confirmed that when air pollution was high, it altered the rate of heart beats.

- In Boston, one component of air pollution was linked to a 0.35, or third of a per cent, increase in the number of people who die daily.

The particles are made up of a complex mixture of chemicals -- the by-products of industrial process, car and truck exhaust, as well as bits of soil, viruses and pollen. These particles are so small that once inhaled, they don't get filtered out by our noses or throats. Instead they travel deep into the lungs. In the lungs, the tiny particles become embedded in the tissue. Some of the particles may penetrate into the blood stream, and that may be one way they are able to affect the heart.

The problem for researchers is that much of the evidence so far shows a link, but the data doesn't explain how particles that are breathed into the lungs have an effect on the heart and the cardiovascular system. At the laboratories of the Gage Occupational and Environmental Health Unit, part of the University of Toronto and St. Michael's Hospital, researchers have been piping in air from nearby College Street and infusing it into a small cabin. In the cabin, test subjects have been breathing in the urban air. Research presented at the Thoracic Society meeting shows that concentrated levels of PM 2.5 raises levels of a chemical in the body that is linked to airway inflammation. The Gage Institute researchers have also found that high levels of PM 2.5 also seem to narrow arteries in the body.

Last year, the province of Ontario started measuring levels of PM 2.5, and using the results to determine air quality. Other provinces are considering following suit. Canada has set targets

for PM 2.5 which go into effect in 2010.

58. CNG Found To Yield More Health Improvement Than "Clean Diesel" for Urban Buses But At Much Higher Cost

An analysis of the two most popular alternative propulsion technologies for reducing air pollution from urban transit buses finds that compressed natural gas (CNG) affords a third more health benefits than so-called "clean diesel", but that the cost per unit of health improvement is six to nine times higher for CNG than for emission controlled diesel (ECD). The analysis was done by the Harvard Center for Risk Analysis, part of the Harvard School of Public Health. It appears in the current issue of the journal *Environmental Science and Technology*.

The study, led by Senior Research Associate Joshua Cohen, measures the public health damages of air pollution from urban transit buses in units of Quality Adjusted Life Years (QALYs). It finds that new ECD buses reduce health damages by 40%, and that new CNG buses cuts health damages by 55%, compared with new conventional diesel buses. Both CNG and ECD reduce emissions of fine particles by about 75%. CNG has a further health advantage because it also reduces emissions of NO_x, a gas that contributes to ground level ozone, or smog, and to the formation of fine particles.

But the cost per QALY saved using CNG would be 6 to 9 times greater than for ECD because of the higher cost of acquiring and maintaining CNG vehicles, installing and maintaining infrastructure to fuel them, and paying more for fuel to run them.

The study finds that both ECD and CNG buses generate more greenhouse

warming gas emissions than conventional diesel buses. However, the incremental impact is small compared to the baseline emissions generated by conventional diesel buses. Furthermore, the possibility that diesel exhaust causes cancer has little effect on the results because the estimated total mortality from fine particles dwarfs any effect from cancer.

Cohen and co-authors James Hammitt and Jonathan Levy note that the study does not account for the safety risk of CNG, which must be stored at high pressure and is readily ignitable. Nor does it consider some of the drawbacks of diesel technology, including a strong odor and noisier operation. In addition, the authors point out that their analysis requires assumptions about many uncertain factors, and that their modeling of population exposure and health effects also reflects a number of simplifying assumptions.

But the authors note that their analysis is "...the first to compute and compare aggregate incremental costs and health benefits for bus propulsion technologies." "These first order ballpark estimates of the costs and benefits of these alternative propulsion systems provide an important way to think about the pros and cons of different ways to address this important environmental issue," said Cohen.

The International Truck and Engine Corporation funded the study. An advisory panel of 18 academic, industry, and government experts, including five senior managers of public transit authorities from across the United States, informed the work.

59. Air Regulators Call Sulfur The "Lead Of The New Century"

Leading pollution regulators and

technology experts from around the world issued a statement calling sulfur in fuel "the lead of the new century" – warning governments that sulfur threatens to become the next major obstacle to clean air. The International Council on Clean Transportation (ICCT) called on countries to implement cost-effective measures quickly to dramatically reduce sulfur levels in fuel.

Members of the ICCT, supported by the Hewlett Foundation and the Energy Foundation, collaborate as expert individuals to develop strategies for deploying clean vehicle technologies. The Council includes leading air regulators such as Dr. Alan Lloyd of the California Air Resources Board, Margo Oge of the US Environmental Protection Agency, scientists such as Nobel Prize-winning chemist Dr. Mario Molina of the Massachusetts Institute of Technology, and vehicle experts such as Professor Yasuhiro Daisho of Waseda University. The largest auto markets and auto-producing nations in the world are represented on the Council, including the United States, the European Union, Germany, Great Britain, Japan, China, India, Brazil, Mexico, and Thailand.

The ICCT statement was issued in conjunction with release of "Low-Sulfur Gasoline & Diesel: The Key to Lower Vehicle Emissions." The report outlines advances in emission control technologies for gasoline and diesel vehicles, identifies high sulfur fuel as a serious obstacle to introducing these technologies, and analyzes the costs of removing sulfur from fuels. The report notes that many countries are still burdened by very high sulfur levels; for example, sulfur limits in some Asian countries can be as high as 10,000 parts per million (ppm), 1,000 times higher than the sulfur content of the cleanest fuels available today in some European countries. Citing studies in Asia, the U.S. and Europe, the report

concludes that moving directly to near-zero sulfur fuels provides significant and cost-effective public health benefits. The report is available at <http://www.cleantransportcouncil.org/>.

Dr. Molina stated, "Producing near-zero sulfur fuels is a cost-effective measure that would immediately produce dramatic improvements in the air we breathe and the health of our citizens. Of course, this must be part of an integrated clean air strategy."

Sulfur in fuel produces sulfur oxides and fine particulate pollution, contributing to acid rain and a host of public health problems. Further, fuels with high sulfur content significantly impair or, in some cases, can entirely prevent the use of advanced pollution control technologies such as oxidation catalysts, particulate traps, nitrogen oxide catalysts and exhaust gas recirculation. These technologies, used with near-zero sulfur fuels (about 10 ppm), greatly reduce not only fine particulate (PM_{2.5})—the most dangerous airborne pollutant—and sulfur dioxide, but also carbon monoxide (CO), hydrocarbons (HC) and nitrogen oxides (NO_x).

The United States, the European Union and Japan have led the way in sulfur reduction and will reach near-zero sulfur levels for fuels used in on-road vehicles later this decade. But even in these leading countries non-road diesel fuel, used to power trains, ships, tractors, construction equipment and other heavy use engines, continues to contain high levels of sulfur and produce excessive pollution.

The Environmental Protection Agency (EPA) recently proposed a rule that would reduce sulfur in nonroad diesel fuel from today's average level of about 3,400 ppm to 500 ppm by 2007, and to 15 ppm by 2010. In conjunction, EPA proposed new emissions standards to

reduce emissions from nonroad diesel engines by more than 90 percent, noting that the proposed 15 ppm fuel will make it possible for engine-makers to achieve these dramatic pollution reductions. EPA estimates that by 2030 the proposed rule would annually prevent 9,600 premature deaths, over 8,300 hospitalizations, and almost a million workdays lost.

60. **Traffic Pollution Linked To Severe Asthma Attacks**

Researchers at St Mary's Hospital in Portsmouth, southern England have discovered that exposure to nitrogen dioxide (NO₂) from vehicle exhausts exacerbates asthma attacks. "It drops the lung function and increases the symptoms after a virus infection. It can increase symptoms by as much as 200 percent," said Dr Anoop Chauhan, a pulmonologist at the hospital.

NO₂ is common but the main sources indoors are gas stoves and, outdoors, traffic pollution. Chauhan and his team measured the personal exposures of 114 asthmatic children between the ages of 8-11 from non-smoking families over almost a whole year. They found a strong relationship between higher NO₂ pollution and the severity of an attack.

With up to 150 million people worldwide suffering from asthma and cases expected to rise by 50 percent every 10 years, Chauhan said the findings reported in The Lancet medical journal could have important public health implications.

Asthma affects the airways - small tubes that carry air in and out of the lungs. It occurs when the tubes swell up and go into spasm blocking the free passage of air in and out of the lungs. People with the illness suffer from coughs, wheezing and shortness of breath. A very severe

attack may kill. Colds, the flu, cigarette smoke, pollen, stress and pollution can trigger an asthma attack. There is no cure for asthma but it can be controlled with drugs

"We know viruses trigger asthma exacerbation but this is another step forward because it tells us that pollution makes it (the attack) far worse than it should be," said Chauhan.

"Maybe we should be looking at controlling air pollution to perhaps reduce the number of severe attacks of asthma."

61. New Studies Indicate That Child Respiratory Disease Is Apparently Induced By Traffic Pollution

Child respiratory disease is apparently induced, not just exacerbated, by traffic pollution according to two new studies to be published in the June issue of the European Respiratory Journal (ERJ). Asthma, allergic rhinitis, a dry cough and wheezing in children can all be caused by traffic pollution, according to these two independent studies, conducted in Taiwan and Germany, which monitored over 315,000 children in total.

The Taiwan study was undertaken by a team working under Yueliang Leon Guo, of the Department of Environmental and Occupational Health at the National Cheng Kung University in Tainan, Taiwan. Together with colleagues from five other Taiwanese universities, Leon Guo set out to compare air pollution data with the figures for allergic rhinitis prevalence in children. This disorder is now known to be connected with the development of asthma.

The eight-month study involved adolescents aged from 12 to 15

attending some 800 middle schools in 24 Taiwanese counties and cities. Over a million students and their parents were asked to complete the Chinese version of the standard International Study of Asthma and Allergies in Childhood (ISAAC) questionnaire. Since the researchers wished to monitor only non-smoking youngsters attending school within a two-kilometer radius of an air monitoring station, they retained just under one-third of the original subjects to form a still very large group of 312,873 children. While doctors had already diagnosed allergic rhinitis in 28.6% of boys and 19.5% of girls in that group, the questionnaire responses indicated that the rates were much higher, at 42.4% of boys and 34% of girls.

In parallel, the Taiwanese team examined data provided by the 55 air monitoring stations within whose areas the schools were located. The hourly sampling data from the stations identified two main types of pollutants: firstly those connected directly with vehicles, namely nitrogen oxides (NOx), carbon monoxide (CO) and ozone (O3); and secondly pollutants emitted by industry, power plants or domestic fossil fuels, especially sulphur dioxide (SO2) and particulate matter with a diameter of ten microns or less, the so-called "PM10".

Comparison of the two types of data provides some striking results. The team identified a very clear connection (with an increased risk of 16% for girls and 17% for boys) between carbon monoxide or nitrogen oxides in ambient air and the prevalence of medically diagnosed allergic rhinitis, after adjustment for climatic factors (temperature and humidity) that also represent risk factors.

However, the Taiwanese researchers could not determine the respective role

of each pollutant because certain other traffic-related pollutants were not measured.

For allergic rhinitis diagnosed on the basis of the questionnaire responses, the figures for increased risk factor are slightly lower at 12% and 9% respectively.

However, statistical analysis does not indicate that sulphur dioxide and particulate matter are responsible for the induction of new cases of allergic rhinitis, though they clearly play a part in provoking attacks in children who already have the condition.

“Our results support the increasingly popular hypothesis that exposure to traffic pollution modifies children’s susceptibility to allergens, thereby contributing to the upsurge in allergic rhinitis”, the Taiwanese researchers conclude.

Traffic pollution, especially in the urban environment, is even more directly incriminated by the second study. The work carried out in Munich by a team working under Thomas Nicolai and Erika von Mutius, of the University Children’s Hospital, compared child health data with traffic density and levels of certain pollutants. They identified over 1,800 road segments with a daily flow of at least 4,000 vehicles and linked the segments with individual children living within a 50-metre radius. The traffic density impacting on a given child was taken to be the sum of traffic flow through all of the segments within a certain distance of his home. Traffic counts varied from 2,600 to a 148,000 per day.

Traffic-related air pollution (levels of benzene, soot and nitrogen dioxide) was calculated according to a prediction model on the basis of measurements taken at 34 measurement sites in the city, of which 16 had a daily flow of

between 17,000 and 33,000 vehicles and the remaining 18 had a flow exceeding 33,000.

Here, a geographical information system (GIS) was used to identify where each child’s home was situated in relation to street segments, at distances of up to 50 m and between 50-300 m. The level of the air pollutant exposure was then calculated for each child according to the model created from the site measurements.

The Bavarian team also examined the respiratory health and allergic predisposition of the 3,953 subjects, aged from 5 to 11 years. The data were obtained from questionnaires completed by the parents of all of the children and from clinical testing (skin prick test, blood test or lung function test) of part of the group.

By comparing the various sets of data, the German team is able to describe a clear link between traffic pollution and child respiratory disease.

As regards traffic density, it appears that children living within 50 meters of very busy roads (with a flow of more than 33,000 vehicles per day) were almost twice as likely to suffer from asthma as the general population (a relative risk of 1.8). The figures are lower, but still alarming, for coughing and wheezing, for which the relative risk is 1.6. Allergy susceptibility is also increased (by between 17% and 56% depending on the allergen), particularly in children who are also exposed to tobacco smoke. Since the effect appears to fall off with distance, the researchers emphasize that their figures also suggest a dose-response effect.

When the data for the children’s health were compared with those for ambient air pollution in the city, the team found the same type of link with respiratory

disorders, albeit less marked and not proportional to distance.

and Dr. John Seinfeld.

"The reason might be", Nicolai explains, "that the traffic density figures represent exposure to all kinds of pollution from vehicles, including noise, tire particles and dust, not just to the gaseous pollutants that we measured."

Recognizing the importance of these studies, the ERJ's Editors-in-Chief commissioned an editorial on the subject, co-signed by Bert Brunekreef, of the University of Utrecht, and Jordi Sunyer, of the Medical Research Institute of Barcelona.

"Surely", they write, "the world variation in the prevalence of asthma is so large that it seems unlikely that traffic-related air pollution is a major determinant of this variation. Nevertheless, (...) we are gradually seeing more data suggesting that (...) air pollution may not just be a factor in triggering attacks in patients who have developed asthma already".

Be that as it may, a clear conclusion can be drawn from the two studies. Given that the global upsurge in allergic rhinitis alone has an annual cost of several billion euros a year, and that asthma (with its proven connection to rhinitis) causes over 25,000 avoidable child deaths a year, it seems obvious that we need more vigorous public health measures to reduce the harm caused by traffic pollution.

62. Walsh Receives Haagen Smit Award

At the Haagen Smit Symposium in May, named after the initial Chairman of the California Air Resources Board, Michael Walsh received the 2003 "Haagen Smit" award for his "global efforts towards mobile source emissions reduction." Other recipients included V. John White