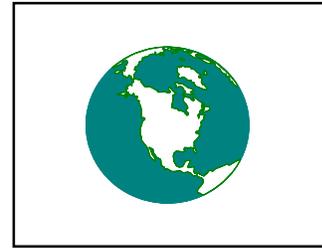


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CAR LINES

Issue 2004 - 6

December 2004



*Happy Holidays to All
And
Best Wishes For A Peaceful New
Year*

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EUROPE

1. CAFE Scenarios Indicate More Emissions Reductions Needed In Europe

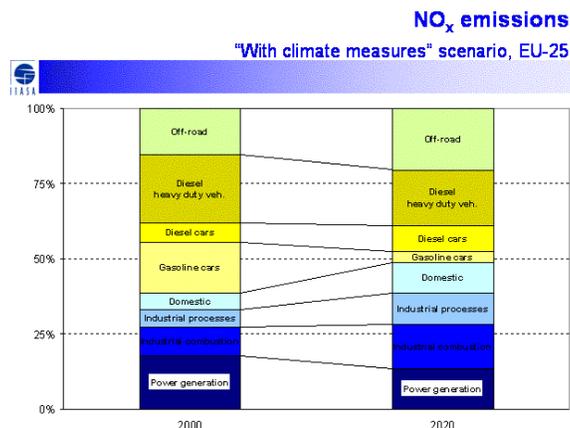
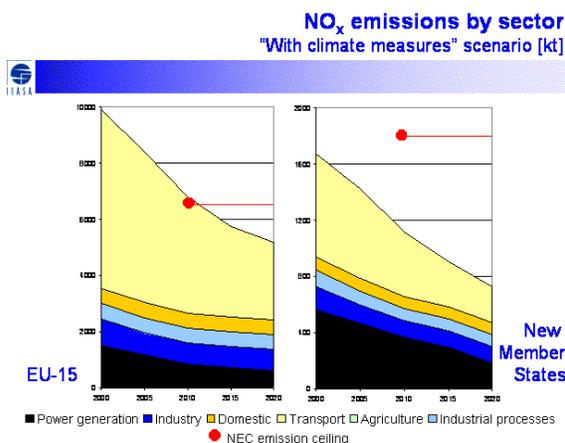
The first scenarios showing the expected trends in emissions of air pollutants up to 2020 have now been released under the EU's Clean Air for Europe program (CAFE). One of the main items of the program is integrated assessment modeling, which is being used to develop scenarios for likely trends in emissions for the target years 2010, 2015 and 2020, from the base year 2000.

There is still a great deal of uncertainty as to how the member states will fulfill their commitments under the Kyoto Protocol to reduce emissions of greenhouse gases. Their actions will greatly affect the extent to which fossil fuels will be used in the EU, and thus the emissions of air pollutants covered by the CAFE program. To be conservative, various so-called baseline scenarios are therefore being used, illustrating the impacts of different assumptions regarding future use of fossil fuels within the EU. Three energy scenarios are being investigated.

- The main scenario provides a consistent EU-wide view of energy developments, including certain measures needed for implementation of the Kyoto Protocol.
- There is also a similar scenario, but without any climate policy measures.
- The third scenario consists of a compilation of the member countries' own official national energy projections.

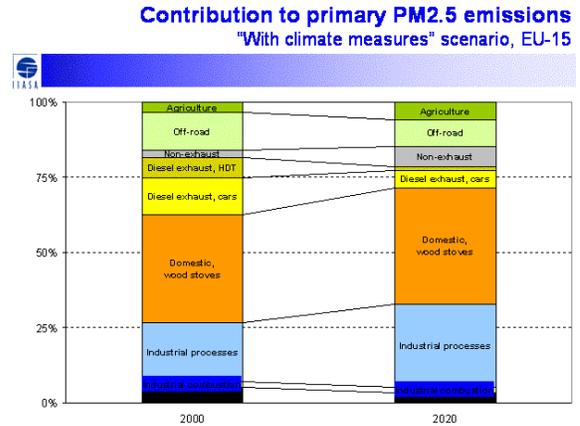
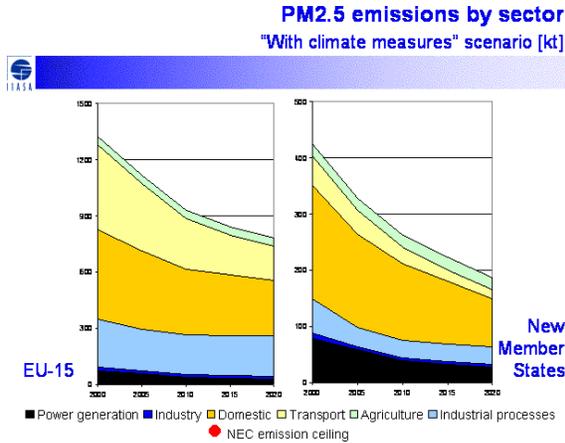
A. Emissions Trends

The first results of the computer modeling were revealed at a seminar in Brussels on 27 September.



Based on the main energy scenario, and assuming full implementation of current air quality legislation, emissions of nitrogen oxides (NO_x) will be reduced by about one-third by 2010 and by nearly half by 2020, while emissions of the coarse particulate fraction

(PM10) will come down by about 40 per cent and those of the fine fraction (PM2.5) by 44 per cent.

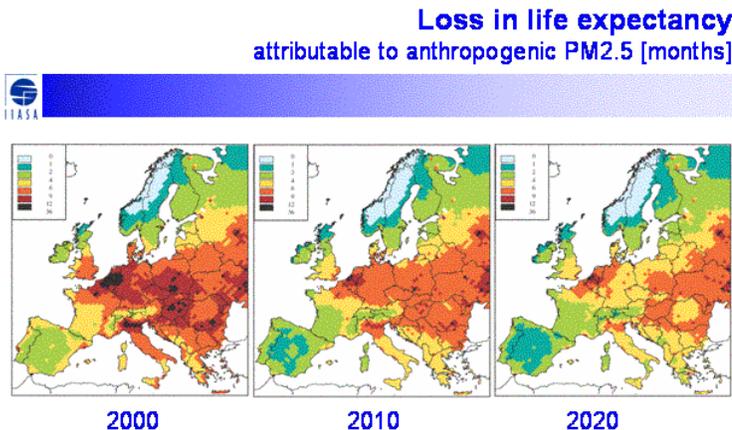


With regard to the oxides of nitrogen, on and off road vehicles will still contribute more than half the EU total in 2020. Vehicles will contribute more than one-quarter of the PM_{2.5} in 2020.

B. Health and Environmental Impacts

The scenarios presented also included preliminary estimates of some health and environmental impacts expected to result from the projected levels of future emissions. For PM_{2.5} the RAINS model estimates changes in the loss of statistical life expectancy that can be attributed to changes in anthropogenic emissions. It should be noted that these calculations only refer to impact on the population over 30 years of age, thus underestimating the total impact.

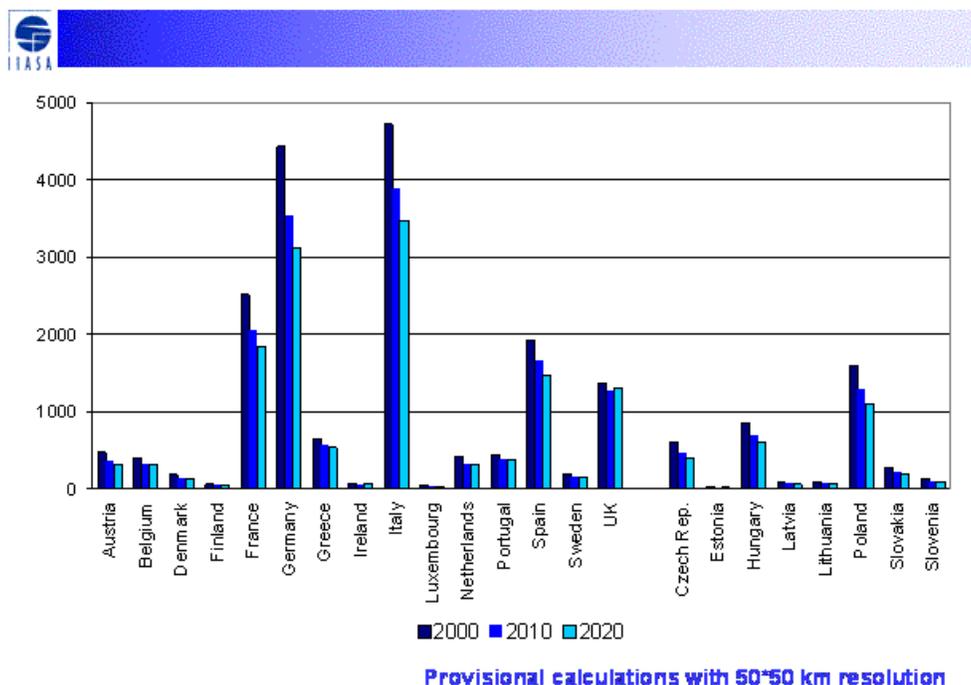
Compared to the year 2000, when it is estimated that PM_{2.5} will result in an average shortening of life expectancy by approximately nine months in the EU25, the estimate comes down to less than six months by 2020. There is however a significant variation between countries, and even by 2020 some of them (notably Belgium and the Netherlands) will still have life expectancy losses of about nine months.



When it comes to the impact on health from ground-level ozone, the RAINS model estimates the number of premature deaths

associated with ozone levels above a cut-off level of 35 parts per billion (ppb). Since there is medical evidence of health impacts even below 35 ppb (see story later in this report), the use of this cut-off level results in an underestimation of the impact. The number of premature deaths estimated will also gradually decrease up to 2020 as a result of decreased emissions of the ozone precursors NOx and VOCs.

Premature deaths attributable to ozone [cases/year]



Following the publication of the baseline scenarios, a number of policy options for the further abatement of emissions are now being studied, for example in respect of cost-effectiveness. Some scenarios will also be subjected to more detailed analyses for costs and benefits.

C. Importance of Shipping Emissions

Concentrations and depositions of air pollutants are also influenced by emissions from international shipping in the sea areas surrounding Europe. In order to compare ships with land-based large combustion plants on land, the Commission’s consultants, BMT, who conducted a study of ship emissions in 2000, calculated the power consumption of the shipping in all European sea areas to be approximately equivalent to that of 390 fifty-megawatt units running continuously every day of the year.

One crucial difference, however, is that emissions from land-based power plants – and from other land-based emission sources – have been regulated by environmental legislation for decades, while emissions from international shipping are still largely unregulated and uncontrolled. As a result, in contrast to the progress in reducing

emissions from land-based sources, shipping emissions are expected to continue increasing.

Even after accounting for enforcement of MARPOL Annex VI, emissions of SO₂ from international shipping are expected to increase by more than 42 per cent by 2020, and those of NO_x by two-thirds. In both cases, by 2020 the emissions from international shipping around Europe will have surpassed the total from all land-based sources in the 25 EU member states combined.

In order to meet EU environmental targets it will be necessary to drastically reduce emissions from shipping. The European Parliament has proposed measures that could reduce those emissions by 80 per cent – but this proposal was rejected by both the Commission and the Council.

2. Russia Ratifies Kyoto; Treaty Now Goes Into Effect on February 16

Russia has formally ratified the Kyoto Protocol on global warming, clearing the way for the environment pact to come into force in February 2005. At that time, industrialized nations that are signatories to the pact will be legally bound to meet quantitative targets for reducing or limiting emissions of so-called greenhouse gases.

The UN accord, backed by more than 120 countries, enters into force 90 days after filing of the Russian ratification documents with the United Nations -- meaning on February 16, according to the accord's administrators. Russia's documents were handed to UN Secretary-General Kofi Annan by Moscow's UN ambassador, Andrei Denisov when both were in Nairobi, the home of the UN Environment Program (UNEP), for an extraordinary UN Security Council meeting on Sudan.

The accord was ratified by both houses of Russia's parliament last month and then signed by President Vladimir Putin on November 5th.

The 1997 Kyoto Protocol obliges rich nations to cut overall emissions of heat-trapping carbon dioxide by 5.2 percent below 1990 levels by 2008-12 by curbing use of coal, oil and natural gas and shifting to cleaner energies like solar or wind power.

To come into force, the pact needed to be ratified by countries accounting for at least 55 percent of developed nations' greenhouse gas emissions. Russia, which accounts for 17 percent of global emissions, became the key to Kyoto after Washington pulled out saying the pact was too costly and unfairly exempted large, rapidly industrializing countries such as China and India. Russia signed the Kyoto Protocol in 1999. But it agreed to ratify the treaty only in exchange for European Union agreement on Moscow's admission to the World Trade Organization.

Only four industrialized countries have not yet ratified the Kyoto Protocol: Australia, Liechtenstein, Monaco and the United States.

3. MEP Urges More Time on EU Car Recycling

A German MEP is urging the EU to double the amount of time car makers should be given to demonstrate that vehicles can meet recycling targets set in the end-of-life vehicles directive. Citing economic concerns, rapporteur Holger Krahmer argues that producers need six years to meet recycling standards. The European Commission proposed just three. "The resulting costs...may severely undermine the competitiveness of the European automobile industry and should be kept to an absolute minimum," Mr. Krahmer, a Liberal, says in a report debated by the European parliament's environment committee.

The draft legislation was tabled by the European Commission in March. It is designed to make car manufacturers demonstrate at the type-approval stage that their vehicles are recyclable enough to support the ELV directive's targets of 85% recycling and 95% recovery of scrapped vehicles by 2015.

Mr. Krahmer says producers need a longer transition period to "take account of the industry's normal production cycles". Pushing them to meet recycling standards earlier would force member states to grant ad hoc derogations to individual producers, undermining the EU's single market.

Initial reaction from MEPs was less sympathetic: Greens and Socialists are reported to be dead against giving manufacturers extra time, while the parliament's largest group, the EPP, favored a smaller deadline extension. The Greens are also likely to propose amendments that would weaken restrictions on component reuse, and reinforce compliance with restrictions on using certain heavy metals in cars.

4. Public Transport Group Defends "Clean" Diesel

Improvements to fuel, engines and exhaust treatments mean that diesel can be more environmentally attractive than gaseous fuels, despite claims to the contrary, according to European public transport group UITP. UITP has previously defended diesel fuel for buses on both financial and environmental grounds, but faced with soaring oil prices and "strong... pressure to use vehicles that produce less pollution" a new 37-page report constitutes its most in-depth argument yet.

It puts the cost of equipping 50 buses with the latest diesel filter technology (CRT) at 300,000 Euros - compared to at least 2.3 million Euros for the same number of buses run on natural gas or liquid petroleum gas.

The European Commission is currently drafting a proposal to boost the use of alternative fuels - including natural gas and LPG - over conventional sources such as diesel. But UITP argues that "modern diesel technology has now overtaken gas technology" and that therefore preferential taxes currently offered only to gas in the majority of EU15 member states should be extended to diesel fuels "when they are used for passenger transport."

"Clean diesel technologies" developed over recent years mean that "gas' [emission] quality advantages over modern diesel are tending to dwindle to such levels that it is becoming difficult... to justify gas' additional economic cost".

The report adds that diesel buses have a further "significant edge in ecological terms", thanks to the possibility of upgrading existing vehicles, rather than waiting until they can be replaced with greener models.

5. Brussels Considering CO₂ Mandate

European politicians are talking openly about the possibility of legally requiring automakers to reduce CO₂ emissions even tighter than their current 2008 commitment by 27 percent by 2012. European environment ministers discussed the option during a quarterly Environment Council meeting in Luxembourg last month.

So far, the CO₂ reduction goals are voluntary and "the voluntary reduction is our preference," said Dutch Environment Secretary Pieter van Geel, who chaired the Luxembourg meeting. "But if necessary, we may enforce it with fiscal or legal measurements."

The CO₂ level in 2002 was 165 g/km, according to ACEA -- the European automakers association -- figures, up one gram from 2001.

Van Geel said Commissioners may also "include light commercial vehicles in the 120g/km target."

6. Austrian Tax Shift to Cut Vehicle Particulates

Austria's government has approved a plan to reduce the vehicle tax on new diesel cars with low emissions of particulates while raising the tax on those with higher emissions. For two years from next July, purchasers of cars emitting up to 0.005 grams of fine particles per kilometer will qualify for €300 off the tax. From July, vehicle tax on vehicles emitting over this amount will pay as much as €150 more, rising to as much as €300 more from July 2006.

7. The Latest News from Denmark

A. MTBE:

Denmark is special in Europe because contrary to most other countries it uses the groundwater as drinking water without any form of treatment. That means that MTBE contamination is a serious concern. When the problem was raised in the late 90's, the outcome of discussions with industry was a promise from the oil companies not to use MTBE in 92 and 95 octane petrol and to market 98 octane petrol (with MTBE) from a limited number of stations (5% of total), which were carefully selected in relation to risk for groundwater contamination. Combined with a campaign organized by the Danish EPA to convince people, that most of them did not need 98 octane, the consumption of this quality fuel fell from app. 35% in 1997 to below 1% during recent years; this means that approximately 99% of Danish petrol is MTBE-free.

The promise from the oil companies expires with the end of this year, primarily due to the introduction of new EU-specifications for aromatics (42 to 35%), which make it difficult to make 95 octane on the two small simple (hydroskimming) refineries in Denmark without adding MTBE.

The matter has been discussed for some time, but after a meeting some weeks ago at the ministerial level, the oil companies have now offered to prolong their promise under certain conditions. One condition is that Denmark uses the summer vapor pressure for countries with arctic or severe climatic condition (70 kPa instead of 60 kPa). That is done in countries like Sweden, UK, Ireland and Finland. The calculations show that the result will be an increase in VOC-emission in 2010 of 0.15%. The minister has accepted this change. The refineries will then solve the problem by use of alkylate, which is produced at refineries in other countries (none of the Danish refineries have cat-crackers). It is estimated that the result will be an extra price for the consumers of approximately 0.10 DKr per liter (1.3 euro-cents), added to the expected price increase due to the reduction in aromatics of the same order.

B. Sulphur free fuel

According to the EU-directive sulphur free fuel shall be available from 1st January 2005 (mandatory from 2009).

Denmark has followed a 3 pronged strategy:

1. **New legislation** was introduced in March which gives the minister a mandate to require marketing of sulphur free fuel. It is not the ideal solution, which will only be used if other measures do not work.

2. **Voluntary agreement with industry**

After discussions with industry and competition authorities a tentative solution has been found; the industry will market sulphur free fuels from at least 100 stations (app. 5% of the total).

3. **Fiscal incentives**

Use of fiscal incentives has been a problem the last 3 years after Denmark got a new government. During the election campaign the ruling parties promised the population, that no new taxes would be introduced during the coming 4 years period and this promise has been kept. That means, if you introduce tax incentives you have to find the money by savings in other areas, and that is difficult. Nevertheless the Environment Ministry has calculated (based on EU Extern E) that the benefits from introducing sulphur free petrol will be 0.04 DKr (0.5 euro cents) per liter due to 10% improvement in efficiency of catalysts and 0.02 DKr (0.3 euro cents) for sulphur free diesel due to reduced emission of particles. And these figures have been introduced in the budget for 2005. It is expected that the proposal will be adopted. However, it has been impossible to get a statement from the industry whether this incentive will be sufficient to shift 100% of the market to sulphur free fuels, but it is expected by the Ministry that this will occur in the first part of 2005.

C. Other Issues

Other problems have been:

i. Biomass:

Implementation of the EU bio fuels directive has been dealt with in a working group in the Energy Agency; The EU guiding figure is 2% by the end of 2005. Denmark has decided to use a guiding figure of "zero". The reason is that "you get more CO₂ for the money" by using the biomass in power plants and district heating. Denmark uses a lot of biomass in these applications already to day. To day Denmark is one of the countries in Europe which has the biggest share of biomass use in energy production.

ii. Chip-tuning

Denmark has raised the question of chip-tuning in the MVEG and in letters to the Commission. They have now seen that the Commission has formulated a project to find solutions, and the problem was discussed at the environment council meeting in mid October under the Dutch presidency. In Denmark it is the Road and Safety Agency, which is the responsible authority. It is expected that a proposal for a Danish regulation will be presented in the coming month.

8. The UK and EU Urged To Deal with Aircraft Emissions

The UK will be in a unique position of influence internationally in 2005 when it holds the Presidencies of the EU and G8 simultaneously. A report by the Lords EU Sub-Committee on Environment and Agriculture urges the Government to use its influence in these positions to encourage the EU to take further action to tackle climate change. In particular, the report advocates timely action to tackle aircraft pollution to help combat the devastating effects of climate change.

The Committee praised the EU's consistent efforts to meet the Kyoto Protocol targets for reducing greenhouse emissions. But it recommends that emissions from intra-EU flights should be brought into the EU emissions trading scheme at the earliest possible opportunity. The innovative emissions trading scheme – due to start on 1 January 2005 – is set to include around 12,000 European businesses in the energy sector and industry.

The report examined a wide range of topics including: governmental and intergovernmental action, the EU emissions trading scheme, transport, other policy areas, the EU and the international community.

The Government's December 2003 White Paper, The Future of Air Transport, sanctioned an increase in the UK's airport capacity which will allow passenger numbers to rise from 180 million per annum in 2000 to 470 million in 2030.

9. UK And Germany Start "Bold" Climate Partnership

The UK and Germany have jointly crafted proposals for combating global climate change, to be promoted by Britain during its six-month presidency of the G8 group of industrialized countries next year. The proposals were agreed during a conference in Berlin involving the two countries' environment ministers, chief scientific advisors, climate experts and industrialists. The meeting got off to a high profile start, being opened by Britain's Queen Elizabeth II, who expressed her personal concern over global warming.

Now with Germany's support, the UK is to promote action in six areas: tackling carbon dioxide (CO₂) emissions from the aviation and shipping sectors; future investment in energy sources; recommendations for CO₂ reductions; finance of green projects; scientific research on climate change; and public relations campaigns to draw attention to the issue.

Regarding CO₂ emissions from the aircraft and ship industries, the delegate's conference suggested that these industries should either be included in emissions trading schemes or face some sort of a carbon tax. While acknowledging that a carbon tax conflicted with current international law, Crispin Tickell, a former UK ambassador to the UN and the conference's rapporteur, said one possibility would be for the EU to introduce the measure unilaterally.

Delegates said a substantial proportion of future energy investments should be directed to energy-efficient sources, including cleaner coal, combined heat and power (CHP) plants and renewables.

David King, chief scientific advisor to the UK government, said that beyond the ambitious unilateral cuts in CO₂ emissions that the UK and Germany would make this century, the countries would urge all industrialized countries to cut by 60% by 2050.

Delegates suggested that to boost finance of climate friendly projects, the financial centers of London and Frankfurt "could play a pivotal role in bringing European and global pension funds, actuaries and insurers on board."

There should also be more sharing of scientific research globally and more "witty and thought-provoking advertisements similar to those in Scandinavia to raise public interest and action in combating global warming," they agreed.

In an unprecedented show of leadership between the two nations, a range of innovative recommendations are to be presented to Tony Blair, the British Prime Minister, aimed at delivering a low carbon, less energy intensive world.

Speakers included Margaret Beckett, the UK Secretary of State for Environment, Food and Rural Affairs, Jürgen Tritten, the German Federal Minister for Environment, Nature Protection and Nuclear Safety and Edelgard Bulmahn, German Federal Minister for Education and Research.

The recommendations will inform both the G8 and European Union presidencies which the United Kingdom assumes next year. Mr. Blair, who addressed the conference via a video message, has stated that climate change, along with Africa, is the UK's top priority.

Klaus Toepfer, the Executive Director of the United Nations Environment Program (UNEP) and chair of the conference Climate Change: Meeting the Challenge Together, said: "We have had an astounding meeting of minds between some of the leading scientific, financial and industrial experts of both countries. Support has come from the highest level with the Queen opening the conference and Mr. Blair requesting concrete outcomes upon which the UK government can act".

"There is now no question that human-made climate change is a reality and that leadership is urgently needed to take the fight against its devastating impacts forward. This leadership is now here under the two industrialized countries whose emission reductions are so far amongst the highest and deepest in the world. I sincerely believe this Anglo German partnership is the trigger needed to put Europe and the world onto a more stable, less carbon dependent, path," he said.

Sir Crispin Tickell, the former British ambassador to the United Nations and a key participant in the conference, said: "It is clear that the costs of defeating climate change are far less than some critics have claimed and that the cost of inaction is likely to be far higher. There is no silver bullet for this issue, but the conference has delivered some innovative and thought provoking ideas that can inform our next, crucial steps forward beyond the Kyoto Protocol and into the middle of the new century".

"The importance of leadership, providing the framework and stability needed for business and industry to make sound, climate friendly investment decisions was a key outcome of our talks," he added.

A. Aviation and Ships

Among the key findings and recommendations was a call for an end to the "anomaly" surrounding fuel for ships and planes. The conference advised Mr. Blair that an emissions trading scheme or a carbon tax for aircraft and ships might bring these two transport sectors in line with road, rail and other forms of transport.

B. Window of Opportunity

Some 16 trillion US dollars worth of investment in new power plants and energy systems are likely to be made in the coming years. It is vital that this substantial sum is directed to more energy efficient forms of generation including cleaner coal, combined heat and power plants and renewables such as wind, wave and solar power.

C. Climate-Friendly Finance

The conference recognized that the investment decisions of the finance sector could play a vital role in putting the planet on a more climate friendly path but that "city institutions were not yet fully on board". Germany and Britain, both with key financial

centers such as the City of London and Frankfurt could play a pivotal role in bringing European and global pension funds, actuaries and insurers on board.

The two countries, whose greenhouse gas reductions are scheduled to be below those agreed under the Kyoto Protocol, are well placed to champion new and deeper cuts in industrialized nations' emissions.

D. Targets and Green Cities

The UK's proposal of a 60 per cent reduction by 2050 and Germany's of a 40 per cent reduction in emissions by 2020 are in line with scientific consensus on what is needed, delegates are advising Mr. Blair.

London and Berlin will also share experiences and plans to fight global warming which may become blue prints for cities and local authorities elsewhere. The German capital has reduced its greenhouse gas emissions by 15 per cent since 1990 and plans to cut back by a further 40 per cent. London, which has a new Climate Change Agency, plans to reduce by 20 per cent its emissions by 2010. Under the agreement, the two capitals will share expertise and hold high level meetings on issues ranging from transport to energy efficient buildings in order to both meet their respective targets.

E. Scientific Research

Delegates also recommended strengthening and broadening the two countries' world-beating scientific ties in areas such as climate change impact in the Arctic. Under a new agreement German and British scientists are likely to share research vessels and high-latitude, long range, aircraft.

Scientific studies into how to manage densely populated areas in a warming world, with London and Berlin as the first subjects, are also being considered.

F. Awareness Campaigns

Europe-wide awareness campaigns are also part of the recommendations. Delegates called for witty and thought provoking advertisements similar to those already launched in parts of Scandinavia to raise public interest and action in combating global warming.

10. Discord Over Planned German Truck Charges

German transport minister Manfred Stolpe has rejected an appeal by the country's environment agency to aggressively increase the rate of truck charges to be introduced next year, doubling them by 2010. The agency had called for rates to rise to € 0.25/km in an effort to shift freight transport from road to rail. It calculated that the move would create up to 28,000 jobs and cut CO2 emissions by almost 3 million tons. Mr. Stolpe called agency's proposal "quite unrealistic," especially considering that "Germany has to respect EU norms for truck charges."

11. Economists Challenged To Join EU Air Pollution Debate

The European Commission has challenged experts in using economic instruments for environment policy to advise how the EU should make further cuts in air pollution. At a conference in Brussels, European and American economists were asked to suggest how the EU should finalize its CAFE air pollution program.

Head of the Commission's environment directorate, Catherine Day asked whether the EU should move away from traditional command-and-control forms of "direct regulation" to curb emissions, particularly of sulphur (SO₂) and nitrogen oxides (NO_x).

If so, she asked, would emission taxes or charges be a "politically acceptable alternative"? And if the EU decided to introduce more emissions trading, should this be organized at local, national or EU level?

Richard Morgenstern of Resources for the Future advocated a mix of regulation types, but said on balance there was "lots of evidence that market-based measures are at least as efficient as direct regulation, and in some cases more so". Direct regulation is "more likely to fall short of expectations," he said.

Thomas Sterner of Gothenburg University promoted a Swedish NO_x charging scheme in which proceeds are recycled to the industry. A similar scheme, or emission trading, would be needed to gain "political consensus" for tighter emission controls. Trading might be best organized as several separate regional markets all governed by common EU rules, he said.

There was some resistance to the idea of change. German large combustion plant operators said they simply wanted tighter emission limits to level the competitive playing field. One said that some Spanish plants operated at emission levels outlawed in Germany 20 years ago. An NGO delegate doubted whether more flexibility for industry would lead to lower emissions.

National experts added their voice: a British ministry official said clearer overall air pollution targets were needed before any changes in regulation, and that any taxes, charges or trading should remain voluntary for member states. A Dutch official suggested a reformed national emission ceilings directive as the vehicle for wider air quality targets, but argued for a diversity of regulatory approaches.

12. EU-15 "Could Be Totally Renewable By 2050"

The EU-15 states could shift completely to renewable energy by 2050, so eliminating fossil greenhouse gas emissions, according to pro-renewables NGO Inforce-Europe. Key to the group's vision is a massive, sustained improvement in energy efficiency, combined with little or no demand growth, leading to a four-fifths reduction in overall energy demand by 2050. The NGO calculates how renewable energies could be boosted to supply all this energy demand by then. The EU-15 are currently not on track to hit an existing 2010 target of a 12% renewables share.

13. French Assembly Approves Biofuel Tax Incentives

France's National Assembly Oct. 22 approved two new fiscal measures aimed at increasing the production and use of biofuels, a key element of the government's wider plan to reduce greenhouse gas emissions to lower the risk of climate change. Biofuel proponents say the two measures, approved as amendments to the 2005 budget bill, will push France toward a recently defined objective to triple biofuel production capacity, from today's 450,000 tons to 1.25 million tons by 2007. The first amendment will create a new corporate tax surcharge on gasoline and diesel fuel distributors who fail to meet government targets on the use of crop-based fuels. Corporate tax rates will rise by 1.2 percentage points in 2005 for firms that fail to meet the government's short-term biofuel goal for unleaded gasoline and diesel fuel to contain a minimum 2 percent biofuel content by the end of 2005. In an effort to ensure a steadily increasing supply of biofuels, Parliament also voted to extend existing gas tax relief for biofuels to an additional 130,000 tons in 2005.

14. German Survey Evaluates Costs, Benefits of Biofuels

On October 8th, a German research institute released a survey of studies on biofuels used in transportation as a way to reduce carbon dioxide emissions. The studies "vary greatly" in their estimations of the costs and environmental impact of different types of biofuels vis-à-vis fossil fuels due to different underlying assumptions about variables such as oil prices, the role of agricultural subsidies, and the scarcity of farmland which might be used to raise biomass crops, the survey concludes. While biofuels are generally better for the environment and costlier than fossil fuels, the studies reveal different advantages and disadvantages among the various types of biofuels. The survey selected 63 out of more than 800 studies on biofuels including biodiesel, bioethanol, and biomass-to-liquid fuels (BTL) and generated 109 assessments of energy efficiency rates and greenhouse gas emission levels of various biofuels.

"The analysis of existing international publications on energy and greenhouse gas balances of biofuels, as well as their further environmental impacts, costs and potentials estimations has shown that the findings vary greatly," the report said.

"The findings are often only comparable conditionally, and in some cases, considerable further research is needed," the report added. The report was conducted by the Institute for Energy and Environmental Research Heidelberg, in association with the German Research Association for Combustion Engines, the Union for the Promotion of Oil and Protein Plants and the German Association for Research on Automobile-Technique.

The report looked at the ecological impacts, the costs and the quantity potential of the biofuels. Overall, the 63 studies, which included 109 energy and carbon dioxide balances of various biofuels, found that biofuels are beneficial to the environment, but do come at a cost. For instance, biofuels "show both ecological advantages and disadvantages, compared to fossil fuels," the report noted. On the plus side is biofuels' contribution in conserving fossil resources and the reduction of greenhouse gases.

Among the biofuels, ETBE scores the highest in energy balance and in reducing greenhouse gases, the study said, while biodiesel is more preferable than 100%

vegetable oil. But, the report warns, "[t]he advantages of a few biofuels are not found in all geographic areas." For example, ethanol production from sugarcane is only limited to the tropical climate conditions (such as in Brazil's case), while the cultivation of sugar beets in the temperate regions is only found on particularly fertile soils, it noted. Additionally, "[b]iofuels from waste materials (such as biomass to liquids, BTL) can be evaluated only if alternative usages of the waste are taken into account," the report said, noting that has been ignored in previous studies.

Ecological disadvantages include "higher levels of eutrophication, acidification and ozone depletion associated with their use, due to the nitrogen compounds from agricultural production," the report said. However, it said that when other biofuel benefits are taken into account, "the disadvantages are less dramatic and do not tip the balance of a general, overall positive evaluation."

On the cost aspects of biofuels, the report noted they are generally higher than for conventional fuels. But the production costs of biofuels vary according to national agriculture incentives and different state specific costs, the report said. "The range of estimates from these factors is so wide and the uncertainty is so large that no serious or reliable ranking among the biofuels can be made based on the available literature," it said.

The report also found that the potential for biofuels production is limited, since there are restrictions from other competing land uses (food production, natural conservation, sustainable agriculture). While there are new production technologies, which is a determining factor in quantity potential (BTL, cellulosic ethanol), the report found it's impossible to predict when and which technologies would become available. So what did the report learn from these 63 studies? There were lots of shortcomings and therefore further research is needed, it noted.

Energy and greenhouse gas balance:

- Of the current biofuels, there is no energy or greenhouse gas balance study on biodiesel from palm oil, nor are there studies on biodiesel from jatropha or pyrolysis oil of those not yet massed produced.
- There are only studies for one conversion path for DME, methanol and BTL.

Production costs of biofuels:

- Reviewed did not contain cost estimates for ETBE.
- Detailed cost estimations aren't available for some biofuels (ethanol from sugarcane, biodiesel from soybeans).

For these, the total production costs are not divided into different components (raw materials, conversion costs, etc.) and therefore they aren't comprehensive and cannot be interpreted.

Potentials of biofuels:

- On available studies, competing land use with reference to natural conservation and competing biomass usages are only considered in one study and only for Germany. Such studies are missing other reference areas of the world.

Further environmental impacts of biofuels:

Energy balances were only estimated through 2010 and should be extended. Of the analyses, several biofuels are left out, including ETBE, 100% vegetable oil, ethanol from sugarcane and potatoes.

15. Driving Bans Under Consideration In Europe For Unfiltered Diesels

Drivers of diesel-powered cars without particle filters could face occasional bans in many European city centers next year under new EU air quality rules about to take effect. At issue are European Union limits on particulate matter that communities have to uphold from 2005 under clean-air guidelines adopted in 1996. Despite the long transition period, dozens of cities seem unprepared to meet the new standards, officials say.

Environmental groups are poised to help citizens file lawsuits over excessive pollution levels and say they stand excellent chances of success. The Council of German Cities estimates that the first violations of air-quality rules should begin in late February, when weather conditions tend to trap particulate matter. It sees driving bans as a measure of last resort and would prefer alternate steps such as detours. Driving bans are hardly enforceable when filters for diesel cars are not required as standard equipment, the association says.

Germany's environment ministry, led by Greens member Juergen Trittin, has blessed driving bans as an acceptable way to combat excess levels of pollution. Stockholm, for instance, has banned old, heavy trucks from the city centre since 1996.

The new rules come as good news for French carmaker PSA, whose Peugeot and Citroen brands have made particle filters a big selling point in Europe, where diesels account for around 40 percent of the new car market.

Big auto parts suppliers are looking to equip new cars and play down the idea of selling retrofit filters. But smaller rival HJS in southern Germany is working on a filter that drivers can install on their current diesel.

16. UK Delays Switch To Ultra Clean Motor Fuels

The UK will not join the list of European countries using ultra clean motor fuels at the start of next year, Chancellor Gordon Brown has announced. In a pre-budget report Brown said he would not introduce a tax incentive for fuels with a lower sulphur limit, of 10 parts per million (ppm) or 0.001 percent, which would trigger a switch from the current 50 ppm standard.

"We will not set a duty differential this year for sulphur free fuels," Brown said.

Earlier this year Britain signaled it would introduce a 0.5 pence per liter tax reduction on 10 ppm petrol sales from September 1. Germany and Austria led the way in switching to 10 ppm petrol in 2003, while Finland began offering the fuel to motorists in September. Sweden, Denmark and Norway will switch to 10 ppm on January 1, 2005.

A UK tax incentive was linked to a planned parallel tax increase of nearly two pence per liter for motor fuels at the pump, which the UK government delayed amid protests from truckers over high fuel prices. Brown said oil prices were still above average and froze fuel duty for this year, though he said duties should rise at least in line with inflation in following years.

Oil prices hit all-time highs of over \$50 a barrel in October, pushing European gasoline prices to record levels over \$500 a ton.

The timing of introducing an incentive in the UK for lower sulphur fuels is likely to remain a matter of confusion to oil companies that have prepared to meet stricter European Union environmental specifications. Refiners around Europe have invested heavily to cut sulphur and other pollutants, ahead of EU rules requiring a maximum of 50 ppm sulphur by 2005 and 10 ppm by 2009.

Brown caused uproar in the oil industry in 2002 when he slapped a 10 percent tax on oil and gas profits on top of 30 percent corporation tax and other special taxes already paid by the industry.

Brown announced a planned rise in petrol duties of nearly 2 pence per liter in his March budget. But that was postponed in the summer as surging energy costs pushed up petrol pump prices sharply and Brown promised to revisit the issue in the pre-budget report while applying pressure on leading oil producers to increase supplies.

Brown said he would press ahead with a lower duty differential for bioethanol in the new year, matching the equivalent duty differential for biodiesel.

17. German Study Shows Fuels Tax Boosting Energy Efficiency

Germany's tax on oil and gas is accomplishing its original objective of encouraging more efficient use of fossil fuels and lowering employer contributions to the pension system, according to a study released November 16. Revenues from the tax have gone to lower non-wage labor costs by [Euros] 8 billion (\$10.4 billion) annually, while approximately half of consumers surveyed said that the tax has made them more conscious of how they consume energy, the results indicated.

In drafting the eco-tax plan, the government applied a multiple benefit principle under which it designed the tax to have advantages for the environment, the business community, the general population, and state coffers by discouraging use of fossil fuels, making labor cheaper, and supporting the chronically underfunded state pension scheme.

Currently, the contribution to the pension plan is 19.5 percent of salary, but without the eco-tax revenues it would be 21.2 percent, according to the Federal Ministry of the Environment's scientific research bureau, the Federal Environment Agency (UBA), which

commissioned the study. State pension contributions in Germany are split between employer and employee.

Firms that are profiting from the eco-tax include those with high numbers of employees--due to the lower non-wage labor costs--and those which offer energy-efficient products or energy-saving consulting services.

More than half of all drivers surveyed said that because of the eco-tax they were driving more efficiently or were driving less, and three quarters said they were also more economical with electricity.

The tax was designed so that for the first three years of implementation, 1999-2002, the lower pension contributions would offset the extra oil and gas costs, and in 2002 the manufacturing industry saw net relief of [Euros]500 million (\$650 million), the UBA said. In 2003 the system began directing part of the eco-tax revenues away from funding pensions and toward consolidating the federal budget, and as a result the agricultural and transportation sectors became net payers in 2003, while other production sectors as well as the services, health care, and finance sectors, continued to see net relief.

The research institute Ecologic conducted the survey on consumer behavior in response to the tax, and the German Institute for Economic Research (DIW) studied the tax's effects on business.

18. Poland Planning Emissions-Based Vehicle Tax

Poland's finance ministry has proposed replacing an existing registration tax on new and imported second-hand road vehicles with a system based on emissions and engine capacity. The move responds to EU concerns that the current Polish tax acts as a barrier to imports. For the oldest vehicles meeting only Euro 0 emission standards, the tax rate will be about one euro per cubic centimeter of engine capacity. For the newest, cleanest cars the rate will be just a quarter of this. The plan has the support of the Polish car importers' association.

19. France Launches Natural Gas Pilot Project

France November 18 launched a pilot project aimed at boosting the use of natural gas vehicles as part of a wider campaign to reduce air pollution and combat climate change. The two-year program calls for the construction of compressed natural gas distribution centers in six mid-sized French cities: Bourges, Colmar, Montpellier, Orsay, Poitiers, and Strasbourg. Other cities may join later.

The pilot sites, to be built and operated by state-owned utility Gaz de France, will allow officials to test the efficiency of natural gas vehicles, assess their integration into the traffic stream, and analyze their contribution to the reduction of urban air pollution and greenhouse gas emissions.

The program is a public-private partnership between the government's environmental think tank (ADEME), the French Association for Natural Gas Vehicles (AFGNV), the

principal public transport lobbying association (GART), and Gaz de France. Representatives of the four groups were optimistic November 18 that the project would show that nationwide use of natural gas vehicles could help France meet its long-term environmental objectives.

ADEME presented data showing that natural-gas-powered vehicles emit on average 20 percent less carbon dioxide, 70 percent less carbon monoxide, and 87 percent less nitrogen oxides than gasoline or diesel-powered vehicles.

ADEME plans to offer subsidies to individuals, companies, municipal authorities, and transport networks that acquire natural gas vehicles during the pilot project. Subsidies may include payments of: up to [Euros]7,500 (US\$9,812) to municipalities or transit authorities buying natural-gas-fueled buses or garbage trucks; up to [Euros]1,500 (US\$1,962) for individuals or municipal authorities that buy natural -as-fired cars; and up to 30 percent of supplemental acquisition costs for private sector companies that buy natural-gas-powered transport vehicles.

20. France to Subsidize Emission Filters for City Buses

On November 30, France announced plans to eliminate most heavy particle emissions produced by diesel-powered buses in dense urban areas. The air pollution reduction initiative, announced by French Minister of Ecology and Sustainable Development Serge Lepeltier at the Pollutec environmental trade show here, will be subsidized by a government grant of [Euros]9 million (\$11.9 million) to be disbursed to municipal transit authorities for the purchase of new emission filters starting Jan. 1, 2005. The central government will finance up to two-thirds of purchase and installation costs for the new filters, which are expected to reduce particle emissions on more than 2,000 buses by at least 90 percent, Lepeltier said. Lepeltier expects all municipal transport authorities to voluntarily upgrade their bus fleets, at average per-bus costs of between [Euros] 4,000 and [Euros] 7,000 (\$5,320 and \$9,310). The government may issue new regulations in 2005 mandating filters on all existing buses if authorities fail to act voluntarily, Lepeltier said.

21. French Plan Tries to Reduce Transportation Emissions

On November 16th, the French navigable waterways authority Voies Navigables de France (VNF) signed a four-year Action Plan with the French government that will allow it to improve environmental protection on domestic rivers and undertake detailed engineering studies for a 120-kilometer canal linking the Greater Paris region to existing canal networks and sea ports across northwestern Europe.

VNF President Francois Bordry said that government support for the 2005-08 plan would mark a "decisive step" for the proposed Seine-Northern Europe wide-gauge canal, a [Euros] 2.5 billion (\$3.26 billion) project slated to begin construction in 2006. Proponents say that completion of the canal in 2012 could help the European Union meet targets for reducing air pollution and greenhouse gas emissions.

VNF estimates that current barge traffic on its French network, expected to approach the equivalent of 450,000 six-meter containers in 2004, reduces French carbon dioxide emissions by 13 million tons annually. VNF and French government officials believe that increased barge transport linked to completion of the Seine-Northern Europe canal will further cut greenhouse gas emissions by reducing gridlock on busy north-south motorways and by lowering emissions from diesel-fueled trucks and trains.

The Seine-Northern Europe canal will link the heavily-populated and deeply-congested Ile-de-France, or Greater Paris region, to a wide-ranging canal network across northwestern Europe, offering easy access to the French port at Dunkirk, the port of Zeebrugge in Belgium, and Europe's largest port, Rotterdam in the Netherlands.

The European Commission has identified the Seine-Northern Europe canal as a transportation priority, making the project eligible for various types of EU co-funding measures that VNF intends to seek in the coming years.

22. Italy's Cabinet Outlines Plan Laying Out National Environmental Goals

Italy's Council of Ministers November 25 approved the outline for a National Sustainable Development Plan, which will contain environmental targets for 2005-2015. The two-page document was produced by the Ministry of Environment and approved by the entire cabinet.

The outline emphasizes desertification in southern Italy; greenhouse gas emissions, which must be reduced as required by the Kyoto Protocol; water supply protection; plans to expand protected lands; the proliferation of genetically modified crops; protections for biodiversity; and environmental education for students and the general public.

The outline includes general goals for developing relevant legislation and for spending and measuring performance.

For desertification, it calls for a 10 percent increase in spending on research. For climate change, it calls for an increase in the use of environmentally friendly vehicles and power plants.

23. Blair Reportedly Seeks New Climate Pact With Bush

British Prime Minister Tony Blair is trying to involve the United States in a new international treaty on global warming, The Times newspaper has reported. It said Blair had held lengthy discussions with US President George W. Bush over a fresh initiative that would bypass Washington's opposition to the Kyoto Protocol, which seeks to curb climate change.

The United States has not signed up to the Kyoto pact, which will go into effect in February after Russia ratified it last month.

Blair has made the environment and Africa his two top issues for next year when Britain assumes the presidency of the G8 group of rich nations.

"It is being given the highest priority," a Downing Street source was quoted as saying. "There is an awful lot of work going on in the background on this."

Blair's spokesman later told reporters that discussions with Washington on climate change were no secret, and that the search was on for a consensus.

"We have always been involved in dialogue not only with the Americans but also with our European partners, with developed countries like Japan and also developing countries like China," he said. "While we believe Kyoto is very important ... we also have to recognize that Kyoto by itself is not enough to tackle this issue. What we have to do is push forward on the technological front ... at the same time as not harming economic growth in the world," he added.

24. UK in Danger of Missing CO2 Emission Target

Britain is in danger of missing its target of cutting carbon dioxide emissions by 20 percent by the end of the decade unless more steps are taken to curb pollution, Prime Minister Tony Blair has said. "At the moment, instead of a 20 percent reduction we will achieve a 14 percent reduction," Blair told parliament after the government launched a review of its climate change policy.

"However, we have years to go before we have to achieve that target and as we say today, we don't accept we won't meet it. We've got to make sure that we take the measures to meet it." He added that Britain would, however, meet its more modest Kyoto protocol target of cutting emissions by 12.5 percent from 1990 levels by 2008-2012.

Britain is relying on a threefold expansion of renewable energy, greater energy efficiency and curbs on CO2 emissions from industry to meet its 2010 target.

Emissions fell in the 1990s as coal-fired power stations were replaced by cleaner gas ones, but they have risen in the past couple of years partly as generators burned more coal after a rise in gas prices.

Industry has been set limits on CO2 pollution under the first phase of the European carbon emissions trading scheme which starts in January. If companies exceed their limits, they have to buy quotas from firms which undershoot their targets.

As part of the review, the government said it was considering its approach to the second phase of the EU's carbon emission trading scheme which runs from 2008-2012. In October, Britain said it would increase carbon dioxide quotas for industry after complaints -- especially from the power sector -- that its CO2 reduction plans were too tough. The government argues that its first proposal for cuts under the EU scheme was based on incorrect data and the new quotas will force industry to cut emissions substantially.

25. EU Industry Association Issues Critical Report On Climate Policy

The European Union's leading business lobby group issued a report November 18 forecasting that efforts to implement the Kyoto Protocol will cost the EU economy between 0.36 and 0.48 percent of gross domestic product by 2010, and that the treaty will fail in its objective of reducing global greenhouse gas emissions. The report, Competitiveness and EU Climate Change Policy, was commissioned by the Union of Industrial and Employers Confederations of Europe (UNICE) from the Copenhagen-based consulting group COWI.

The report also predicts that EU climate change policies will lead to a decline in overall exports of between 0.41 and 0.55 percent by 2010 and a decline in exports of energy-intensive product of between 3.8 and 5.1 percent by 2010.

"The report shows that in addition to the negative competitiveness impacts, pursuit of climate change policies as currently organized by a limited number of countries under the Kyoto Protocol will not result in satisfactory attainment of the stated environmental objectives," the report said. "The relocation of production brought about by EU current policy reduces the activities of European business to the benefit of companies located outside the EU in general operating at a much lower level of energy-efficiency and in many cases even without absolute emission restraints," it said. "This generates additional carbon dioxide emissions at the global level."

To offset the negative economic impact UNICE called for the EU to do the following:

- establish global cooperation for all countries and all regions to play their part, in particular the United States, China, and India;
- consider innovative methodologies for setting emission reduction objectives, since quantitative reduction objectives for countries as contained in the Kyoto Protocol seem poorly suited to establishing wide global cooperation;
- resist setting unilateral EU objectives for the period 2013-2020;
- ensure more effective deployment of the Kyoto Protocol's provisions for Joint Implementation and Clean Development Mechanism projects;
- ensure full access to the emissions quotas assigned to Russia and Eastern European countries; and
- adapt some EU internal instruments and policies, such as the EU emissions trading scheme.

The report was produced in anticipation of an EU summit to be held in March 2005 on economic competitiveness.

26. EU Environment Commissioner Steps Down As New Commission Is Approved

In her final appearance before the European Parliament as the European Union's Environment Commissioner, Margot Wallström on November 16th warned that her successors face "many years" of work in pursuit of global agreements on combating climate change.

The Swedish commissioner, who clinched key sections of the union's emissions reduction strategy--including an emissions trading system due to start at year's end--admitted that the Kyoto Protocol on limiting greenhouse gases is "not perfect," but it is "the one game in town."

Wallström's message was reinforced by a resolution adopted November 17th by the European Parliament in which it considered options for the Kyoto treaty's second commitment period, which commences in 2012.

Wallström was commenting on a debate in which parliamentarians discussed prospects for the Tenth Conference of Parties (COP-10) to the United Nations Framework Convention on Climate Change (UNFCCC), which took place in Buenos Aires, Dec. 6-17.

Lawmakers supported in particular an idea floated at Ninth Conference of the Parties (COP-9) to the UNFCCC in Milan, Italy, last year that emissions from international aviation and shipping should be targeted in the second commitment period. The resolution suggested that these sources might even merit a separate UNFCCC protocol.

Citing an Aug. 18 report, Impacts of Europe's Climate Change, from the European Environment Agency which warned that Europe's climate is warming at a rate faster than the global average, the Parliament's resolution welcomed the Russian Federation's decision to ratify the Kyoto Protocol, which will enable the agreement to come into force. The Parliament called on the United States to reconsider its decision to withdraw from the Kyoto accord, which has now been ratified by 126 nations.

Wallström is taking up a new post as vice president of the Commission with special responsibility for relations with the Parliament and the EU Council of Ministers, the body that represents the 25 EU member-state governments.

The appointment of Wallström's successor, Greek nominee Stavros Dimas, and 23 other commissioners was confirmed by the EU Parliament on November 18th. The vote ended a three-week stand-off that forced incoming European Commission President Jose Manuel Barroso to reshuffle other members of the team, which is due to serve a five-year term as the union's executive body.

Pending settlement of the dispute between the Parliament and Barroso, Wallström had agreed to stay on as caretaker environment commissioner.

NORTH AMERICA

27. Trucking Industry Won't Fight Diesel Rules

After years of resistance, the U.S. trucking industry says it will not try to impede or delay the federal rule aimed at cutting heavy duty truck diesel pollution. The American Trucking Association, a trade group, says it is satisfied by the Bush administration's attention to industry concerns. The Clinton-era rule backed by President Bush's Environmental Protection Agency in 2001 requires cleaner diesel fuel beginning in 2006, and less-polluting diesel engines in heavy-duty trucks and buses starting in 2007. All new engines would be covered by 2010.

"Many environmental groups have been concerned that ATA will seek a delay in the implementation of the rule. I can tell you without reservation that ATA does not intend to challenge EPA's diesel engine emission standards," Bill Graves, the group's president, said in a prepared speech. "It is very clear to ATA and the motor carrier industry that this rule will result in significant positive impacts on the quality of our nation's air," Graves, a former Republican governor of Kansas, says in the speech.

The new rule requires refiners to lower the amount of sulfur in diesel fuel for truck and bus engines from the current level of 500 parts per million down to less than 15 parts per million by June 2006. That means less pollution will come out of the tailpipes. It also requires manufacturers to phase in between 2007 and 2010 cleaner-burning diesel engines for tractor-trailer rigs and other heavy-duty trucks and buses.

The statement by Graves seems very clear with regard to the 2007 requirements but much less clear with regard to the 2010 final standards.

28. CARB Approves Low Sulfur Fuels For Locomotives and Harbor-craft

The California Air Resources Board (ARB) has approved a regulation that requires ARB low sulfur diesel fuel to be used in intrastate locomotives and harbor craft. The ARB also amended two other fuel related rules to address logistical concerns for California's reformulated gas (RFG), and to extend the implementation schedule for the Enhanced Vapor Recovery program (EVR).

The new regulation requires all intrastate locomotive and harbor craft to begin using CARB diesel by January 1, 2007 (one year earlier in the L.A. region). This is the same fuel currently used by all on-road diesel motor vehicles in California. By 2006, CARB diesel will have no more than 15 parts per million by weight (ppm/w) of sulfur. This measure will reduce emissions of nitrogen oxides (NOx) by 730 tons per year (tpy), emissions of sulfur oxides (SOx) by 657 tpy, and emissions of particulate matter (PM) by 219 tpy. Presently the diesel fuel used in these engines is the federal blend which allows sulfur content up to 500 ppm/w. Without this regulation, use of this fuel would continue until 2012 when the federal sulfur standard will change to one similar to the current CARB standard.

The board also adopted measures designed to amend regulations controlling the refining of California Phase 3 reformulated gasoline (CaRFG). The amendments clarify current requirements, provide additional flexibility, correct errors, and generally improve the enforceability of the regulations. The CaRFG regulations were originally adopted in March 1999 to phase out the use of MTBE in California gasoline. The amendments include a correction to the procedures, several amendments which provide or restore flexibility to suppliers, clarify requirements for production and transportation of gasoline, and other miscellaneous changes.

The last of the fuel measures which was adopted was a schedule extension for implementation of the Enhanced Vapor Recovery program. Vapor recovery is the system by which the gasoline fumes created at gasoline service stations is controlled. Extensions were requested because it has taken longer than expected to certify vapor recovery systems meeting all Enhanced Vapor Recovery requirements. Additional time

will allow service station operators more options to upgrade existing equipment in a cost-effective manner.

29. US and China to Pursue Retrofits, Other Vehicle and Fuels Measures

In a joint Chinese-US initiative, diesel vehicles in Beijing will be retrofitted to reduce emissions. The demonstration project will test the feasibility of retrofitting diesel fleets in Beijing with advanced emissions control technology and cleaner fuel. If effective, the practice will be promoted across the country to improve air quality, Chinese and US environment officials said after signing up to the project's work plan.

The project is a part of the clean air and energy cooperation strategy between the China State Environmental Protection Administration (SEPA) and US Environmental Protection Agency (EPA).

Also signed between SEPA and EPA was a general plan on vehicle emissions control and transportation issues. This lists areas of Sino-US collaboration such as fuel quality, heavy-duty diesel retrofits, technologies for vehicles in use and short-term priorities like the Beijing demonstration project.

A joint committee of experts will work out the details of the Beijing project. Issues such as how many and what type of vehicles will be retrofitted, what fuels they will use and how long the project will last have yet to be decided by the committee.

Beijing will host the Olympic Games in 2008 and has promised that air quality in the city will be as good as that in developed countries during the Games. Beijing is likely to adopt the Euro III emissions standard by 2005, said Zhang Lijun, head of SEPA's Pollution Control Division in early July, as it was announced that Euro II had come into force across China. Beijing, which has the largest number of vehicles on its roadways in the country, began implementing the Euro II standard at the beginning of last year.

30. EPA Reviewing Air Pollution Standard for Lead

Under pressure by two Missouri lawsuits, the federal government has begun reviewing its 26-year-old air pollution standard for lead. The Environmental Protection Agency has said it has begun collecting scientific data to update the rule. The new scrutiny comes at a time when studies have shown that lead is dangerous at a third of the level considered safe in the 1970s. And it follows federal lawsuits this year by the Missouri Coalition for the Environment and Missouri Attorney General Jay Nixon, each seeking to force the EPA to review the standard in light of the latest scientific information about health consequences of lead.

Though the Clean Air Act requires the EPA to review standards for major air pollutants every five years, the lead standard hasn't been reviewed since 1990. In his August lawsuit, Nixon accused the EPA of ignoring mandated reviews of air quality for lead, potentially threatening the health of Missourians

Lead air pollution emissions plunged 93 percent from 1982 to 2002, after the phase-out of leaded gasoline.

A large section of southern Missouri is known as the Old Lead Belt because it was, for years in the early- to mid-20th century, a leading source of lead. High levels of lead have been found in some communities, including Herculaneum, near St. Louis, the site of the nation's largest lead smelter, operated by Doe Run Co.

A high percentage of Herculaneum children have been found to have elevated levels of lead, though the percentage has been dropping in recent years due in part to cleanup efforts and property buyouts by Doe Run. The Herculaneum smelter did not meet the EPA's air standard until 2002, after years of work to reduce emissions.

31. Canada Sets Goal to Cut Car Greenhouse Emissions

Two top Canadian ministers have said that they had resolved to cut global-warming emissions of cars and trucks sold in Canada by 25 percent by the end of the decade. The commitment means that the auto industry faces steep cuts in greenhouse gases in Canada as well as in California and the Northeastern United States, a geographic expanse that encompasses nearly one-third of the cars and trucks sold in North America.

The Canadian ministers said they expected to conclude soon several years of negotiations with the auto industry over the government's 25 percent emissions reduction goal, and they made clear in an unusual joint interview that they would not settle for a lower reduction number.

"We're very clear where we want to go," said John Efford, Canada's natural resources minister. "We are not backing off from our position. Are we going to say 10 percent is O.K.? Fifteen percent? No. Twenty-five percent is our goal and the auto industry clearly understands that."

Stephane Dion, Canada's environment minister, said "the fact that California has moved, the fact that some northern states like Maine and New York are saying that they are considering to take the same regulations as California, if you add Canada to that, it's a third of the market. I don't see why North America can't be a leader instead of a follower."

Seven Northeastern states follow California's air quality regulations, and in a meeting earlier this month representatives from those states indicated they were likely to follow California's new greenhouse gas regulation, adopted in September, which lays out a 30 percent emissions reduction by 2016.

The California regulation still faces an almost certain legal challenge from the auto industry.

Environmentalists regard the California regulation as increasingly important after the re-election of President Bush, who has opposed greenhouse gas regulations, including the Kyoto agreement, a global pact aimed at cutting emissions. They also say that technologies like hybrid electric cars, including the Toyota Prius, are proof that the industry already has the technology to exceed the proposals.

The California politician who spearheaded that state's tough new car emissions regulation has urged Canadian lawmakers to follow suit. Fran Pavley, a member of the California legislature, met with Canadian environment minister Stephane Dion and other officials on Parliament Hill during a recent visit. Pavley suggested the minister may have to impose regulations if car makers keep dodging the issue. She points out they've opposed air bags and seatbelts in the past.

John Efford, the minister of natural resources, also spoke with Pavley. "We've set goals and we will meet them in 2010," he promised.

A spokesman for Dion said the minister has accepted an invitation to visit California in January to learn more about the issue.

32. Canadian Minister to Visit California To Discuss Auto Standards

Canadian Environment Minister Stephane Dion will visit California in January to gather information on how that state plans to reduce greenhouse gas emissions from automobiles without harming the automotive industry, ministry spokeswoman Emma Orawiec has told the press. Dion will take up an invitation from California Assemblywoman Fran Pavley, who met in Ottawa with Dion and Natural Resources Minister John Efford in November.

Canada remains committed to reducing automotive greenhouse gas emissions by 25 percent from 1990 levels by 2010 despite ongoing opposition from vehicle manufacturers, Orawiec said. The target has been in place since the government's 2002 Action Plan on Clean Air, which calls for similar reductions from all industries as part of Canada's commitment under the Kyoto Protocol, she said. "The auto industry is just one sector," she said.

Negotiations with Canadian manufacturers are still ongoing, and the government has yet to set a deadline for taking action, she said. However, Russia's November ratification of the Kyoto Protocol, which will bring the agreement into effect in 2005, adds a degree of urgency to Canada's efforts to implement emissions reductions, she said.

33. US Automakers Challenge California Rules; Pensions React

US automakers have challenged California's new air quality regulations to reduce greenhouse gas emissions from cars and trucks. The regulations, adopted unanimously in September by the state's Air Resources Board, are the nation's first-ever rules to lower emissions of carbon dioxide and other gases linked to global warming.

The Alliance of Automobile Manufacturers, representing Detroit and foreign automakers, said it joined with a group of California car dealers in filing a lawsuit in US District Court in Fresno, California, challenging the rules. The suit challenges California's legal authority to regulate motor vehicle fuel economy, the industry group said.

The Alliance members are Ford Motor Co. General Motors Corp. DaimlerChrysler and six other car and truck companies.

The emission rules for California, the nation's biggest auto market, will require automakers to cut emissions in cars and trucks by as much as 25 percent beginning with the 2009 model year, with cuts accelerating to about 30 percent in 2016.

The standards will raise car prices in California by an average \$3,000, the automakers said, but proponents of the regulations said the claim was exaggerated.

New York, New Jersey and the New England states have said they are likely to follow the California rules when making their own plans to reduce vehicle pollution, and Canada is studying the program.

California and New York state officials promised Tuesday to enlist their huge pension funds to pressure the auto industry to comply with the emission rules. Employee and teacher pension funds in the two states have more than \$2 billion invested in automakers.

The Calpers board, the biggest US pension fund, said Monday it wants major car makers to meet with it and defend their lawsuit against California's new rules for reducing exhaust emissions. Calpers may join the lawsuit in support of the rules, a fund spokesman said.

The board of the California Public Employees' Retirement System, best known as Calpers, will join with the third-largest US pension fund, the California State Teachers' Retirement System, best known as Calstrs, to lobby car makers to reconsider their lawsuit.

Calpers owns shares in auto makers worth more than \$838 million and Calstrs' shares in auto makers are worth more than \$716 million.

34. Transport Canada Approves Projects to Reduce Transport Emissions

On October 20th, Transport Canada approved C\$1.5 million (\$1.2 million) in funding for four projects utilizing new technologies to reduce greenhouse gas emissions from the country's transportation sector. "All of the projects will result in a significant reduction of greenhouse gas emissions for the freight companies involved," Transport Minister Jean Lapierre said in a statement.

The projects are:

- Canadian National's purchase and installation of distributed power systems on six locomotives on the Montreal-based railway's St. Romauld-Montreal East route. The project, with C\$500,000 (\$395,000) in federal funding, could reduce greenhouse gas emissions on that route by 10 percent.
- Installation by the Montreal-based Railway Association of Quebec Inc. of auto-start and auto-shutdown technology on its locomotives, leading to reduced fuel

consumption and exhaust emissions. The federal contribution is C\$500,000 (\$395,000).

- Purchase by Vancouver-based IDC Distribution Services Ltd. of a "Green Kid" hybrid switching locomotive whose fuel consumption is 57 percent less than that of a traditional locomotive. The federal contribution is C\$370,000 (\$292,300).
- Quebec Cartier Mining Co.'s purchase and installation of track lubrication systems for existing locomotives that lower friction and reduce energy use. The project, with C\$147,500 (\$116,525) in federal funding, could cut emissions by up to 5 percent.

Funding for the projects is under the Freight Incentives Program, part of the C\$32.3 million (\$25.5 million) allocated in August 2003 for the Commercial Transportation Energy Efficiency and Fuels Initiative. The program funds purchase and installation of greenhouse gas reduction technologies in the air, rail, and marine freight transportation sectors to a maximum of 50 percent of total eligible costs, C\$500,000 (\$395,000) over a two-year period, and 50 units or 75 percent of a company's fleet, whichever is lowest.

Eligibility criteria include: potential to reduce greenhouse gas emissions; potential for other benefits such as improved air quality; adaptability for other organizations; and value per ton of reduced greenhouse gases emissions.

35. ARB Enforces Software Regulation Upgrade for Big-Rig Trucks

The California Air Resources Board (ARB) has enacted a regulation that will require owners of nearly 60,000 heavy-duty trucks, school buses and diesel-powered motor homes built between 1993 and 1999 to have their computer software upgraded to reduce excess smog-forming emissions. The action was taken after a seven-month trial voluntary program was unsuccessful in upgrading enough trucks.

ARB Chairman Dr. Alan Lloyd said, "These vehicles have been operating on California's streets and roads for more than 10 years without any appreciable effort being made to replace their defective software and reduce their emissions. In March, we gave the manufacturers six months to upgrade a reasonable number of these trucks to avoid regulation but we have not seen enough progress to wait longer and put Californians at further risk, therefore we must enact the regulation without further delay."

The regulation, adopted in March 2004 by the ARB will require most heavy-duty diesel trucks, buses and motor homes built between 1993 and 1999 to install new software, a process called reflash, to prevent the release of additional nitrogen oxide emissions. The ARB adopted the regulation after data showed that only about 13 percent of heavy-duty diesel vehicles that need reflash have been upgraded.

The upgrade requirement stems from a \$1.04 billion settlement between USEPA, ARB and the six largest truck manufacturers: Detroit Diesel Corp. (DDC), Renault/Mack, Volvo, International, Caterpillar and Cummins over emission control software that increased emissions when the vehicle operated under conditions not included in government emission compliance tests. As part of that settlement, manufacturers agreed

to reflash their 1993 through 1998 vehicles during engine overhauls, projected to be at about 350,000 miles. However, most of these engines have long exceeded that mileage; some are now over one million miles old, without being overhauled.

As a result, the ARB required the upgrades whether engines are being overhauled or not.

In March, the ARB gave manufacturers until November 2004 to voluntarily reflash 35 percent of all California registered vehicles that required the upgrade, from the 13 percent already upgraded. Only one manufacturer, DDC, was able to meet that goal. The other manufacturers fell short of the goal and overall achieved a voluntary rate of only 18 percent of all vehicles needing the upgrades despite a concerted effort by the California Trucking Assn. to conduct them throughout the summer. As a result of its effort, DDC was allowed to continue its voluntary compliance program.

The mandatory reflash program will require the oldest trucks (1993-94 models) to be upgraded by April 30, 2005. Those built in model years 1995-96 to have their upgrades completed by August 31, 2005 and those built in 1997 and 1998 must be reflashed by December 31, 2005. Owners of 1997 and 1998 medium heavy-duty vehicles, mainly delivery trucks and motor homes, have until December 31, 2006 to have the reflash completed.

36. Many Counties Failing Fine-Particle Air Rules

About a third of all Americans live in counties that do not meet seven-year-old standards for microscopic particles (particles known as PM_{2.5}, shorthand for particulate matter measuring no more than 2.5 microns) that cause thousands of premature deaths a year, the Environmental Protection Agency has announced. The 20 states affected now have three years to develop plans to bring their problem counties into compliance by 2010, or face the loss of federal highway money.

The Clinton administration set the rules under the Clean Air Act; legal challenges went all the way to the Supreme Court, where the rules were upheld.

Monitoring by the agency began several years ago and found that of the nation's 3,141 counties, 2,909 - home to 192 million people - were meeting the PM_{2.5} standards. But the data also showed that the standards were exceeded in 225 counties and the District of Columbia, with a total of 95 million people. (Seven other counties did not produce enough reliable data to be counted.)

The EPA declaration sets in motion complex requirements for the 20 states that have areas in noncompliance with the fine-particle standards. By law, the states must now develop programs, which require federal approval, which will address the sources of the PM_{2.5} pollution so that compliance is achieved by 2010.

By the agency's estimates, even partial compliance by 2010 would prevent 15,000 premature deaths a year, 75,000 cases of chronic bronchitis, 20,000 cases of acute bronchitis, 10,000 hospital admissions for respiratory and cardiovascular diseases, and loss of 3.1 million days worked.

37. Panel Suggests Ways to Ensure US Energy Security

The United States must diversify its global oil supplies, expand a world network of strategic petroleum reserves and raise fuel efficiency standards to ensure its energy security, a panel of experts recommended in a new report. These are some of the findings from the National Commission on Energy Policy, a bipartisan group of energy experts, company executives and government officials, to address major long-term US energy challenges.

The recommendations could be used by lawmakers in the new Congress next year who will try to approve a bill to overhaul US energy policy.

The commission said the US government should apply diplomatic pressure to encourage nations with underdeveloped oil reserves to allow foreign investment.

"Recent developments in world oil markets, including rapid growth in global demand and the emergence of terrorist threats to oil facilities, are bringing new urgency to perennial concerns about the nation's exposure to oil price shocks and supply disruptions," the panel's report said.

The commission released its recommendations after two years of deliberation.

While it calls for increased energy supplies, it also links energy production and the environment -- especially global climate change. The commission suggests mandatory limits on the amount of greenhouse gas emissions linked to global warming that can be spewed by power plants, oil refineries and other industrial facilities. To meet that goal, it recommends creating a trading program that would allow more polluting companies to buy permits to emit carbon dioxide emissions.

The commission also recommends the government provide support to build an Alaskan natural gas pipeline, one or two advanced nuclear power reactors, promote clean coal, and take steps to protect critical energy infrastructure from "accidental failure and terrorist threats." Noticeably absent from the report was a recommendation on whether oil drilling should be allowed in Alaska's Arctic National Wildlife Refuge (ANWR). Drilling in ANWR is a key part of the Bush administration's national energy policy and Congress is likely to decide early next year if oil companies can have access to the refuge. However, the commission did not take a position on the matter because the panel's members could not reach an agreement on the drilling issue.

All of commission's recommendations had to be unanimous to be included in the final report.

For example, while the panel agreed that vehicle mileage requirements should be significantly increased to reduce oil consumption and crude imports, the members could not agree on how much mileage standards should be raised. Gasoline use accounts for about 44 percent of total US oil demand. At 24 miles per gallon, the combined average fuel economy of new cars and trucks is now no higher than it was in 1981.

Key recommendations of the group included:

- Spend \$3 billion over 10 years in incentives for auto makers and consumers for efficient hybrid-electric and advanced diesel vehicles.
- Create mandatory program of tradable permits to limit greenhouse gas emissions while capping initial costs at \$7 per metric ton of carbon dioxide-equivalent reduction.
- Expand energy efficiency standards for new appliances, equipment and buildings.
- Encourage the construction of liquefied natural gas import facilities.
- Adopt incentives for construction of an Alaska natural gas pipeline.
- Spend \$2 billion over 10 years to build one or two new advanced nuclear power facilities for demonstration purposes.
- Expand global network of strategic petroleum reserves and diversify world oil production.
- Spend \$4 billion over 10 years in incentives for coal gasification technology and to capture and sequester carbon emissions.
- Spend \$3 billion over 10 years to demonstrate commercial-scale carbon capture and geologic sequestration at a variety of sites.
- Increase federal funding for renewable electricity technologies by \$360 million annually.
- Extend through 2009 the federal tax credit for electricity produced from non-carbon energy sources such as wind.
- Clarify rules for cost-recovery to encourage more investment in electric transmission lines and improve reliability.
- Spend \$1.5 billion over 10 years to increase production of non-petroleum renewable fuels for transportation.

38. EIA Says US Petroleum Demand to Grow 37 Percent by 2025

US petroleum demand is expected to grow by a projected 37 percent by 2025, forcing the nation to rely even more on foreign suppliers to meet its growing oil thirst, the government has announced. Petroleum demand is set to grow at an average rate of 1.5 percent to 27.93 million barrels per day (bpd) in 2025 from 20.45 million bpd in 2004, according to the US Energy Information Administration's long-term forecast.

According to EIA:

- Imports from the Middle East, Venezuela and other foreign suppliers will grow to 19.11 million bpd in 2025 from 11.78 million bpd in 2004.
- The US economy will import 68 percent of its petroleum needs in 2025, up from 58 percent now.
- OPEC is expected to pump 55 million bpd of oil in 2025, 80 percent higher than the 31 million bpd it produced in 2003.
- US crude oil production is expected to peak at 6 million bpd in 2010 and fall to 4.73 million bpd in 2025 as the nation's mature production basins are tapped out.
- Non-OPEC nations will boost oil production to 65 million bpd in 2025 from 49 million bpd in 2003.
- US natural gas demand will grow to 31.47 trillion cubic feet (Tcf) in 2025 from 21.94 Tcf in 2004 -- a 43 percent increase.

- Natural gas imports from Canada will not be able to keep pace, so US markets will rely on supplies from a yet-to-be-built Alaska pipeline and imports of liquefied natural gas from other nations.
- Alaska's natural gas shipments will rise to 2.2 Tcf in 2025 from 400 billion cubic feet (Bcf) in 2003 with the projected completion of a pipeline in 2016.
- Imports of LNG will rise to 6.4 Tcf in 2025 versus 400 Bcf in 2003, with new facilities to off-load tankers proposed in several Lower 48 states.
- Coal will remain the nation's primary source of electricity through 2025, accounting for about half of generation capacity. Natural-gas fired generation will grow to 24 percent of capacity in 2025 from 16 percent in 2003.
- US nuclear generation will increase slightly, but no new plants are expected to be built because of unfavorable economics.

39. DaimlerChrysler, GM in Pact on Hybrids

DaimlerChrysler and General Motors Corp. will jointly develop new hybrid vehicle technology as they strive to catch up with Japanese rivals on the fuel-saving systems that reduce harmful emissions, the companies have announced. The automakers will co-develop a "two-mode" hybrid technology that will boost both acceleration and fuel economy by 25 percent and can be used on a wide variety of vehicles, the companies said.

The deal teams GM, the world's biggest automaker, and German-American DaimlerChrysler, the global number five, against rivals, including Toyota Motor Corp. and Honda Motor Co. Ltd., which have a head start in the hybrid market.

GM will first use the system in late 2007 in its Chevrolet Tahoe and GMC Yukon full-size SUVs, Stephens said. Chrysler will follow "shortly after" with a hybrid version of its Dodge Durango full-size SUV among a range of hybrids, Ridenour said. The SUVs will be sold in the US market, where growing cash incentives have become necessary to sustain sales of large SUVs.

Hybrids burn less fuel by adding one or more electric motors to a conventional gasoline or diesel engine. The batteries help power the vehicle and recharge automatically by capturing energy during braking.

The "two-mode" hybrid system will improve fuel economy at highway speeds and trailer towing ability, which are both key for the US market, the companies said. The system's electric motors are designed to fit within the approximate space of a conventional automatic transmission.

Toyota's Prius passenger car, first launched in Japan in 1997, has emerged as the most popular hybrid, with US sales of more than 47,000 so far this year. Customers in the United States often have to wait half a year or longer to get one, despite a price premium of about \$3,000 over similarly-sized vehicles.

Chrysler and Mercedes have not rolled out any hybrid vehicles yet. GM earlier this year began offering hybrid pickup trucks, but in very small volumes to some fleet customers,

and the vehicles only get a 10 percent to 12 percent improvement in fuel economy. Some analysts do not consider the vehicles to be true hybrids.

Honda Motor Co. Ltd. began selling its third hybrid in the US last week and Toyota has said it will eventually offer hybrids across its entire vehicle lineup.

40. New US Energy Chief Seems Likely to Keep Low Profile

The choice of a low-profile Treasury Department official to be the new US energy secretary apparently signals that the Bush administration wants an experienced administrator to run the department, leaving policymaking to the White House. Nominee Sam Bodman would bring little direct energy industry experience to the job, if confirmed by the US Senate. Bodman spent his career as a chemical engineering professor, Fidelity Investments executive and as chairman of Cabot Corp., a specialty chemical company that makes colored ink for printers and carbon black for tires.

Bodman, 66, was tapped by the Bush administration for senior jobs with the Commerce and Treasury Departments during the past four years.

Industry analysts and lobbyists reportedly have said Bodman's selection virtually guaranteed that Vice President Dick Cheney, the former chairman of oilfield services giant Halliburton, would keep his tight grip on energy policy. The White House has repeatedly denied that Cheney directs US energy policy.

It remains to be seen whether Bodman, who has some experience with international trade issues, will be given a major role in dealing with OPEC nations. The United States imports more than half of the oil it consumes.

Bodman will oversee ongoing Energy Department initiatives aimed at promoting new nuclear power plant construction, cleaning up coal-burning generation plants, and inventing new hydrogen-powered cars and power plants that do not emit heat-trapping greenhouse gases.

Some of the issues facing the Energy Department over the next few months include:

- Winning congressional approval for the Bush administration plan to open the Arctic National Wildlife Refuge in northern Alaska to oil drilling.
- Working with Congress on a broad energy bill with incentives to boost domestic oil, natural gas, nuclear power, coal and renewable energy sources.
- Filling the nation's Strategic Petroleum Reserve to its capacity of 700 million barrels of crude oil.
- Improving the reliability of the nation's electric grid to prevent blackouts.
- Providing incentives for US utilities to build cleaner-burning coal plants to generate electricity.
- Accelerating the clean-up of former US nuclear weapons sites.
- Recovering spent nuclear fuel from other nations to help keep the material out of the hands of terrorists.
- Providing nuclear non-proliferation technical leadership to prevent the spread of materials and technology for weapons of mass destruction.

- Preparing a permanent, long-term storage site for US nuclear power plant waste under Yucca Mountain in the Nevada desert.
- Supporting US industry efforts to build first new nuclear power plant since the Three Mile Island plant accident more than two decades ago.

41. Environmental Protection Agency Hasn't Achieved Improvements It Touted

The federal government has quietly allowed oil refineries nationwide to miss court-mandated deadlines to reduce air emissions, prolonging the exposure of hundreds of thousands of people to dangerous pollutants. In almost every instance, the Environmental Protection Agency did not tell the courts or the public about the deadline changes, even when legal settlements require it to do so, according to a Texas newspaper, the Star-Telegram.

Because of the numerous revisions, the EPA's Petroleum Refinery Initiative has not achieved the air quality improvements that the agency has claimed, the Star-Telegram found.

The EPA credits the initiative with slashing air pollutants and has declared it one of the most comprehensive and successful enforcement efforts. Under the initiative, the EPA uses legal settlements known as consent decrees to resolve decades of alleged pollution violations. In return for installing pollution controls and paying a fine, companies are immediately released from all legal liability.

"Settlements under EPA's Petroleum Refinery Initiative have reduced emissions of air pollutants by 200,000 tons per year at 48 refineries in 24 states," Tom Skinner, the agency's top enforcement official, touted in an October news release. Skinner's claim was repeated the next day in an article in The Washington Post. But in reality, the reductions apparently total only about a fifth of that amount.

A Star-Telegram review of oil company data submitted to the agency and interviews with oil company officials indicate that the program, to date, has resulted in annual reductions of no more than 40,000 tons of nitrogen oxides, sulfur dioxides and particulate matter -- the primary pollutants targeted by the initiative. When asked how he came up with the figure of 200,000 tons, Skinner acknowledged that such a reduction has yet to be achieved.

"That's poor word choice," he said. "The bottom line is, once the controls are implemented that are contained in the consent decrees, we will achieve approximately 200,000 tons per year in emissions reduction. So, it's been achieved in the sense that there's a solid commitment to make it happen. But the emissions have not actually been removed from the air at this point.

Many delays have been caused by widespread failure of pollution-control technology and equipment, the Star-Telegram found in reviewing more than 50,000 pages of documents. All told, the problems led to deadline extensions at more than two of every three refineries with court-approved settlements.

The courts did not review most of the revisions because the EPA never submitted them. Federal regulators also failed to consistently alert state governments and environmental groups that are legal parties to the settlements, though they are required to do so.

42. Canadian Airline Industry Pledges To Cut Greenhouse Gas Emissions

On November 15th, Canada's airlines pledged to reduce their greenhouse gas emissions by an average of 1.1 percent per year to help Canada meet its Kyoto Protocol commitments. The reductions, confirmed in an agreement signed with Transport Canada, would bring the industry's total emissions reductions to 24 percent below 1990 levels by 2012, Cliff Mackay, president of the Air Transport Association of Canada, said in a statement.

Under the Kyoto Protocol, Canada is required to reduce its greenhouse gas emissions by 6 percent from 1990 levels by the end of the 2008-2012 period.

The agreement with Transport Canada calls for Canadian airlines to reduce their annual emissions of greenhouse gases by 129 kiloton's of carbon dioxide equivalent. That would represent a cumulative reduction of 2,838 kiloton's over the 1990-2012 period.

The 1.1 percent annual decrease in emissions seems small, but it will have an "enormous" impact on the industry's operations, Mackay said. It represents a reduction of 50 million liters of fuel burned per year, or 1.1 billion fewer liters burned over the 1990-2012 period, he said.

Mackay noted that Canadian airlines have participated in international efforts to improve their environmental performance, including through the International Civil Aviation Organization and the International Air Transport Association. Since the early 1970s, those initiatives have improved the fuel efficiency of Canadian airlines by 51 percent, he said. "This new commitment will extend our efforts significantly," he said.

43. Newfoundland Expands Program to Cut Car Pollution

On November 15th, Natural Resources Canada said it will support the expansion of a program to promote greenhouse gases emissions reductions from vehicle fleets in the city of St. John's, Newfoundland. The second phase of the Smart Taxis Encouraging Environmental Respect Program will see the education initiative launched by St. John's taxi drivers in 2001 expanded to other vehicle fleets and the general public, the federal energy department said in a statement. "Transportation accounts for 25 percent of Canada's greenhouse gas emissions, the main contributor to climate change," said Natural Resources Minister John Efford. The program's first phase emphasized voluntary action by taxi drivers to drive slower, regularly check tire pressures, and eliminate excessive engine idling. The second phase will evaluate the success of the program, transfer knowledge to the city's and other vehicle fleets, and provide educational materials to the public on developing and promoting "no-idling" zones.

44. Honda Gets 'Greenest' Award From US Group

Japanese automakers produce the cleanest-burning vehicles and they were led in the 2003 model year by Honda Motor Co., while General Motors Corp. placed dead last, according to a US environmental group. The Union of Concerned Scientists -- an independent, nonprofit alliance of more than 100,000 scientists and other activists -- presented the results in its biennial report on the pollution performance of vehicles produced by the six largest automakers in the US market.

The report focuses on smog-forming pollution and carbon dioxide or heat-trapping gas emissions, the main pollutant linked to global warming. Passenger vehicles are blamed for roughly one-fifth of the smog-forming pollution in the United States.

The emissions performance of Honda was ranked the best for the third consecutive time and the Union of Concerned Scientists said its researchers found it builds vehicles that produce less than half the pollution of the industry average, when it comes to smog-forming emissions. In global warming pollution Honda slipped from previous studies, however, producing just 18 percent less than the industry average.

Nissan Motor Co. Ltd. placed second in the rankings for the 2003 model year and Toyota Motor Corp. was third, followed by Ford Motor Co., DaimlerChrysler and General Motors.

The report said GM, the world's largest automaker, was the only one to produce vehicles that emit more smog and heat-trapping gases in the 2003 model year than they did in the 2001 model year.

45. Ontario Approves 10 Projects for Renewable Energy

On November 24th, the Ontario government approved 10 projects to produce 395 megawatts of renewable energy to cut air emissions by reducing the province's reliance on coal-fired electricity generation. The water power, landfill gas, and wind projects will provide sufficient electricity to power more than 100,000 homes, provincial Energy Minister Dwight Duncan said in a statement. "They will reduce our dependence on dirty coal-fired plants and enhance air quality," Duncan said. The project approvals are the first phase in meeting the government's commitment to provide 5 percent, or 1,350 megawatts, of renewable generating capacity by 2007 and 10 percent by 2010, he said. The province had received 41 proposals in response to its June 2004 request for proposals for the production of 300 megawatts of electricity from renewable sources. The proposals were reviewed by an interministerial evaluation committee, and the entire process was overseen by an independent fairness commissioner. The approved proponents have signed contracts to supply renewable electricity capacity for 20 years and have agreed to begin commercial operation no later than Dec. 31, 2007.

46. Canada Requests Proposals for Ethanol Production

On December 6th, Natural Resources Canada issued a request for a second round of proposals under the Ethanol Expansion Program for projects to increase ethanol

production capacity. The government is targeting increased ethanol use as part of a campaign to reduce greenhouse gases emissions. A total of C\$27.5 million (US\$23.4 million) is available to support construction of new fuel ethanol plants or expansion of existing plants, Natural Resources Minister John Efford said in a statement. "The new ethanol plants supported by this program will help us reduce transportation-related greenhouse gas emissions," Efford said. The program, launched in October 2003, will help the government meet its target for at least 35 percent of gasoline in Canada to contain 10 percent ethanol by 2010, he said. The first round of funding provided C\$72 million (US\$61 million) for six new ethanol plants which would produce 650 million liters of fuel ethanol per year, quadrupling Canada's current annual output.

47. Environmental Groups, Industry Differ on Progress on Canadian Emissions

Two reports released in early December by different Canadian organizations offered very different pictures of the country's progress in reducing air pollution.

In its report, *Shattering the Myth of Pollution Progress in Canada*, the nongovernmental organization PollutionWatch cites National Pollutant Release Inventory data for 2002, which show 4.2 million tons of total releases and 3.9 million tons of air emissions, of which 2.7 million tons were deemed "toxic" under the Canadian Environmental Protection Act. PollutionWatch is a joint project by Environmental Defense and the Canadian Environmental Law Association.

Meantime, the Canadian Chemical Producers' Association said in a Dec. 8 statement that its 12th annual Reducing Emissions Report (using 2003 figures and dated Dec. 2) found that the association's members had reduced their emissions by 78 percent, or 205,000 tons, since 1992 through the Responsible Care program.

According to PollutionWatch, the 2002 National Pollutant Release Inventory figures show a 49 percent increase in pollutant emissions from 1995, with air emissions increasing 21 percent and water discharges increasing 137 percent. The figures are based on a core set of chemicals reported by industry in each of the eight years, it said.

"Based on trends from 1995 to 2002, only a handful of facilities made significant reductions in releases and transfers," the PollutionWatch report said. "These reductions were offset by a handful of facilities reporting large increases."

The PollutionWatch report said releases of most chemicals are not expected to change between 2003 and 2005, with nearly 90 percent of chemical reports filed by facilities to the National Pollutant Release Inventory projecting no change in pollutant releases over that time period.

"Only 6 percent of chemical reports projected a decrease in releases from 2003 to 2005, and 7 percent of chemical reports projected an increase: a 'pollution as usual' scenario," it said.

The PollutionWatch report urged the federal government to work with provincial and territorial governments to devise plans to reduce pollution and eliminate the use of pollutants that damage the environment and human health. It urged the government to

develop a regulation under the Canadian Environmental Protection Act to implement the action plans.

The plans should require, at a minimum, virtual elimination of releases of carcinogens by 2008 and interim 50 percent reductions by 2008 from 2002 levels in releases of pollutants classified as toxic under the Canadian Environmental Protection Act, such as suspected respiratory toxins and pollutants known to cause developmental and reproductive harm, PollutionWatch said.

In its statement, the Canadian Chemical Producers Association said its 65 member companies had made significant progress in reducing releases to water, emissions of toxic substances, emissions of hydrocarbons (which contribute to smog formation), and emissions of ozone-depleting substances.

Member companies' emissions of greenhouse gases, including carbon dioxide, are projected to decline by 36 percent by 2008 from 1992 levels, and the global warming potential per unit of product they manufacture is projected to fall by 51 percent by 2008 from 1992 levels, it said.

ASIA-PACIFIC

48. Japan Struggling to Address Global Warming

A. Greenhouse Gas Emissions Up in Fiscal 2003

Japan's aggregate greenhouse gas emissions in fiscal year 2003, totaled 1.336 billion tons of carbon dioxide-equivalent, up 0.4 percent from fiscal 2002 and 8 percent higher than the country's 1990 emissions, according to preliminary data released by the Ministry of Environment on November 9th.

Carbon dioxide accounted for 94 percent of the emissions, or 1.255 billion tons, up 0.6 percent over FY 2002 and up 11.8 percent over 1990. Of the CO₂ emissions, those from manufacturing factories grew 1.7 percent over FY 2002 to 476 million tons but slipped 0.02 percent from 1990 emission levels. Emissions from automobiles and ships were down 0.8 percent to 259 million tons, but they were 19.5 percent higher than they were in 1990. From office buildings, hotels, and restaurants, CO₂ emissions edged up 0.1 percent to 197 million tons from FY 2002, and they were up 36.9 percent higher than they were in 1990. As for residential emissions, they crept up 0.1 percent to 166 million tons and were up 28.9 percent over 1990, the ministry said.

These were the first Japanese greenhouse gas emissions data released for fiscal 2003. Over coming weeks, the ministry will coordinate the data with the Ministry of Economy, Trade, and Industry and other ministries to work out formal Japanese government data. The Ministry of Environment data draw on "various statistics" it has collected from other ministries and industries, while METI bases its calculation on energy consumption, an MOE official said.

Japan's commitment under the climate change treaty requires it to cut CO₂ emissions by 6 percent.

Of the other five gases covered by the Kyoto Protocol, methane emissions in FY 2003 totaled 19.3 million tons, down 21.9 percent from 1990 and down 0.9 percent from FY 2002, reflecting reduced methane emissions from public waste incinerators, the ministry said.

Nitrous oxide emissions totaled 35.3 million tons, down 12.1 percent from 1990 and down 0.2 percent from FY 2002. In addition, emissions of hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride all fell sharply due to their reduced use as refrigerants, the ministry said.

According to METI data, CO₂ emissions in FY 2003 rose 0.8 percent to 1.183 billion tons of carbon dioxide-equivalent over FY 2002, and they were 12.9 percent higher than they were in 1990.

By sector, the METI data showed that factories emitted 476 million tons of emissions in FY 2003, up 1.7 percent over FY 2002 but down 0.02 percent from 1990, while emissions from autos and ships weighed in at 259 million tons, down 0.8 percent from FY 2002 and up 19.5 percent over 1990 levels. Emissions from office buildings, hotels, and other complexes totaled 197 million tons in FY 2003, up 0.1 percent over FY 2002 and up 36.9 percent over 1990 levels, according to the METI data. On the home front, residential emissions weighed in at 166 million tons for the year, up 0.1 percent over FY 2002 and up 28.9 percent over 1990 levels. Finally, the METI statistics showed that emissions from power stations totaled 85 million tons in FY 2003, up 3.9 percent over FY 2002 and up 3.6 percent over 1990.

An MOE official said the rise in emissions from power plants reflected the shutdown of several nuclear power plants and the reopening of thermal plants in response to a string of accidents over the past few years.

B. Reporting Rules for Greenhouse Gas Emissions

On October 21, Japan's Ministry of Environment said it will ask Prime Minister Junichiro Koizumi's Cabinet to submit legislation to impose greenhouse gas emissions reporting requirements on leading manufacturing plants and business offices, including foreign capitalized firms operating on Japanese soil.

An official of the ministry's Global Warming Policy Division, Fuyumi Naito, said the ministry would draft legislation by year-end and send it to the Cabinet immediately thereafter to enable the Cabinet to submit it to the next regular Diet (parliament) session to be convened in late January.

While declining to go into specifics of the threshold, Naito said regulated businesses would include steel mills, chemical plants, cement plants, automobile manufacturing plants, department stores, hotels, and amusement facilities. The ministry would exclude government facilities because they already are observing energy conservation programs, she said.

Firms would be required to report on emissions of six greenhouse gases, including carbon dioxide, methane, hydrofluorocarbons, and perfluorocarbons, the official said.

Carbon dioxide emission quantities would be calculated using energy consumption data collected by the Ministry of Economy, Trade, and Industry.

Japanese laws currently "encourage," but do not require, businesses to conserve energy or to reduce greenhouse gas emissions. Instead, businesses are trying to achieve reductions under the banner of Nippon Keidanren's (the Japan Business Federation) voluntary program.

C. Levies on Fuels

On November 5th, Japan's Environment Ministry unveiled proposed environmental taxes aimed at helping trim carbon dioxide emissions by 4 percent by encouraging the use of more efficient and cleaner technologies. The move came days after the Finance Ministry's tax commission expressed reluctance to introduce such taxes in fiscal-year 2005 tax reforms now being finalized.

The Ministry of Environment proposed collecting taxes both "upstream," when fuels are imported, and "downstream," when energy is consumed. MOE identified gasoline, kerosene, light fuel oil, liquefied petroleum gas, coal, heavy oil (for ships), natural gas, city gas, electricity, and jet fuel as possible targets for the taxes.

The MOE proposal forecasts revenues from the environmental taxes worth ¥490 billion (\$4.6 billion), of which it recommends ¥340 billion be used for mitigating global warming and ¥150 billion be used for reducing social security insurance and other purposes.

The proposal calls for collecting ¥150 billion from industry; ¥200 billion from offices, restaurants, and other locations; and ¥140 billion from households.

It calls for an initial tax rate of ¥2,400 (\$23) per metric ton or ¥1.52 per liter of gasoline; ¥1.58 per kilogram of coal; ¥0.82 per liter of kerosene; ¥0.81 per liter of jet fuel; ¥1.77 per liter of A heavy fuel oil; ¥1.83 per liter of C heavy fuel oil; ¥1.76 per kilogram of natural gas; ¥1.96 per kilogram of LPG; ¥1.38 per cubic meter of city gas; and ¥0.25 per kilowatt/hour of electricity.

Regarding the ¥340 billion earmarked for fighting global warming, the ministry recommends using it for subsidizing the purchase of energy-saving equipment; supporting research and development for improved energy efficiency; improving transportation efficiency; converting to cleaner energies such as solar and wind power; and reforestation.

MOE wants to begin collecting the tax in January 2006.

It said the tax can help reduce Japan's carbon dioxide emissions by 52 billion metric tons, or 4 percent compared with 1990 emissions, and will reduce Japan's gross domestic product by only 0.01 percent a year.

D. Aid to Firms That Promote Emission Reductions in Developing Nations

The Japanese government will subsidize projects undertaken by domestic corporations to reduce greenhouse gas emissions in other countries to earn credits under the Kyoto Protocol's Clean Development Mechanism (CDM) provisions, Ministry of Economy, Trade, and Industry (METI) officials said Nov. 1.

The 1997 Kyoto Protocol treaty's CDM provisions allow developed countries like Japan to earn credits toward meeting reduction targets by investing in projects to reduce emissions in developing countries.

So far Japan has been relying largely on voluntary initiatives to reduce emissions, but METI conceded that "voluntary efforts have a limit," and that emissions trading, for example in CDM credits, will be necessary for Japan to meet its Kyoto target. The ministry is reluctant to institute punitive measures, carbon taxes, or limits on energy use or greenhouse gas emission to help meet the targets.

METI is seeking ¥5.6 billion (US\$ 52 million) in fiscal 2005 budget appropriations to develop emissions trading with China, the METI officials said. Other countries that Japan could target for acquiring greenhouse gas emissions credits include India, Mexico, Poland, and Hungary.

In the current fiscal year and the next, which begins in April, the government would single out about 100 private-sector projects to be conducted in the five countries, as well as a few others, for government subsidies. Asked what kind of overseas projects the government would subsidize to help businesses obtain emissions credits, officials from METI and the Ministry of Environment pointed to wind, solar, and geothermal power plant construction, as well as modernization of existing power plants and energy supply systems in those countries.

E. Regulating Five Non-Carbon Kyoto Greenhouse Gases

Signaling that it had given up hope for meeting the country's Kyoto Protocol targets by reducing carbon dioxide emissions alone, Japan's trade ministry on November 4th recommended measures to reduce the five other greenhouse gases covered by the climate change treaty -- methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulphur hexafluoride. In response to recommendations from the Environment Subcommittee of the Industrial Structure Council, the Ministry of Economy, Trade, and Industry (METI) is to issue a plan for reduction programs by early 2005 to be implemented later that year.

The Kyoto Protocol sets overall targets for developed countries to reduce greenhouse gas emissions, which are expressed in terms of carbon dioxide equivalents. Countries are called on to meet their emissions targets by the period 2008-2012. While the base year for carbon dioxide is 1990, the base year for the other five gases can be either 1990 or 1995.

Under Japan's current national greenhouse gas emission-reduction program, which ends next March and asks for voluntary reduction efforts by businesses and households, the emissions of the five gases are allowed to increase 1.5 percent from 1990 levels by fiscal year 2010. At the Nov. 4 meeting, however, the Environment Subcommittee recommended reducing the 2010 emissions targets for the five gases to between 2

percent and 2.5 percent below 1990 levels. The ministry will work out a reduction program by early 2005 which will include reduction targets for each gas and will seek the cooperation of relevant industries.

49. Pollution in Southern China Exceeds U.S. Standards, Study Says

Air pollution levels in China's industrial Pearl River Delta are two to five times higher than U.S. air quality standards, according to a Hong Kong think tank. In neighboring Hong Kong particulate levels were twice as high as U.S. standards, the study found.

Levels of fine particulates were highest in the southern Chinese city of Guangzhou, followed by Shenzhen and Zhongshan, which all neighbor Hong Kong, the Civic Exchange said as it released findings of a two-year environmental study of the region.

The study blamed vehicle emissions and the burning of coal and biomass, such as wood, as the main culprits.

"This is an important finding which we hope will encourage further government consideration and review in this area, especially in the development of standards, objectives and emission reduction targets and in ongoing regional monitoring efforts," the Civic Exchange said in its report.

Hong Kong's falling air quality has become a major concern for many residents suffering from the acrid clouds of pollution that sweep across from mainland China, adding to emissions from local vehicles, factories and power plants in the densely populated city.

Air pollution in Hong Kong hit record levels in September, prompting the government to warn people with heart and respiratory problems to stay indoors.

50. Beijing Facing Pollution "State Of Emergency"

China's capital is in "a state of emergency" because of air pollution and one of the biggest polluters in the city, host of the 2008 Olympics, will slash production till the end of the year, state media says. Improving air quality is critical to the city's drive to be ready to host the 2008 summer Games, and visiting International Olympic Committee officials have seen the air quality at its worst over recent days.

The capital has set a clean air target for 2004 of 227 days but has fallen well short of this.

"With 40 more days of clean air still needed, we are in a state of emergency," the Beijing Morning Post quoted a notice issued by the Beijing Environment Protection Bureau as saying. The notice urged companies and factories to "strive hard to grab blue skies", the newspaper said.

By the end of October, Beijing had registered only 187 blue-sky days, meaning it needed clear air in 40 of the last 61 days of 2004 to meet the mark, the newspaper said.



Steel maker Shougang Group said it will cut production to curb pollution. "Some factories will examine and repair equipment in November and December which will cut production to 40,000 tons so as to reduce pollution," Shougang's vice general manager, Liu Shuiyang, was quoted Liu said without explaining how much the factories would normally produce in two months. Shougang would also cut steel production in

Beijing to four million tons a year by 2007, state media said last October.

Beijing's normally poor air, choked by car exhaust, factory emissions and construction dust, deteriorates when thousands of coal-burning heating plants and smaller domestic coal stoves are lit in the winter.

China, already the world's fastest growing car and energy market, has earmarked \$7 billion of its total \$37 billion Olympic budget to clean up the capital.

At the beginning of October, the city's skies were smothered by smog so thick it forced the rescheduling of two shows by a visiting French aerobatics team.

Pre-Olympic plans call for relocation of 200 polluting factories and treatment of more than 90 percent of sewage in the city's noxious canals by 2008.

Shougang Group was considering moving out of the city altogether in 2012 to help clean the air, state media said last year.

The Beijing Morning Post also said the city had spent 16 million Yuan to buy 40 street-sweeping trucks, which would be in use at the end of November.

51. Gas Remains Centerpiece in Shell China Strategy

Royal Dutch/Shell Group aims to become a major supplier of liquefied natural gas to China and gain a foothold in the country's booming oil refinery sector, a senior company official has said. The Anglo-Dutch group, which recently pulled out of two giant gas projects in China, is still on course to invest \$3-4 billion in a variety of projects over the next four years, including exploration and production, marketing of oil products, petrochemicals and coal gasification.

Heng Hock Cheng, Chairman of Shell companies in China, said in an interview, that 2004 marked the year of Shell's largest investment in a single year in China at \$1 billion.

Gas projects remained central to the company's strategy. Shell is negotiating with the second-largest state oil and gas firm Sinopec Group to export liquefied natural gas to east China from its gigantic \$10-billion Sakhalin-2 project, off the far eastern coast of Russia. The energy giant, the world's largest private LNG supplier, is also seeking to get involved in the construction of gas receiving terminals on China's east coast.

China's gas use, currently less than 3 percent of the total energy mix, is expected to leap to 10 percent in 2020 as the economy continues to experience rapid growth. Shell forecasts China's gas demand will rise to 210 billion cubic meters (bcm) by 2020, a quarter of which has to be supplied in the form of LNG, super-cooled natural gas for transport by tankers. Current annual gas demand is about 40 bcm.

China is poised to build at least four LNG terminals by 2010, when imports could amount 20 million tons, having committed to buy gas from Indonesia and Australia and also looking to import gas from Iran.

Shell, which will have spent \$3 billion in China by the end of this year, would be a much bigger energy investor if it had not pulled out of the West-to-East gas pipeline in August and the East China Sea gas project last month. Analysts said the exit could force Shell to re-evaluate its gas strategy in China as it had seen piped gas and LNG supply and gas marketing in China as part of an integrated approach.

Shell's other interests in China include the Changbei gas field in the country's northwest, its only production sharing contract in onshore China, with estimated reserves of 50 bcm and potential production of 3 bcm a year.

Heng said the company would decide next year whether to go ahead with developing the field.

Shell is also evaluating opportunities to invest in China's badly needed refinery capacity expansion and aspires to play a greater role in oil retailing. Heng said Shell was in talks with China National Offshore Oil for a stake in a planned \$2 billion, 240,000 barrels per day refinery in the southern Guangdong province, where Shell and the Chinese company are already building a world-class petrochemical complex.

China is speeding up expanding and building new refineries to meet explosive oil demand growth that has forced most plants to pump at full tilt.

Heng said the \$4.3 billion petrochemical venture, the largest energy joint venture in China, would start production by the end of 2005.

Shell is among a handful of early birds in China's retail business and expects to expand operations as the country opens its tightly state-controlled market to foreign firms, he said. The company aims to boost the number of gas stations to 180 by the end of this year and eventually 500 in east China's Jiangsu province, under a \$187 million joint venture with refiner Sinopec. It has around 30 stations now.

52. Vietnam Hopes to Tighten Auto Emission Control Next Year

The Vietnam Registry Department has outlined a roadmap and new criteria for emissions from motorized vehicles to be applied in February 2005. Accordingly, currently in use gasoline-fueled automobiles will be required to have a CO content of less than 4.5% and HC content of 1,200 ppm while running at idle, which most vehicles manufactured during the 1990s will satisfy. Under recent surveys, automobiles manufactured before August 1999 emit at average CO levels of 4.4% while automobiles after August 1999 emit at levels of 3.4%. The criteria for new vehicles aim at reaching Euro 2 standards by 2007 and Euro 3 standards by 2010.

Vietnam now has about 80 centers equipped with facilities to measure gaseous emissions from in use vehicles, Nguyen Van Ban, head of the Vietnam Registry Department said.

The registry body is planning to outline another roadmap to define operational life spans for motorbikes in the country and to create new gas emission criteria for these vehicles. Vietnam now has about 13 million motorbikes.

A discussion Workshop was held on October 26th by Vietnam Register to get comments from other stakeholders on the draft proposal of the road map. It is now under discussion awaiting approval. However, this is the first step for public awareness and preparation of the final draft, and officials hope it will be approved by the first quarter of next year.

The draft of the proposal is follow:

- For new vehicles: EURO 2 at end of 2007/ begin 2008; Euro 3 in 2010, except for heavy duty vehicles in 2011.
- For in-use vehicle:
 - For gasoline engine: from 01/02/2005: CO 4,5 %; HC 1200 ppm; from 01/01/2010: CO-3,5%, HC 800 ppm
 - For diesel engine: HSU from 2005: 72 and from 2010: 60

Applicable areas: 4 major Cities from 01/02/2005; whole country: 2007 and 2010 with respective limits.

Cities and provinces are encouraged to apply more stringent standards.

53. U.N. Report Describes Worsening Environmental Conditions In Asia

The Asia-Pacific region faces a range of environmental challenges resulting from population pressures, poverty, and rapid development, according to a report released by the United Nations Environmental Program on November 17. The severity of the problems differs across the region, however, depending on disparate levels of economic progress and differing local geography, according to the report, which divides the Asia-Pacific region into five subregions: Northeast Asia, Central Asia, South Asia, Southeast Asia, and the South Pacific.

Key findings from the Environmental Indicator Reports:

South Asia:

- This report highlights that South Asia has registered an economic growth rate averaging 5.2 percent during 1990-2000 and has the potential to become a leading economic block in Asia and the world in the decades ahead.
- Poverty is the greatest challenge facing South Asia with 40 percent of world's poor living in the sub-region. The sub-region is also faced with overpopulation and exhibits a population growth rate higher than the world average. Overpopulation and poverty are inter-linked and require substantial mitigation measures.
- Land degradation is a major problem in all South Asia countries causing negative impacts on arable land and posing a threat to food security.
- Water quality in rivers across South Asia has been consistently deteriorating and needs major interventions. Water availability per capita has been decreasing in most countries, which may seriously affect economic and social development.
- Air quality has deteriorated in major cities in South Asia in the past decade.
- South Asia is the home of wide variety of terrestrial and marine biodiversity. But declining forests covers has lead to loss of natural habitat for species of plants, animals and birds, and needs considerable conservation program.

Southeast Asia

- This report highlights that the 1997-98 Asian economy crisis adversely affected the economies of this region. This led to decreased GDP growth rate and increased poverty in the countries affected by the crisis.
- The report also shows that the population growth rate in Southeast Asia was slightly higher than the world average for the same period. Southeast Asia will be home to three of the mega-cities of the world by 2010 – Jakarta, Metro Manila and Bangkok.
- Deteriorating urban environment is an issue of concern in this sub-region. Smog, low air quality, inadequate sewage and sanitation facilities are some of the problems plaguing urban development in this sub-region.
- Southeast Asia remains one of the most heavily forested regions of the world and is home to a wide diversity of animals and plants. But forest area has decreased for all the countries in the sub-region, except Singapore where it has remained constant and Vietnam where it has increased. Forest fires have been a major cause of transboundary air pollution.
- This sub-region has shown initiative in regional co-operation by signing the agreement on Transboundary Haze pollution. Protected land in Southeast Asia showed slight increment during the 1990s.

South Pacific

- This report highlights that South Pacific has the lowest population of all the sub-regions in Asia and the Pacific. South Pacific is economically and culturally a diverse sub-region consisting of developed countries such as Australia and New Zealand and smaller island nations with developing economies. The smaller island nations are being challenged by rapid urbanization. These countries have

fragile ecologies and it is imperative that the urbanization process is tempered with awareness about the environment and safeguards to protect the natural environment along with improving living standards.

- This region also possesses great marine biodiversity. The Great Barrier Reef is the largest system of coral reefs in the world. This marine biodiversity is being threatened by increasing population, urbanization and unsustainable land use patterns.
- Increasing global greenhouse gas emissions pose a threat to the lower lying islands of the sub-region.
- Water shortage and drinking water quality are issues of concern in this sub-region.

Northeast Asia

- This report highlights that poverty in Northeast Asia is forecast to drop significantly by 2015. China's economic growth and prosperity has led to a reduction in the poverty numbers in the sub-region.
- The Human Development Index (HDI) increased consistently for all the countries of the sub-region except Mongolia where it slightly decreased during 1990 to 1995.
- Desertification is an important environmental issue in this sub-region. Mongolia and China are deeply affected by land degradation and top soil loss. Sustainable agriculture practices along with land management awareness will help impede desertification.
- Air quality has worsened in the leading cities of this sub-region. Legal measures and effective policies are needed to counter the rising air pollution.

Central Asia

- This report highlights that the Central Asian economies, which were adversely affected by the political changes in the Soviet Union in the earlier half of the 1990s, picked up during the second half of the decade. By the year 2000, the GDP growth rate in Central Asia had exceeded the average growth rate of Asia and the Pacific, and the World.
- Poverty is a growing concern in the Central Asian republics and steady economic growth is needed to mitigate poverty.
- Land degradation is an issue of concern in the Central Asian republics, leading to a reduction of arable land. Agricultural run-off is the main cause of water pollution.
- Central Asian republics are also facing air pollution in their major cities as well as transboundary air pollution.
- The biodiversity in this sub-region is under increased pressure due to environmental degradation.

54. Japan to Tighten Emission Rules for Diesel Vehicles

Japan's Environment Ministry will tighten emissions standards for diesel vehicles in 2010, officials in the ministry's Environmental Management and Technology Section said on November 18. Current emission regulations are already set to be tightened in April 2005. On November 17, the Ministry of Environment formally asked the Central Environment

Council to work out details for the 2010 standards by next March. Japan's 2005 standards will be the strictest in the world, but rules due to take effect in the United States in 2007 will be even stricter, which was a factor in pushing Japan to strengthen its rules again, the officials said. Asked to offer details, one official said MOE is considering halving the 2005 allowable emission levels. The Tokyo municipal government meanwhile will set tougher diesel emissions standards from April 2006, an official of the municipal government's Environmental Bureau said. The bureau will issue details next March and set a one-year phase-in period, he said.

55. Tokyo Proposes Country Base Auto Taxes On Vehicle Weight

On November 16th, the Tokyo municipal government proposed that Japan implement a new automobile environmental tax aimed at reducing carbon dioxide emissions, basing the tax on vehicle weight instead of engine size. The proposal calls for combining the local road tax and the state tonnage tax, and for transferring the authority for collection and administration of the new tax to local governments as part of Prime Minister Junichiro Koizumi's tax and budget reforms.

Since fuel consumption is more closely linked to vehicle weight than engine size, tax rates should be based on vehicle weight rather than engine displacement, the official said.

Tokyo submitted its proposal to Japan's Ministry of Internal Affairs and Communications (Somusho), which administers local government affairs. A senior Ministry of Finance official said November 16 that the government tax commission will examine the Tokyo proposal; however, the Finance Ministry official added that there is not enough time to include it in the country's fiscal year 2005 tax reforms.

Tokyo Gov. Shintaro Ishihara, who has a strong influence with the Koizumi administration and approved the proposal, has indicated he would support a higher tax and the transfer of tax authority to local governments in an effort to reduce Japan's CO2 emissions.

The Ministry of Finance official said Japan would need to revamp its complicated automobile taxation system to reflect the Environment Ministry and Tokyo tax proposals. Japan collects several taxes from automobile owners. Buyers of new vehicles pay a 5 percent acquisition tax, and there are tonnage, road, and gasoline taxes in addition to the 5 percent consumption tax on all transactions.

On November 25th, Japan's Tax Commission said that even though the government will not introduce an environment tax as part of fiscal year 2005 tax reforms, it should continue to consider imposing such a tax. The Environment Ministry has urged the commission to back an environment tax on fossil fuels, but the commission said Japan needs more time to complete deliberations. Nevertheless, the commission said Japan needs to take additional steps, possibly including an environment tax, to meet its treaty obligations to reduce greenhouse gas emissions. Discussions on such a tax should continue after Japan issues its national climate change plan, which is due out by the end of March, it said.

56. Smog Clouds Beijing's Pre-Olympic Clean-Air Target

Thick smog blanketed Beijing in early December, triggering flight delays and traffic snarls and spotlighting the city's uphill battle to curb pollution before it hosts the 2008 Olympic Games. The smog limited visibility to 10 meters in some places, causing the closure of five highways for parts of the day and the delay of hundreds of flights.

"The humidity and cold air leads to this fog, but it is also partly from the pollution problem," said Gan Ning, a climate change expert at the China office of the World Wide Fund for Nature.

China is the world's largest source of soot and sulphur dioxide emissions from coal, which fuels three-quarters of the country's power plants. Beijing's normally exhaust-choked air worsens in winter as the temperature drops and coal-burning heating plants are lit.

"There are still households burning coal for heating. They don't have central heating," Gan said. But he added it was auto exhaust that caused the bulk of air pollution in the city, where more than 1,000 new cars hit the roads each day.

Beijing targeted 227 clear sky days for 2004, but was still 18 days short of the goal at the start of December, the official Xinhua news agency said. The city's air quality on Wednesday was rated just below the hazardous level, figures on Xinhua from the China Environmental Monitoring Centre showed.

"Pea soup dips over nation while snow on the way," read one headline in the China Daily. The newspaper quoted officials from the China Central Meteorological Observatory as saying the foggy weather hit regions across China but could lift when a cold front moves in, bringing snow and strong winds.

57. Low-Sulphur Auto Fuels Come To Japan

Japanese refiners will start supplying gasoline and diesel that contain 10 parts per million (ppm), or 0.001 percent, of sulphur, on Jan. 1 2005, down from 50 ppm, said the country's biggest industry group, Petroleum Association of Japan (PAJ).

Refiners moved years ahead of tighter government regulations to kick in mainly because of maintenance at their facilities. The Japanese government requires the oil industry to meet the new standard nationwide by 2008 to reduce carbon dioxide emissions in line with the Kyoto Protocol. Sulphur in fuels is often blamed for greenhouse effects, acid rain and air pollution. Some refineries shut for maintenance once in two years, when they usually initiate upgrading works, and firms must complete them this year to meet an order by the Tokyo metropolitan government for the lower sulphur standards to start earlier.

About half of Japan's 862,550 kilolitres (5.42 million barrels) of total gasoline imports in the first six months of 2004 came from South Korea, which is also planning to reduce sulphur content in motor fuels but is years behind. In South Korea, the maximum sulphur

content in gasoline is 130 ppm and will be cut to 50 ppm from Jan. 1, 2006. The sulphur in diesel will be cut to 30 ppm from 430 ppm during that time.

The European Union will cut the sulphur content in diesel to 50 ppm from January 2005, down from 350 ppm, but some countries are already using 10 ppm motor fuels.

58. Booming China Awash in Acid Rain

China's explosive economic growth is outpacing environmental protection efforts, leaving the country awash in "out of control" acid rain, according to the China Daily. Acid rain fell on more than 250 cities nationwide and caused direct annual economic losses of 110 billion Yuan (\$13.3 billion), equal to nearly three percent of the country's gross domestic product, the state-run newspaper said.

"The regional acid rain pollution is still out of control and even worse in some southern cities," Wang Jian, an official with the State Environmental Protection Administration, was quoted as saying.

Two major causes were the rapidly growing number of cars and increasing consumption of cheap, abundant coal as the country struggles to cope with energy shortages and meet power demand. China is the world's largest source of soot and sulphur dioxide (SO₂) emissions from coal, which fires three-quarters of the country's power plants.

More than 21 tons of SO₂ were discharged in China in 2003, up 12 percent from the year earlier, the paper said. "It is estimated that the country will consume more than 1.8 billion tons of coal in 2005, emitting an additional six million tons of SO₂," Wang said.

The paper said the government was planning steps to rein in the problem, including setting quotas for SO₂ emissions from thermal power plants and urging them to install desulphurization facilities, through Wang admitted earlier efforts had led to no obvious improvements.

China has already banned the use of coal in some areas most severely affected by SO₂ emissions, but sulphur is not the only enemy in the fight against acid rain.

"The amazing growth of nitrates, thanks to a swift rise of automobile and coal consumption plus overuse of fertilizers, is playing an increasing role in the country's acid rain pollution," Tang Dagang, director of the Chinese Research Academy of Environmental Sciences, was quoted as saying.

A government official told the paper that China had yet to set special regulations to control nitric acid.

59. Beijing Puts Foot Down in Bid to Beat the Traffic

The half million new cars that have hit the road in Beijing over the past two years are causing severe congestion and air pollution, but the local government is convinced it can lick the problem in time for the 2008 Olympics. The number of vehicles in the sprawling

city had grown to 2.27 million, Liu Xiaoming of the Beijing Municipal Communications Commission told a news conference. Many of them are owned by first-time drivers drawn from a burgeoning new middle class attracted by prices as low as \$4,000.

But Liu, the commission's deputy director, said the city government had already made progress in unlocking traffic jams and was determined its roads would flow smoothly when Beijing hosts the Olympic Games. "We are going to concentrate on traffic problems big and small. They might have limited individual effect, but together, these changes should make a big difference," Liu said.

Those efforts would include expanding public transportation, building new highways to the city's suburbs and reworking many unruly, poorly designed intersections, among the infrastructure projects towards which Beijing has earmarked \$24.2 billion of its \$37 billion budget for the 2008 Games.

But the Chinese government's directive to reel in major construction to cool an overheating economy is not making the job easier. "Some construction projects have been slowed in keeping with the central government's policy," Liu said.

Domestic media reported earlier this year that nearly 1,000 new cars take to the roads in Beijing every day, and the total number of cars in the sprawling city is expected to hit 3.5 million by 2008.

"We promise we will not set a policy of stopping private car purchases," Liu said.

60. India's IOC to Cut Refinery Runs, Import Gasoline

State-run Indian Oil Corp. (IOC) will cut crude processing rates by 10 percent from current levels between December and March to reduce stocks ahead of tougher fuel standards from April, a company official announced. "Our new processing units will be ready between February and April. We have to reduce crude throughput to reduce stocks," according to a top IOC official, who declined to be identified. IOC, India's largest refiner, will import three cargoes of 91-octane gasoline between January and March to build stocks of fuels to meet the new specifications ahead of April, he said.

A government official said plans by the IOC to upgrade its refineries were running behind schedule, forcing it to import 91-octane gasoline to build sufficient stocks ahead of the April 1 deadline.

Between April and October, IOC's seven refineries operated at 94 percent of their capacity of 40 million tons a year, or about 800,000 barrels per day (bpd). IOC's subsidiaries operate three refineries with a combined capacity of 10 million tons a year, or about 100,000 bpd.

IOC is reducing refinery runs as most of its plants are located inland, making it too costly to export diesel and gasoline.

India is adopting tougher fuel standard from April. For the 14 largest cities and adjoining areas, the sulphur content in petrol will be cut to 0.015 percent from 0.05 percent and

the mandatory octane number will be raised to 91 from 88. The new norms will also specify restrictions on the olefin and aromatic content of the fuel.

For diesel, the sulphur content will be cut to 0.035 percent from 0.05 percent, the cetane number will be increased to 41 from 48 and limits will be prescribed for polyaromatic hydrocarbons.

Smaller towns and rural areas -- where emission standards are less stringent than for the densely populated urban centers -- will adopt the current fuel specifications of the big cities from April.

IOC will also import additives to raise the octane number of fuels, the official said.

India is imposing strict emission rules to curb pollution in its cities, where automobile sales are booming and doctors are reporting a mounting toll of people with breathing ailments.

The IOC official said existing stocks of gasoline and diesel would be reduced to 10 days from 30-40 days but it would have enough inventory of the new specification fuel to meet 15 days of demand.

LATIN AMERICA

61. Brazil Flex-Fuel Ethanol Cars to Stay in Top Gear

After years in the slow lane, ethanol-powered cars zoomed back onto Brazil's fast track this year as oil prices hit record levels, and producers say that this time they won't run out of gas. New flex-fuel engines, powered by ethanol or gasoline or any combination of both, have removed the risk of a repeat of 1989, when drivers were left stranded after supplies of the sugar cane-based fuel ran out in the world's biggest producer.

Brazil blends its gasoline with 25 percent ethanol but also sells pure ethanol, known locally as alcohol, at any gas station. After the 1989 supply crisis, sales of cars designed to run on pure ethanol sank to less than 1 percent of total sales in 2000, from 94 percent in 1984. But gasoline price hikes caused by rocketing oil prices and the arrival of flex-fuel cars, which owners say perform better than their older cousins, have now lured Brazilian drivers back to ethanol - some 40 percent cheaper than gasoline.

Launched in Brazil in March 2003, flex-fuel cars had grabbed 30 percent of new car sales by this September and are expected to take half the market next year, the National Association of Vehicle Manufacturers estimates. Most major car manufacturers in Brazil already produce, or are planning to introduce, flex-fuel cars of various designs, with at least one analyst predicting that in three years flex-fuel cars would make up 100 percent of new car sales. And, with gasoline prices soaring and air pollution from fossil fuels a growing concern, sales of those vehicles could spread to many parts of the world, especially in countries where sugar cane is grown.

Analysts said that rising ethanol prices would encourage millers to produce more of the fuel and less sugar. Growth is sustainable in Brazil because the center-south's

production cost is cheaper than that of gasoline. Russia's ratification of the Kyoto Protocol brings into force the U.N. accord to combat global warming and will boost use of clean fuels such as ethanol.

Ethanol prices have tripled since May and export business has ground to a halt as a result. Soaring domestic and world purchases of the cheap, clean fuel has triggered fears of a possible supply shortage, especially if rising sugar prices tempt producers to crush more cane into sugar instead of ethanol. But with plans to build 33 mills, Brazilian ethanol output would increase to some 23 billion liters in 2010, from an estimated 15.5 billion this year. Exports, mainly to Japan and other Asian countries are seen more than doubling to 5 billion liters in five years. Exports will still absorb only about 20 percent of Brazil's total ethanol output.

Analysts also say that countries would rely on Brazil to top up ethanol supplies if they integrate the alternative fuel into their energy supplies.

Renault do Brazil is the latest car company to jump onto the flex-fuel bandwagon. At the Sao Paulo car show last week it announced plans to start selling flex-fuel versions of its Clio hatchback and sedan models next month. Peugeot and Citroen are due to launch flex-fuel cars in Brazil next year.

Other Brazilian models are designed to run on anything from local gasoline, which contains 25 percent ethanol, to pure ethanol or any blend of the two. But many local drivers fill their tanks with ethanol because of its attractive price. In August, General Motors Brazilian unit launched a multi-fuel car that runs on natural gas as well as ethanol or gasoline or a combination of both. Volkswagen, Brazil's biggest vehicle maker, also produces flex-fuel cars. Fiat, which produces various flex-fuel cars, is developing a model to run on diesel in addition to the other fuels.

62. Argentina Launches Biofuels Program

On November 15th, Argentina's Agriculture Department launched the National Biofuel Program, an initiative aimed at encouraging the use of a cleaner-burning fuels obtained by adding vegetable oil, animal fat, or alcohol to gasoline and diesel fuel. The program, set up by Resolution 1156/04, seeks to promote research, public and private investment, and increased public awareness about the use of biofuels.

"Besides encouraging technological development of this activity, the program aims at maximizing the environmental benefits," the Agriculture Department said in a statement. "A dramatic increase in the use of biofuels is expected within the next few years."

In a related initiative, Argentina's Senate is considering a bill proposed in August that would offer tax incentives to encourage the use of biofuels. The bill would offer tax breaks for at least 15 years on fuels containing at least 5 percent vegetable oil or ethanol alcohol. The moves come as resurgent economic growth in Argentina has spurred demand for fuels and turned the country from a net exporter of crude oil and natural gas to a net importer.

Senators backing the ethanol bill have cited both economic and environmental reasons for encouraging the use of biofuels. According to one Senate report, a 10 percent ethanol content in gasoline could slash carbon dioxide emissions by 30 percent.

63. Brazil Mandates On-Board Diagnostic Systems

On November 10th, Brazil's National Environmental Council (Conselho Nacional do Meio Ambiente, CONAMA) issued a resolution that sets deadlines and specifications for new cars to be installed with on-board diagnostic (OBD) systems for evaluating the performance of emission control devices.

"This resolution requires automakers to, between January 2007 and January, 2009, equip all light vehicles (cars, vans, and light trucks), domestic or imported, with an OBD system in which a dashboard panel light goes on if any emission control device isn't working," according to Paulo Macedo, coordinator for the automobile emissions section of Brazil's environmental protection agency, IBAMA (Instituto Brasileiro de Meio Ambiente e dos Recursos Naturais Renováveis). He continued, "And it requires automakers to, between January 2009 and January 2011, equip all light vehicles with an upgraded OBD system that indicates which emission control device isn't working and when it stopped working."

He added, however, that for the measure to be effective, steps will have to be taken to ensure that car owners get their vehicles repaired when the lights come on. Currently, only one of Brazil's 27 states have implemented national Transit Code rules mandating yearly emission inspections, Macedo said. A related measure now being considered in Brazil's Congress (bill No. 5,979/2001) would, however, make regular emission inspections mandatory nationwide and would revoke permits for cars that fail to meet emissions standards.

Brazilian carmakers back the proposed law and the new CONAMA resolution requiring OBD systems, according to Henry Joseph, the president of the environment and energy committee of the National Automakers Association (Associação Nacional dos Fabricantes de Veículos Automotores, ANFAVEA). "Carmakers also favor the OBD requirements because, aside from not being costly for them to install--way under 1 percent of car production costs--it brings cars they're planning to export up to the OBD standards required in the United States, Europe, and which other countries like Mexico are beginning to require."

64. Brazil Allows Sale of Biodiesel

On December 7th, Brazil issued a provisional measure authorizing the nationwide sale, on a voluntary basis, of biodiesel fuel, according to the Ministry of Mines and Energy. The approved biodiesel is a mix of 2 percent biofuel and 98 percent regular diesel called B-2 biodiesel. The biofuel component consists of vegetable oil and sugar-cane ethanol, which serves as a reagent, or catalyst. Brazil has a ready supply of both, since it is the world's second largest producer of soy and largest producer of sugar and ethanol.

The first B-2 biodiesel fuel should be at gas stations by February.

According to the biodiesel program at the University of São Paulo, B-5 biodiesel (with 5 percent biofuel) would reduce greenhouse gas emissions in the country's diesel fleet, which is responsible for 25 percent of all vehicular emissions, by 7.5 percent and would reduce sulfur emissions by 17 percent.

In addition, the government issued a decree providing tax breaks to biofuel producers who buy their raw materials from small, family farms and from farmers in the country's poor northeast.

65. Peruvian Coalition Lobbies To Improve Fuel Quality

A coalition of Peruvian environmental groups led by the National Environmental Council (CONAM) is lobbying the Peruvian government to change policies on importing and taxing fuels. "Peru uses the dirtiest fuels in Latin America," according to Giovanni Goyzueta, an air quality specialist at CONAM. "We continue to import low-quality diesel while the rest of the world is adopting strategies to use cleaner fuels."

According to the Regional Clean Air Program (PRAL)--an association of nongovernmental organizations, municipal governments, and CONAM--Peru imports diesel fuel with 7,000 parts per million of sulfur, by far the highest in Latin America and even double Peru's own referential standard of 3,500 ppm set by the Energy and Mines Ministry.

The General Environmental Health Bureau, which monitors air quality in different cities around Peru, found that total suspended particles in Lima reach 249 micrograms per cubic meter. This is more than three times the acceptable limit of 75 micrograms per cubic meter.

PRAL began an advertising campaign in mid-November to raise awareness about air quality and convince different government ministries to change policies related to fuel imports, sales, and taxes.

"We would like the Finance Ministry to consider the environmental component when setting the excise tax on fuels," says Goyzueta.

The groups also want the Transportation Ministry to implement vehicle inspections and to work with the Energy and Mines Ministry to regulate the import and sale of fuels. An estimated 70 percent of the air pollution in Lima, Peru's capital is caused by automobiles.

The Transportation Ministry is set to eliminate leaded gasoline as of Jan. 1, 2005, but this represents only a small percentage of the fuel used for transportation. Slightly more than 60 percent of vehicles in Peru run on diesel, which remains the cheapest fuel available.

PRAL wants stricter standards to import cleaner diesel and a tax structure that encourages a switch to cleaner fuels.

"The state needs to recognize that taxes are not only used to collect money, but can stimulate or discourage consumption of certain products," said Jaime Delgado, president

of the Peruvian Consumer Protection Association. "Everywhere else in the world there are higher taxes on the dirtiest fuels, but not here."

The tax on the highest octane gasoline is 4.35 Nuevos Soles (\$1.31) per gallon, while it is only 2.24 Nuevos Soles (\$0.68) for a gallon of diesel.

GENERAL

66. Hybrid Cars Soon To Dominate the World Market?

Fuel cells are considered by many to be the ultimate power source because of their efficiency and lack of pollution. But industry executives acknowledge that developing the networks of fueling stations is a goal that is likely decades away. "Until then, the challenge will be to ease away from fossil fuels by matching new technologies with commercially viable markets," said Dr. Gang Wan, acting president of Tongji University in Shanghai and a member of the Challenge Bibendum International technical committee. The Challenge Bibendum was created six years ago to confront the challenges of emissions and congestion by bringing together carmakers, policy makers, the media and others to explore mobility solutions.

"The Challenge Bibendum was borne out of the will of all the players in the automobile world—from manufacturers to energy suppliers, as well as their technical partners—to enhance and clarify the current debate concerning sustainable mobility," said Wang. By comparing the results of vehicles powered by conventional and alternative energy and propulsion systems, the event's participants are able to know year after year how they are progressing with their respective projects.

Said Ren' Zingraff, one of the two managing partners of Michelin Group, Challenge Bibendum's organizer: "In the beginning, there were mostly electric cars and no fuel cell car participants. This time, one can see that many car manufacturers have their own hydrogen car development. Although we are looking at them as the future of mobility, hybrid cars are a more logical option today."

Indeed, hybrids are getting more popular. In the United States alone, the Honda Insight and the Toyota Prius are starting to gain a foothold and more are on the way: hybrid versions of the Ford Escape, Honda Accord and Lexus SUV this year, and a Toyota Highlander in 2005. In the case of the 2005 Prius, it was rated by the United States Environmental Protection Agency to have a 23.35 km/L combined city/highway average rating, making it one of the most fuel-efficient cars on the market today. Also it was certified as an Advanced Technology Partial Zero Emission Vehicle (AT-PZEV), a standard created by the California Air Resources Board and adopted by other states, which means Prius has a near-zero tailpipe emission.

67. Air Pollution May Cause and Speed Up Artery Disease

Air pollution may trigger and accelerate narrowing of carotid arteries, according to a study presented at the American Heart Association's Scientific Sessions 2004.

Researchers found an association between long-term air pollution exposure and the early stages of atherosclerosis (hardening of the arteries).

"We knew that people in more polluted areas die earlier from cardiovascular disease, but it was not clear how early in the disease process air pollution contributes. Our study found that air pollution may contribute to cardiovascular problems at a very early stage of the disease, similar to smoking, and enhances atherosclerosis, which is the underlying disease process of cardiovascular diseases," said study author Nino Kuenzli, M.D., Ph.D., associate professor, division of environmental health, Keck School of Medicine at the University of Southern California in Los Angeles.

Researchers reviewed data from two clinical trials on 798 people age 40 and older who lived in the Los Angeles area. The data included baseline measurements of the thickness of the inner lining of participants' neck arteries (carotid artery intima-media thickness or CIMT). CIMT is measured by ultrasound and used to determine the level of subclinical atherosclerosis.

Researchers then assigned a PM_{2.5} particle level to the study subjects' home ZIP codes. They are commonly produced by burning fossil fuels such as driving cars, and smelting and processing metals. They are tiny enough to be inhaled into the smallest airways.

PM_{2.5} levels in this study ranged from 5.2 to 26.9 ug/m³. For every 10 ug/m³ increase of PM_{2.5}, CIMT increased by 5.9 percent. After adjusting for age, socio-demographic, lifestyle (including active and passive smoking) and physiological factors, researchers determined that CIMT rose by 3.9 percent to 4.3 percent for every 10 ug/m³ increase in PM_{2.5}. The association between air pollution and CIMT was even greater among people over age 60, women and people taking cholesterol-lowering medication.

Overall, the strongest association was seen in women age 60 or older, with a 15.7 percent increase in CIMT for every 10 ug/m³ increase of PM_{2.5}.

Kuenzli said that the air pollution causes the body to produce oxidants (unstable molecules) that cause inflammatory reactions in both the respiratory tract and blood vessels, triggering artery damage. Some air particles find their way into the blood or even the brain, he said. Other constituents of air pollution may be neutralized locally, but secondary reaction products may still cause systemic responses. "The responses may involve both the autonomic nervous system (which controls breathing and blood pressure) and inflammation in the blood. Both pathways together can lead to a state of subclinical chronic inflammation, causing adverse consequences in the blood vessels where oxidized lipids damage the artery walls. This can lead to thickening of the artery wall, calcification and plaques – and ultimately ruptures," Kuenzli said.

"It is interesting that the effects of air pollution were particularly strong in older women. Also, those with increased cardiovascular risk profiles appeared to be at higher risk of an association between air pollution and narrowing of the arteries," he said.

"However, the study is too small and not designed to clarify whether effects are truly different in men and women, old and young, or whether part of the differences are caused by uncertainties such as in how exposure was assessed," Kuenzli said.

"Given that cardiovascular disease is the leading cause of death, and that large populations are exposed to ambient PM2.5 at the levels observed in this study, these findings need to be corroborated. The public health implications could be immense," he said.

Co-authors are Wendy J. Mack, Ph.D.; Howard N. Hodis, M.D.; Michael Jerrett, Ph.D.; Laurie LaBree, M.S.; Frank Gilliland, M.D., Ph.D.; Duncan Thomas, Ph.D.; John Peters, M.D., Sc.D.; and doctoral student Bernardo Beckermann.

68. Arctic Region Warming at Twice Global Rate, Having Broad Effects

The arctic is now warming more rapidly than the global average and is likely to experience even more dramatic climatic changes in the future that could cause wide-ranging consequences, according to a study conducted by an international team of 300 scientists released on November 8th. "The Earth's climate is changing, with the global temperature now rising at a rate unprecedented in the experience of modern human society," said the report, *Impacts of a Warming Arctic*. The arctic is warming "at nearly twice the rate of the rest of the globe, and increasing greenhouse gases from human activities are projected to make it warmer still," it continued.

According to the report, *The Arctic Climate Impact Assessment*, the projections are based on a "moderate estimate of future emissions" of carbon dioxide and other greenhouse gases, and incorporate results from five major global climate models used by the Intergovernmental Panel on Climate Change.

The report was backed by the Arctic Council, an intergovernmental forum for arctic countries, and the International Arctic Science Committee, an international scientific organization appointed by 18 national academies of science. The Arctic Council comprises Canada, Denmark (including Greenland and the Faroe Islands), Finland, Iceland, Norway, the Russian Federation, Sweden, and the United States as well as six indigenous people's organizations.

The assessment forecasts that at least half of the summer sea ice in the arctic "will have melted by the end of the century," along with a significant portion of the Greenland Ice Sheet, as the region warms an additional 4 to 7 degrees Celsius by 2100.

The arctic sea ice is "one of the most important climatic variables. It is a key indicator and agent of climate change, affecting surface reflectivity, cloudiness, humidity, exchanges of heat and moisture at the ocean surface, and ocean currents," that has "enormous environmental, economic, and societal implications." Over the past 30 years, the annual average sea-ice extent in the arctic has decreased by 8 percent, or nearly one million square kilometers (386,100 square miles), an area larger than Texas and Arizona combined, and the melting trend is accelerating, the report said.

In addition, the melting of land-based ice could raise the global average sea level 0.1 to 0.9 meters this century, report authors told a press conference. Models indicated that warming over Greenland could eventually melt the entire Greenland Ice Sheet, which would cause a sea-level rise of about 7 meters, according to the report.

Warming in the arctic is causing changes in nearly every part of the climate system, the report said. Changes include rising temperature and river flows, increasing precipitation, thawing permafrost, diminishing lake and river ice, melting glaciers, retreating summer sea ice, rising sea levels, and reduced ocean salinity and density, which has been observed in the North Atlantic Ocean as melting ice and increasing river runoff have added more freshwater to the ocean.

Industry in Alaska and Eastern Russia already has to adjust to 100 fewer days per year of open ice roads because of melting tundra, said Robert Corell, chairman of ACIA and a senior fellow at the American Meteorological Society.

Other key findings contained in the report include:

- In Alaska, Western Canada, and Eastern Russia average winter temperatures have increased as much as 4 to 7 degrees F (3-4 C) in the past 50 years, and are projected to rise 7-13 degrees F (4-7 C) over the next 100 years.
- Arctic sea ice during the summer is projected to decline by at least 50 percent by the end of this century with some models showing near-complete disappearance of summer sea ice. "This is very likely to have devastating consequences for some arctic animal species such as ice-living seals and for local people for whom these animals are a primary food source. At the same time, reduced sea ice extent is likely to increase marine access to some of the region's resources."
- In the United States, low-lying coastal states like Florida and Louisiana are particularly susceptible to rising sea levels. "Severe coastal erosion will be a growing problem as rising sea level and a reduction in sea ice allow higher waves and storm surges to reach the shore."
- Should the Arctic Ocean become ice-free in summer, it is likely that polar bears and some seal species would be driven toward extinction.
- Arctic climate changes present serious challenges to the health and food security of some indigenous peoples.
- Thawing ground will disrupt transportation, buildings, and other infrastructure.
- Arctic vegetation zones are very likely to shift with wide-ranging effects.

The assessment group's work was in part funded by the U.S. National Science Foundation and the U.S. National Oceanic and Atmospheric Administration and was reviewed by another 225 additional researchers not directly affiliated with the ACIA to ensure scientific quality and accuracy.

The arctic region covers one-sixth of the Earth's landmass, has a population of four million, and includes substantial natural resources, according to the council.

69. Catholic Pope Urges Better Environmental Protection

On November 8th, the Holy See released a statement condemning abuse of the natural environment and calling for countries, corporations, and individuals to preserve biological diversity and prevent environmental contamination. The statement was based on comments last week from Pope John Paul II, who has in the past used his position as the leader of the world's nearly 600 million Roman Catholics to advocate pro-environmental policies. The statement made reference to what it called the "double

temptation" of the modern era: the equation of wisdom with power over nature, and the use of resources purely as part of the pursuit of profit. These temptations, the statement said, led to the practice of disrespecting the "natural environment God created." The statement specifically criticized laws that allow for the abuse of the environment as a way to encourage economic growth. Speaking in a televised interview, Italian Environment Minister Altero Matteoli, who has himself faced criticism from environmental groups for favoring economic growth over environmental protection, applauded the Vatican's statement, saying it "signaled the importance that environmental protection has ... for humankind."

70. Ground-Level Ozone Linked To Increased Mortality

Changes in ground-level ozone were significantly associated with an increase in deaths in many U.S. cities, according to a nationwide study conducted by researchers at the Johns Hopkins Bloomberg School of Public Health and the Yale University School of Forestry and Environmental Studies. The risk of death was similar for adults of all ages and slightly higher for people with respiratory or cardiovascular problems. The increase in deaths occurred at ozone levels below the Environmental Protection Agency (EPA) clean air standards. The study appears in the November 17, 2004, edition of the *Journal of the American Medical Association (JAMA)*.¹

The ozone study was part of the ongoing National Morbidity Mortality and Air Pollution Study (NMMAPS) at the Bloomberg School of Public Health, which routinely assesses health effects of air pollution on a national scale. To determine the association between ozone and mortality, the researchers looked at the total number of non-injury-related deaths and cardiovascular and respiratory mortality in the 95 largest U.S. communities from 1987 to 2000. Air pollution data were supplied by the EPA. Mortality data were supplied by the National Center of Health Statistics. The researchers accounted for variables such as weather, particulate matter pollution and seasonality, which could impact mortality rates.

The researchers found that an increase of 10 parts per billion (ppb) in weekly ozone levels was associated with a 0.52 percent daily increase in deaths the following week. The rate of daily cardiovascular and respiratory deaths increased 0.64 percent with each 10 ppb increase of weekly ozone.

The average daily ozone level for the cities surveyed was 26 ppb. The EPA's maximum for ground-level ozone over an 8-hour period is 80 ppb. The researchers calculated that a 10 ppb reduction in daily ozone, which is roughly 35 percent of the average daily ozone level, could save nearly 4,000 lives throughout the 95 urban communities included in the study.

Funding was provided by grants from the U.S. Environmental Protection Agency, the National Institutes for Environmental Health Sciences and NIEHS Center for Urban Environmental Health and the Health Effects Institute.

¹ "Ozone and Short-Term Mortality in 95 U.S. Urban Communities, 1987-2000" was written by Michelle L. Bell, PhD; Aidan McDermott, PhD; Scott L. Zeger, PhD; Jonathan M. Samet, MD; and Francesca Dominici, PhD.

71. European Study Finds More Deaths When Ozone Levels Are Higher

Winter brings a break from ozone-related deaths, according to a new European study. The new study collected the environmental daily ozone concentration and tracked the daily number of deaths in 22 European cities and Tel Aviv, Israel, for at least three years since 1990.

The study used the maximum daily one- and eight-hour ozone concentration to represent daily ozone concentrations. Data showed an increase in deaths during warm months, when ozone levels were higher. However, daily ozone concentrations didn't affect mortality during winter in any of the cities.

After gathering all the data on the cities studied, they show that during the warm season an increase in the one-hour ozone concentration of 10 units was associated with a 0.33% increase in daily death rates. That increase in ozone concentration was associated with significant increases of 0.45% in daily cardiovascular deaths and a 1.13% in daily respiratory deaths.

Klea Katsouyanni, MSc, DMedSc, of the University of Athens Medical School, and colleagues report the findings in the Nov. 15 issue of the American Journal of Respiratory and Critical Care Medicine.

Ozone's impact on mortality was strongest in the study's southern cities, which have larger concentrations of ozone, write the researchers.

Daily ozone concentrations had a greater effect on deaths from respiratory problems than on deaths from heart disease.

72. Pediatricians Say Tighter Standards Needed To Protect Children

The American Academy of Pediatrics' Committee on Environmental Health has published an important new policy statement on "Ambient Air Pollution: Health Hazards to Children" which finds that there are adverse health effects at levels near or below the current standards for ozone, particulate matter, and nitrogen dioxide, and concludes that the 1997 NAAQS may not adequately protect children.

Specifically, the Policy Statement finds that the current annual and 24-hour NAAQS for PM2.5 and PM10 should be lowered to protect public health, based on recent scientific studies.

In addition, the policy statement cites several studies demonstrating that ozone may be toxic at concentrations lower than the current 8-hour NAAQS, and suggests that the ozone standards may need to be revised if these studies are confirmed.

The Statement makes further specific recommendations on need to set air quality standards with a margin of safety to protect against the potential effects of air pollution on the fetus, infant, and child. Additional recommendations address the need for specific control strategies to reduce children's exposure to criteria air pollutants and toxic air pollutants, specifically mercury and diesel.

In an accompanying article, Dr. Michael W. Shannon, the chair of the AAP Committee on Environmental Health states: "The revised standards [1997 NAAQS for ozone and PM] will protect children better than the previous standards but they still won't be adequate."

73. US Study Links Lead Exposure To Cataracts

Lifetime exposure to lead from paint in older houses, drinking water pipes and other sources appears to increase men's risk of cataract development, researchers have reported. "This research suggests that reduction of lead exposure throughout a man's lifetime should help reduce his chances of developing cataracts and of requiring cataract surgery," said Debra Schaumberg of Brigham and Women's Hospital in Boston, lead author of the study.

"By preventing or delaying the onset of this condition, many instances of blindness worldwide could be prevented," she added.

Her study, published in the Journal of the American Medical Association, looked at data from 795 US men age 60 and older for whom bone lead levels were measured between 1991 and 1999. The report did not speculate about whether the findings would also apply to women.

In the United States about 20 percent of those in their 60s develop cataracts. The problem accounts for more than 40 percent of all cases of blindness worldwide, the report said. Schaumberg and colleagues found that those with the highest levels of lead exposure had more than two-and-a-half times the risk of developing cataracts compared to those with the lowest levels.

"Lead exposure continues to pose a significant public health problem," she said. "While lead exposure has been reduced over the past several decades, for example through the elimination of leaded gasoline, it has not been eliminated, and older Americans still have a significant amount of lead accumulated in their bodies," she added.

"Because prevention of age-related cataracts is an important worldwide public health goal, this study adds to the evidence that continued reduction of lead exposure should be a priority, she said.

In the United States where more than 80 percent of homes built before 1980 are believed contaminated by lead-based paint, leaded water pipes or both. Accumulated lead in the body has previously been linked to high blood pressure and mental decline.

Lead stored on bones migrates from the skeleton and circulates in blood plasma at low levels, the study said. While the way it may impact cataract formation is not clear, some previous research has suggested it could affect protein formation in the eye lens, the report added.

74. Carbon To Blame For Pollution Heart Damage

Air pollution clearly causes immediate damage to the heart, including heart attacks, but its short-term effects on asthma and other respiratory symptoms are harder to document, US researchers said in a new report. The report from the Electric Power Research Institute also contradicts many other studies that have implicated airborne compounds known as sulfates for damaging health. Instead, the researchers said, carbon or metal-based compounds may be more dangerous, at least on a day-to-day basis.

"The pollutants of most concern are carbon monoxide and carbon-containing particles in the atmosphere," Ron Wyzga, an EPRI executive, told a news conference.

The EPRI is an independent, non-profit center set up to study health effects associated with the power industry. Some environmental groups say it is biased because it receives industry funding.

The EPRI has been studying the health effects of air pollution over Atlanta, as a typical Eastern US city, since 1998. The study is epidemiological, meaning it looks at the population as a whole and not at individual effects and so far it has only looked at short-term effects.

Details have been given to the US Environmental Protection Agency, the group said.

The more pollution, the higher the rate of heart-related deaths, emergency room admissions, visits to doctors and "events" forcing activation of defibrillators implanted in the chests of heart patients, the study found.

"When you go from a relatively low-pollution "clean" day ... to an average day, you see an increase in heart deaths of about 7 percent," Wyzga said.

In one study backed by EPRI, Kristi Metzger of Emory University in Atlanta and colleagues collected information on 4.4 million emergency room visits at 31 hospitals from 1993 to 2000.

They found cardiovascular disease incidents in general went up in winter and were associated specifically with higher levels of ozone, nitrogen dioxide and carbon monoxide and of tiny particulates.

The study, published in the journal *Epidemiology*, did not break down the visits by specific type of heart emergency.

Particulates -- bits of airborne metal, silica, soot, and other compounds, have longed been linked with health problems. In particular the sulfur-based compounds emitted by fossil fuel-burning power plants have been targeted.

"In Atlanta we did not see any consistent results with sulfates," Wyzga said.

This immediately attracted criticism from environmental groups.

"Numerous studies point specifically to sulfate and sulfur oxides pollution from coal combustion as strongly linked to health impacts and premature deaths," said Dr. Jana Milford of Environmental Defense.

75. Technology, Carbon Capture Offer Climate Change Solutions, Says IEA

Governments should increase funding for technological solutions to climate change, stepping up research on clean energy sources like hydrogen and fuel cell technology and on methods of reducing greenhouse gas emissions and sequestering carbon dioxide, according to two reports released on December 14 by the International Energy Agency. The deployment of cost-effective technological solutions in the energy sector could drastically reduce dependence on the fossil fuels blamed for global warming, but will only occur if governments and the private sector cooperate in needed research and development, the IEA said.

Similarly, development of CO₂ capture and storage may offer an important means of reducing greenhouse gas emissions, but will also require public-private partnerships, sound regulatory approaches, and a major increase in current funding, according to the reports, released to coincide with the Tenth Session of the Conference of the Parties (COP-10) to the U.N. Framework Convention on Climate Change.

In *Hydrogen and Fuel Cells--Review of National R&D Programmes*, the Paris-based IEA describes the new technologies as a "vital" element of efforts to "ensure a secure and CO₂-free energy future." The report analyzes ongoing research, development, and deployment of hydrogen and fuel cell technologies across the 26-member IEA, detailing the different policy approaches now in place and calling for increased funding from public and private sources alike.

The IEA points out that emission-free hydrogen power could be produced from existing coal, nuclear, and renewable sources of energy if countries develop carbon sequestration programs. In *Prospects for CO₂ Capture and Storage*, the IEA suggests that capturing and storing carbon dioxide could "drastically" reduce climate change pressures over the next 30-50 years, suggesting that the technology could become an "essential" element of the transition to a sustainable energy future.

It warns, however, that the opportunities offered by CO₂ capture and storage, particularly in the power generation sector, could be squandered if countries fail to support the needed research and development programs, or to share the new technology with developing nations.